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Insight

Development as multidimensional environmental impoverishment

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ABSTRACT

Poverty is multidimensional. Economic growth often implies environmental impoverishment and hence diminished options to choose valuable lives. People who are deprived of access to land, clean water and air because of extractive industries or as victims of waste disposal, often complain accordingly. They have lost freedom of choice regardless possible income increases, if they get them at all. We illustrate this with examples of ecological distribution conflicts collected in the EJAtlas. If you get some extra money but lose access to land, water and clean air because extractive industries grab your place and pollute your family, you are poorer in some dimensions than before, and poverty estimates need to take this into account.

1. A case among many

In 2025, the EJAtlas (2025) documented the case of a conflict in Zimbabwe's third-largest lithium mine. Revising the facts of this entry helps us illustrate the real-world implications of multidimensional impoverishment driven by development, a notion introduced by Rich (2013) that we will discuss in this paper. Our point is to reveal the inadequacies of the mainstream idea of development and how it has been operationalized in poverty measurements.

Lithium from the Sabi Star mine is transported to the port of Beira in Mozambique, from which it is exported to China. The Sabi Star mining complex includes a lithium flotation plant to process ore into lithium concentrate on site and a 15 MW thermal power plant to fuel the mine. The Sabi Star mine is owned by the Chinese company Max Mind Investments, in turn belonging to another company.

The Sabi Star mine is in Buhera District, one of the driest rural districts in the country. Mining benefits the area through tax revenues, increased household income for some, infrastructure development, and the construction of amenities such as clinics and schools. Yet the project has taken a serious toll on the local community. The mining company, backed by government bodies, allegedly manipulated and coerced residents of Mukwasi village to agree to unfair resettlement agreements, threatening them with the prospect of losing their land if they refused.

A report in The Daily Maverick of 7th May 2024 (by the news agency the NewsHawks) gives opinions of local people displaced, emphasizing coercion, lack of choice, incommensurable values at stake, and the corruption of the District Administrator (DA) and the traditional Chief: "*They* [the mining company] *took advantage of our ignorance. We signed the agreements because we were told that if we refused, the government would forcibly move us and dump us at a place of their choice. The DA told us we would be forcibly moved if we resist. We had no choice but to comply*," said Martha Tagarira in an interview at Murambinda Growth Point, where she now resides.

The community received no legal representation throughout the resettlement process and received less compensation than requested. Lahliwe Musikavanhu, who was also resettled at Murambinda, said: "*We were shown disrespect right from the beginning. We saw people moving and drilling holes in our fields in 2021. They did not introduce themselves to us, but who knows, maybe they had engaged the chief and village head, but no one told us what was going on. Sometime in 2022, they told affected people that they will be moved but adequate compensation will be paid to affected families. They promised to compensate for all the infrastructure one had at their homes, including boreholes, kraals, pens, fowl runs and even fruit trees. In the case of houses, they said whatever one had built, they would construct at least three extra rooms, but this did not happen.*" The DA and the Chief adduced government approval to determine the lack of options of the villagers. Ms Musikavanhu continues: "*I was one of the people who did not want to move. I tried to resist, but they said I would move 'whether I like it or not'. In any case, they said my house would develop cracks because of the blasting at the mine.*".

The mine displaced at least 40 families from their ancestral land, who were relocated to poor-quality housing significantly smaller than they were promised. They had to leave behind fertile grazing lands in exchange for dry lands unsuitable for holding cattle. Those whose

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livelihoods relied on farming had no choice but to look for jobs instead. The few families that remain in the mining area saw their quality of life is severely compromised due to noise, truck traffic, and dust. Mining waste has contaminated drinking water sources, and the mining company has taken over the Mukwasi dam, which villagers had relied on for irrigation and livestock drinking water. Moreover, graves were exhumed to accommodate the mine.

These and further details about this case can be found in the EJAtlas (2025) that shows that the people at the Mukwasi village had lost their life choices. People felt coerced even though more money was arriving in the area. Some of the promised compensation was in similar units (houses with four rooms instead of two rooms). Some other damages, such as the desecration of graves, had no equivalent compensation in the eyes of the inhabitants.

2. Multidimensional poverty

After the publication in 1999 of "Development as Freedom" by Amartya Sen (1985, 1987, 1999, 2014), the view of development as an increase in income per capita became outdated. The capabilities approach conceives development as multidimensional. Rather than raising income, the objective of development is to increase the choices one has in life. Such choices are curtailed by chronic undernutrition and bad health, by energy poverty and an inadequate home, by lack of school education that prevents the election of fulfilling professions. Hence, the introduction of several indicators of deprivation aside from income per capita to signal whether poverty is increasing or decreasing, as in the Multidimensional Poverty (MDP) Index (Alkire 2002, 2020; Alkile et al 2013, 2014, 2022). The UNDP launches an annual MDP Index report (UNDP, 2024).

Development is still often defined as "economic growth" measured by income per capita (explicitly in Sustainable Development Goal (SDG) 8). Calling development "sustainable development" presumes compatibility with environmental sustainability. Yet, even when development is defined multidimensionally through the various deprivations included in the MDP index, environmental impoverishments are ignored. Environmental impoverishment comes in the form of climate change, sea level rise, ocean acidification, production of toxic waste (plastics and others), excessive inputs of nitrogen and phosphorus, biodiversity loss, water stress and pollution, mine tailings dumps. Likewise, the MDP index does not count cultural deprivations such as losing languages and religious values.

3. How development destroys livelihoods and cultural values

Our growