

The greening of the revolution

Changing state views on nature and development in Cuba's transforming socialism

In the early 1990s, in the midst of the deepest economic crisis in its recent history, President Fidel Castro proclaimed sustainable development as the new guiding principle for Cuba. This would prove to be a wise move in the context of crisis management.

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GAIA 29/4 (2020): 243–248

Abstract

This article explores the shift in Cuba's state visions of nature and development, which occurred in the wake of the deep crisis unfolding after the breakdown of the Eastern Bloc, on which Cuba heavily depended. This vital threat to the country's socialist system necessitated far-reaching economic and social policy adjustments, resulting in painful consequences for its citizens. The measures taken in the so-called Special Period demanded a new development vision for their legitimisation. The Castro government developed a reformed socialist development model, shifting away from the ideal of Soviet model catch-up modernisation and its instrumental view on nature, towards the paradigm of sustainable development. Based on the analysis of 55 speeches made by Fidel Castro between 1959 and 1996, this radical change in views on nature and development is analysed. This paradigm shift served several political purposes and helped the Cuban leadership navigate through the crisis of the 1990s.


Keywords

concept of nature, Cuba, modernisation, sustainable development

In the mid-2000s, Cuba was declared the most sustainable country in the world (WWF 2006), due to its high level of human welfare and comparatively low resource consumption. This finding was predicated on a radical change in Cuba's understanding of development and nature in the 1990s. Fidel Castro, then President of the country, rejected the previous paradigm of catch-up modernisation and declared sustainable development the new guiding principle (Bell 2011). For a while, Cuba appeared to spearhead the global sustainability and transition movement and was a model for a society that turned its back on the ideology of growth and over-consumption (Cabello et al. 2012). Today, however, the euphoria of the first years is weighed down by disillusionment, as it has become clear that the supposed transition in Cuba only took place because the consequences of a deep geopolitical and economic crisis made further growth temporarily impossible anyway. In this article, the changing concept of nature is examined on the basis of Fidel Castro's speeches, and it is analysed with regard to its embedding in political strategies in times of existential crisis. Representations of nature act as part of the general representations of the world on the material environment through human actions and their intended and unintended consequences (Schmidt et al. 2020, in this issue). The focus in this article is on what concepts of nature prevailed amongst the Cuban leadership after victory in the revolution, how these concepts changed in relation to the crises and transformations of the 1990s, how this change is linked to alternative visions of socio-economic development and which strategic intentions and political functions this paradigm shift served.

Methods and data

This article is based on the analysis of 55 selected speeches made by Fidel Castro between 1959 and 1996, in which he expressed his views on nature and environmental issues. The texts were taken from online databases provided by the Latin American Network Information Center¹ and the Government of Cuba², covering the full archive of public speeches made by Castro. This period was

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<https://doi.org/10.14512/gaia.29.4.9>
Submitted April 1, 2020; revised version accepted October 21, 2020 (double-blind peer review).

¹ Castro Speech Data Base: <http://lanic.utexas.edu/la/cb/cuba/castro.html>

² Discursos e intervenciones del Comandante en Jefe Fidel Castro Ruz: www.cuba.cu/gobierno/discursos/index.html

chosen based on the coming into power of Castro's government in 1959, which until 1990 followed the paradigm of socialist modernisation, while the period from 1990 to 1996 reflects the paradigm shift towards sustainable development. The analysis focuses on Castro particularly because he was the leading figure in Cuba from 1959 to 2006 and had a decisive influence on public debate, state ideology and practical politics (Gold 2014, p. 412). Following a critical discourse analysis approach (Jäger 2015), his statements reflect and contribute to the political discourse. They are interpreted on the one hand as an *expression* of the prevailing Cuban macro-social discourse, while on the other hand they also have a *transformative effect* on these discourses, given Castro's privileged-speaker position. The corpus was built by identifying documents in the abovementioned databases by keyword search, further narrowed down by reading for relevance. The documents were analysed using qualitative data analysis software and coding procedures.

The image of nature in socialist Cuba until 1990

Soon after winning victory in the revolution in 1959, the new leadership turned Cuba into a socialist-communist state and realigned the economy based on the Soviet model (Zeuske 2016). The Castro government focused on promoting socio-economic development by means of catch-up modernisation under socialist ideals. In the social sector, the establishment and expansion of a free and egalitarian education and health system was successfully advanced (Hirschfeld 2009). In the economic field, the Castro government relied on intensive agro-industrialisation (Torres 2016), and at the end of the 1960s, agriculture was the most important sector of the Cuban economy, with sugar accounting for over 90 percent of the island's exports (Suárez et al. 2012, p. 2726). Sugar has played a central role in Cuba's economy since the 18th century and has had a deep impact on its history, society and identity, similar to – but much more so than – wheat for the USA (Twelbeck 2020, in this volume).

In Castro's testimonies of the 1960s to 1980s, nature appears unpredictable and heavily influenced by the vicissitudes of a tropical climate. It is characterised by uncertain and highly variable precipitation, entailing prolonged periods of drought alongside torrential rain and flooding. Danger is an omnipresent attribute of nature. In particular, the natural force of the seasonal hurricanes and their great destructive potential are recurring themes. But nature is also considered a source of agricultural wealth, providing the best conditions for tobacco and sugar cane cultivation. These aspects of danger and wealth collectively create the image of a capricious nature that distributes curses and blessings when and where it desires; it thus appears as an unpredictable force of which man is at the mercy.

Castro uses this image as a counterfoil to his vision of a new human-environment relationship rooted in socialist modernisation. In Marxist-Leninist ideology, an instrumental view of nature prevails (Díaz-Briquets and Pérez-López 2000), in that it is perceived primarily as a resource that can be put to the service of hu-

man development. It should be mastered in the best possible way and used for economic production, it should become controllable and plannable and its unpredictability should be tamed and transformed into reliability. Wherever nature poses a threat and a danger, it is declared the enemy and must be fought. The often martial vocabulary that Castro uses in his 'fight' against nature is striking (Wolfe 2020).

The human-environment relation is perceived as antagonistic and fought against in a battle in which only one side can win: "Unless we master nature, nature will master us" (Castro 1970). The aim pursued is the complete domination and subjugation of nature to the human will, the "overcoming of obstacles set by nature" (Castro 1990a). Furthermore, Castro (cited in Wolfe 2020, p. 471) said in a speech just a few days after Hurricane *Flora* had caused tremendous devastations in eastern Cuba in 1963 that "A revolution is a force more powerful than nature, the cyclone and the hurricanes [...]. A revolution has a force far superior to natural phenomena and cataclysms". A reversal of dependencies was envisioned: no longer should humankind have to bow to the laws of nature; rather, nature should be subjected to the laws and will of the 'new man' (Wolfe 2020). After a severe draught period in 1961/62, which devastated the sugar harvest by almost half, Castro coined the term "hydraulic will" (Castro 1964), aiming at overcoming the threats of unreliable precipitation, episodic droughts and recurring floods. Through dams, reservoirs and irrigation canals, nature should be subjected to the "hydraulic will" and made available, plannable and predictable (Castro 1970). An extensive programme of agricultural irrigation development was therefore launched in the ensuing decades, effecting an increase in the share of irrigated agricultural land from four percent in 1959 to 70 percent by the end of the 1980s (Díaz-Briquets and Pérez-López 2000, pp. 11 ff.). These measures aimed – to the greatest possible extent – to employ nature in the service of development:

[We have to] build hydraulic works until the day when not a drop escapes into the sea; the sea will not be able to count on fresh water falling here on the land of the country [...] we have to reach the day when we do not lose a drop. Castro 1963

From the 1960s onwards, industrial agriculture was established in Cuba, based on the Soviet agricultural development model, that is, large-scale, capital-intensive monoculture land management and modern agricultural technology, including the massive use of chemical fertilisers and pesticides, high-yielding crop varieties, mechanisation and heavy agricultural machinery (Stricker 2010). The central objectives were the intensification of cultivation, the expansion of agricultural land and an increase in overall production: "We have to increase productivity per square meter of land with water, fertiliser, with new varieties of seeds" (Castro 1977). In this phase, the political leadership of Cuba pursued the goal of completely valorising nature for social development; every square metre of land, every drop of water, should be used solely for production: "This is what we should do with all this land – not leave a single inch of our land without making it produce some-

thing” (Castro 1965). Modern science played a central role in this venture by providing the necessary knowledge to use, transform and control nature according to human ideas. From the 1960s onward, Cuba has strongly promoted research and teaching in natural and applied sciences such as agronomy, engineering and biotechnology.

The quite serious environmental consequences of this policy (Maal-Bared 2006) were ignored until the early 1980s and were concealed and suppressed in public debates. Officially, there were no environmental problems in Cuba: “If the industrial countries today have the problem of air and water pollution, our countries have no problem of pollution” (Castro 1971).

Changes in the image of nature during the crisis of the 1990s

The Cuban modernisation model was highly dependent on external subsidies provided by the Soviet Union and other Council for Mutual Economic Assistance (CMEA) states. Cuban sugar was purchased by the CMEA at preferential prices, and in return, Cuba benefited from highly subsidised supplies of fuel, food, machinery and agrochemicals. At the end of the 1980s, Cuba conducted 85 percent of its foreign trade with CMEA states (Zeuske 2016, p. 206).

When the Soviet Union disintegrated in 1991 and the CMEA dissolved, Cuba was suddenly cut off from vital imports and foreign exchange revenues, plunging the country into an existential economic crisis. Foreign trade slumped by 80 percent, and gross domestic product fell by 35 percent in just four years (Suárez et al. 2012, p. 2727). A severe supply crisis developed with shortages of food, medicines, fuel, fertilisers and spare parts, and economic production almost came to a standstill (Zeuske 2016). It was clear to the Cuban leadership that the previous development model was no longer viable and a fundamental reorientation was unavoidable.

In 1992, in the midst of Cuba’s deepest crisis, in his speech at the *UN Conference on Environment and Development* in Rio de Janeiro, Castro revised his former belief in modernisation, industrialisation, economic growth and catch-up development. He proclaimed that the continuation of this path would not lead to salvation but to the ruin and destruction of humankind:

An important biological species is in danger of disappearing due to the fast and progressive destruction of its natural living conditions: mankind. We have now become aware of this problem when it is almost too late to stop it. [...] Never in the history of mankind has such a generalized and destructive aggression taken place against all of the world’s vital systems.

Castro 1992 a

The previously held imperative to “fight for the control of nature” (Castro 1966) was now declared a “destructive aggression” (Castro 1992 b) against the natural foundations of life on earth. Instead, Castro called for a new “fight”, namely “against environmental de-

struction” (Castro 1994), which meant a fundamental realignment of the official development model (Houck 2003). The economic approach of modern industrial states, catch-up development and the ideology of growth were condemned as irrational, and they no longer served as points of orientation: “We do not need any more transferring to the Third World of lifestyles and consumption habits that ruin the environment. Let human life become more rational” (Castro 1992 b).

Castro rejected the general model of industrial societies in the so-called developed world, their lifestyle and consumerism, explicitly including former Eastern Bloc countries (Castro 1992 b, Gold 2014, p. 414). Furthermore, he distanced himself from his former mentor and model, USSR, and the Soviet development ideology, which Cuba had followed for over 30 years, describing it as being involuntarily imposed on Cuba from the outside (Gold 2014, p. 412). This enabled Castro for the first time to specify environmental problems in his own country, since the responsibility could be blamed on ‘external’ forces.

Castro proclaimed “sustainable development” as the new model for Cuba and thus adopted an idea which was first formulated in 1987 in the so-called *Brundtland report* (UN 1987) and for whose further development the Rio conference was a milestone. In many of the 178 participating countries, approaches to sustainable development were laid down in national strategy papers in the 1990s (Mansfield 2009). In Cuba, sustainable development was integrated into Article 27 of the Constitution, and environmental protection and sustainable use of resources were given the highest priority (Evenson 1998, p. 500). Moreover, at this time, the Cuban leadership established numerous environmental policy institutions and passed elaborate environmental legislation (Whittle and Rey Santos 2006). For instance, agroecology and urban farming were promulgated in order to reduce food import dependency (Botella-Rodríguez 2019), and a set of economic austerity measures, later re-labelled as part of the new sustainable development strategy, were taken as early as 1990, when Castro announced the “Special Period in Time of Peace,” that is, a state of emergency (Díaz-Briquets and Pérez-López 1995).

Political benefits of the Cuban sustainability turnaround

At first sight, it seems surprising that the turn towards sustainable development took place in the midst of such a deep crisis, because in times of economic emergencies, environmental concerns usually take a back seat (Houck 2003); however, in the case of Cuba, the opposite seems to have happened. A closer look at this issue reveals that the proclaimed sustainability turnaround was not at odds with the challenges of the crisis; on the contrary, it perfectly fit with Cuban crisis management policy and fulfilled important political functions, even though it did not happen voluntarily. Rather, a “forced ‘greening’ of the Revolution” (Gold 2014, p. 411) took place in the face of an existence-threatening supply crisis.



Demonstrating the capacity to act

The paradigm of sustainable development enabled the Cuban leadership to reinterpret the inevitable consequences of the crisis in a positive light. In the agricultural sector, the enforced lack of fertilisers and pesticides was reinterpreted as deliberate renunciation in favour of organic farming. Similarly, the crisis-related lack of important medicines was reinterpreted as a voluntary turn towards naturopathy. As the unavoidable shortages caused by the crisis were reinterpreted as deliberate abstinence, in this way, the overcoming of a passive victim role – and emphasis on the leadership’s ability to act – was achieved.

Legitimising unpopular crisis measures

The orientation towards sustainable development allowed the Cuban leadership to offer its people comprehensible explanations for unpopular measures. Thus, many unpleasant crisis measures, which meant cuts and restrictions for the population, could be sold as actions of avant-garde idealism, as a voluntary renunciation out of moral superiority. In this way, understandable explanations were provided, unrest prevented and the socialist system stabilised.

Relief from one’s own responsibility

By distancing itself from the Soviet development model, and by portraying it as involuntarily imposed, the Cuban leadership was able to blame the environmental damage that had occurred in Cuba since 1959 on others (Gould 2014, p. 411). Castro even claimed that the leadership had been committed to environmental protection ever since the revolution: “The concern over protection and conservation of natural resources [...] was born in Cuba since the 1959 revolution’s triumph” (Castro 1992b). In retrospect, Castro thus dates the ‘greening of the revolution’ back to 1959 and in fact ignores 30 years of socialist modernisation, which resulted in serious environmental degradation (Díaz-Briquets and Pérez-López 2000).

Self-staging as the new avant-garde, and the provision of a new platform for capitalism critique

By adopting sustainable development, Cuba presented itself as a pioneer of a new sustainability thinking that was far ahead of other countries still rooted in modern growth thinking. Instead of fitting into the role of just another failed socialist state in the

FIGURE 1: A poster next to the causeway connecting Cayo Coco (part of the *Jardines del Rey* archipelago) with the mainland, promoting construction: “Here you have to throw stones without looking ahead” (Castro 1983). The causeway was inaugurated by Castro in May 1989. Such dam roads (more can be found in the area) are highly controversial: ecologically, they negatively affect circulation in shallow water areas, thereby threatening the entire coastal ecosystem. They also paved the way for tourism development and, for the first time, allowed tourists to access the offshore islands in large numbers.



wake of the collapse of the Eastern Bloc, the Cuban leadership presented the country as being at the forefront of a new avant-garde movement. This was associated with a position of moral superiority, from which criticism was formulated of Western capitalist states and consumer societies that clung to the ideology of growth, continued to ignore aspects of ecology and sustainability and were thus largely responsible for global environmental destruction (Gold 2014, p. 412). Castro presented Cuba as a counter-model and pioneer in sustainability and environmental protection, from whose example the world could learn (Castro 1992 b).

Ambivalence and contradictions in Cuba's sustainability policy after 1990

A closer look at the actual Cuban crisis policy reveals numerous contradictions. Due to the crisis-induced urgent need for foreign currency, a readiness for far-reaching compromises developed in those areas central to the country's foreign exchange revenues, particularly tourism and mining, which soon turned into the greatest threats to the environment (Maal-Bared 2006).

International tourism in Cuba grew from about 300,000 arrivals in 1989 to 4.7 million in 2019 (Völkening and Benz 2020), and it became the most important source of foreign currency income on the island (Morris 2014), before the SARS-CoV-2 pandemic in 2020 led to a slump in visitors (Hoffmann 2020). Here, the 'old' logic of modernisation and growth at the expense of nature continued (Díaz- Briquets and Pérez-López 2000):

Our country has enormous tourism resources. Enormous! It not only has Varadero [one of the largest beach resorts in the Caribbean], which one day will generate 500 million dollars. [...] The country has many Varaderos, uncountable beaches similar to Varadero. [...] Totally virgin areas where there is nothing built, where everything can be programmed, can be planned, where master plans based on the newest concepts in tourism can be developed.

Castro 1992 a

Castro's words were soon followed by deeds. Many coastal areas, with highly sensitive ecosystems home to about 250 endemic species and attributed with great ecological importance (Maal-Bared 2006), were turned into international tourism zones (Ruiz Gutiérrez 2015 b). In addition, environmental laws were often suspended for tourism projects (Ruiz Gutiérrez 2015 a).

From the 1990s onwards, the islands of the *Jardines del Rey* group, located off the northeastern coast, were massively opened up to tourism infrastructure (hotel complexes, roads, an international airport and marinas) (figure 1) as part of international joint ventures despite the whole archipelago falling under the protection of the National Protected Area System (Whittle and Rey Santos 2006). Touristic expansion in these coastal regionals caused numerous environmental problems, such as erosion and abrasion, soil degradation, groundwater contamination, marine pollution, growing waste problems, filling of lagoons, changed coastal dy-

namics, cutting and degradation of mangroves, degradation of coastal wetlands and habitat loss (Ruiz Gutiérrez 2015 a, 2015 b).

Conclusion

A marked discrepancy exists in Cuba between the ideal of sustainable development and actual political practice. Castro himself was fully aware of this but justified it with the necessity of "ideological flexibility" in times of crisis (Castro 1994). The proclaimed sustainability turn served primarily to legitimise unpopular and unavoidable measures in the context of crisis and to stabilise the socialist system, while the continuity of the growth paradigm in foreign exchange sectors was considered indispensable in overcoming the existential supply crisis.

Over the last few years, Cuba has seen a continued policy of strong tourism expansion and the establishment of countless new tourist resorts in ecologically sensitive coastal areas (Ruiz Gutiérrez 2015 b). With the transfer of power to Fidel Castro's brother Raúl in 2006, the understanding of sustainability was narrowed down to the aspect of economic efficiency aiming at import substitution and saving energy (Gold 2014, p. 414). Numerous economic reforms were passed, creating pockets in the market economy within what was still officially referred to as 'socialist' system. As a result, social inequalities increased sharply (Romanò and Barrera 2019). The proclaimed ecological transition has made little progress: despite the development of ecological agriculture, the share of organic agricultural land was only 0.1 percent in 2017 (FiBL and IFOAM 2015, p. 327), 96 percent of the country's electricity supply is still based on fossil sources (Panfil et al. 2017, p. 39) and 73 percent of wastewater reaches the sea untreated and contributes significantly to the contamination of coastal waters (ONEI 2018, p. 19). Environmental laws often cannot be enforced, due to chronic staff shortages and underfunding (Bell 2011, p. 255), and Cuba's import dependency remains high (Botella-Rodríguez 2019), thus meaning that the need and pressure for foreign currency generation through international tourism and mineral have continued in unabated and unsustainable ways.

On a more general level, the Cuban case underlines that the political rhetoric of sustainable development is not necessarily followed by consistent respective practice in all sectors of the economy. In fact, it may rather serve as rhetorical 'greening' for a range of different goals and functions, as discussed above. Not everything presented as 'green' is truly green, so every self-declared sustainability policy must be carefully checked, in order to establish its real content.

The Cuban case also shows that economic necessities often hold greater weight than issues of sustainability and environmental protection, and therefore they can counteract efforts to transform sustainability. The hopes sometimes expressed in current transition debates, namely that a comprehensive crisis (e. g., the SARS-CoV-II pandemic, a global financial or resource crisis or the effects of climate change) could almost automatically switch the course towards degrowth and sustainability, are dashed by what



transpired in Cuba (Borowy 2013, pp. 17 f., Buch-Hansen 2018, Kallis et al. 2018). On the contrary, in the context of the ongoing crisis in Cuba, short-term needs and interests have prevailed whilst sustainability aspects have taken a back seat.

References

- Bell, K. 2011. Environmental justice in Cuba. *Critical Social Policy* 31/2: 241–265.
- Borowy, I. 2013. Degrowth and public health in Cuba: Lessons from the past? *Journal of Cleaner Production* 38: 17–26.
- Botella-Rodríguez, E. 2019. Food import dependency in Cuba: Still the “Achilles” heel of the revolution? *Bulletin of Latin American Research* 38/2: 192–207.
- Buch-Hansen, H. 2018. The prerequisites for a degrowth paradigm shift: Insights from critical political economy. *Ecological Economics* 146: 157–163.
- Cabello, J. J., D. García, A. Sagastume, R. Priego, L. Hens, C. Vandecasteele. 2012. An approach to sustainable development: The case of Cuba. *Environment, Development and Sustainability* 14/4: 573–591.
- Castro, F. 1963. *Discurso en la clausura del Encuentro Técnico Nacional*. La Habana, 20.07.1963. www.cuba.cu/gobierno/discursos/1963/esp/f200763e.html (accessed March 2, 2020).
- Castro, F. 1964. *Discurso en la celebración del II aniversario del Instituto Nacional de Recursos Hidráulicos*. La Habana, 09.08.1964. www.cuba.cu/gobierno/discursos/1964/esp/f090864e.html (accessed March 2, 2020).
- Castro, F. 1965. *Speech at a ceremony to commemorate the 8th anniversary of the battle of Uvero*. Uvero, 28.05.1965. <http://lanic.utexas.edu/project/castro/db/1965/19650528.html> (accessed March 2, 2020).
- Castro, F. 1966. *Discurso en el acto por el V aniversario de la victoria de Playa Girón*. La Habana, 19.04.1966. www.cuba.cu/gobierno/discursos/1966/esp/f190466e.html (accessed March 2, 2020).
- Castro, F. 1970. *Castro inaugurates town Doce y Medio*. Doce y Medio, 31.05.1970. <http://lanic.utexas.edu/project/castro/db/1970/19700531.html> (accessed March 2, 2020).
- Castro, F. 1971. *Discurso en la sede de CEPAL*. Santiago de Chile, 29.11.1971. www.cuba.cu/gobierno/discursos/1971/esp/d291171e.html (accessed March 2, 2020).
- Castro, F. 1977. *Inauguration of the yeast plant sugar mill*. Cienfuegos, 29.07.1977. <http://lanic.utexas.edu/project/castro/db/1977/19770729.html> (accessed March 2, 2020).
- Castro, F. 1990a. *Discurso en la sesión extraordinaria de la ANPP*. La Habana, 20.02.1990. www.cuba.cu/gobierno/discursos/1990/esp/f200290e.html (accessed March 2, 2020).
- Castro, F. 1990b. *Discurso en la inauguración de los hoteles Paradiso y Sol Palmeras*. Varadero, 10.05.1990. www.cuba.cu/gobierno/discursos/1990/esp/f100590e.html (accessed March 2, 2020).
- Castro, F. 1992a. *Speech at UNCED*. Rio de Janeiro, 12.06.1992. <http://lanic.utexas.edu/project/castro/db/1992/19920612.html> (accessed March 2, 2020).
- Castro, F. 1992b. *Exclusive text of message issued by Castro to the UNCED*, 14.06.1992. <http://lanic.utexas.edu/project/castro/db/1992/19920614.html> (accessed March 2, 2020).
- Castro, F. 1994. News conference with participants in the 15th International Tourism Convention. Varadero, 20.05.1994. <http://lanic.utexas.edu/project/castro/db/1994/19940526.html> (accessed March 2, 2020).
- Díaz-Briquets, S., J. Pérez-López. 1995. The Special Period and the environment. In: *Cuba in transition*. Papers and proceedings of the fifth annual meeting of the Association for the Study of the Cuban Economy (ASCE). Miami, 10.–12.08.1995. Miami: University of Miami. 281–292. www.ascecuba.org/publications/annual-proceedings/cuba-in-transition-volume-05 (accessed November 16, 2020).
- Díaz-Briquets, S., J. Pérez-López. 2000. *Conquering nature: The environmental legacy of socialism in Cuba*. Pittsburgh: University of Pittsburgh Press.
- Evenson, F. 1998. The deeper shade of green: The evolution of Cuban environmental law and policy. *Golden Gate University Law Review* 28/3: 489–526.
- FiBL (Research Institute of Organic Agriculture), IFOAM (Organics International). 2019. *The world of organic agriculture: Statistics and emerging trends*. Frick, CH: FiBL, IFOAM.
- Gold, M. 2014. Peasant, patriot, environmentalist: Sustainable development discourse in Havana. *Bulletin of Latin American Research* 33/4: 405–418.
- Hirschfeld, K. 2009. *Health, politics, and revolution in Cuba since 1898*. New York: Routledge.
- Hoffmann, B. 2020. Fluch der Karibik. *ipg-journal*, 29.04.2020. www.ipg-journal.de/regionen/lateinamerika/artikel/detail/fluch-der-karibik-4307 (accessed September 9, 2020).
- Houck, O. 2003. Thinking about tomorrow: Cuba’s alternative model for sustainable development. *Tulane Environmental Law Journal* 16: 521–532.
- Jäger, S. 2015. *Kritische Diskursanalyse. Eine Einführung*. 7th, completely revised edition. Münster: Unrast.
- Kallis, G., V. Kostakis, S. Lange, B. Muraca, S. Paulson, M. Schmelzer. 2018. Research on degrowth. *Annual Review of Environment and Resources* 43: 291–316.
- Maal-Bared, R. 2006. Comparing environmental issues in Cuba before and after the Special Period: Balancing sustainable development and survival. *Environment International* 32/3: 349–358.
- Mansfield, B. 2009. Sustainability. In: *A companion to environmental geography*. Edited by N. Castree, D. Demeritt, D. Liverman, B. Rhoads. Chichester, UK: Wiley-Blackwell. 37–49.
- Morris, E. 2014. Unexpected Cuba. *New Left Review* 88: 5–45.
- ONEI (Oficina Nacional de Estadística e Información). 2018. *Panorama Ambiental Cuba 2017*. Edición Junio 2018. Havana: ONEI.
- Panfil, M., D. Whittle, K. Silverman-Roati. 2017. What’s next for Cuba’s electricity sector? *Electricity Journal* 30/8: 38–44.
- Romanò, S., D. Barrera. 2019. The impact of market-oriented reforms on inequality in transitional countries: New evidence from Cuba. *Socio-Economic Review*. DOI: 10.1093/ser/mwz016.
- Ruiz Gutiérrez, L. 2015a. The environmental effects of tourism architecture on island ecosystem in Cayo Guillermo, Cuba. *Journal of Environmental Protection* 6/9: 1057–1065.
- Ruiz Gutiérrez, L. 2015b. Impact assessment of tourism construction in Cuba. *Journal of Building Construction and Planning Research* 3: 10–17.
- Schmidt, M., J. Soentgen, H. Zapf. 2020. Environmental humanities: An emerging field of transdisciplinary research. *GAIA* 29/4: 225–229.
- Stricker, P. 2010. Bringing social justice back in: Cuba revitalises sustainable development. *Local Environment* 15/2: 185–197.
- Suárez, J. A., P. A. Beatón, R. F. Escalona, O. P. Montero. 2012. Energy, environment and development in Cuba. *Renewable and Sustainable Energy Reviews* 16/5: 2724–2731.
- Torres, R. 2016. Economic transformations in Cuba: A review. *Third World Quarterly* 37/9: 1683–1697.
- Twelbeck, K. 2020. Wheat: a powerful crop in US-American culture. Between politics and plant agency. *GAIA* 29/4: 235–242.
- UN (United Nations). 1987. *Our common future: Report of the World Commission on Environment and Development*. New York: UN.
- Völkening, N., A. Benz. 2020. Konkurrenzen in Kuba. Bergbau und Tourismus versus Umwelt- und Naturschutz. *Geographische Rundschau* 72/5: 22–27.
- Whittle, D., O. Rey Santos. 2006. Protecting Cuba’s environment: Efforts to design and implement effective environmental laws and policies in Cuba. *Cuban Studies* 37: 73–103.
- Wolfe, M. 2020. “A revolution is a force more powerful than nature”: Extreme weather and the Cuban revolution, 1959–64. *Environmental History* 25/3: 469–491.
- WWF (World Wide Fund for Nature). 2006. *Living planet report 2006*. Gland, CH: WWF.
- Zeuske, M. 2016. *Kleine Geschichte Kubas*. 4th, revised and updated edition. Munich: C. H. Beck.



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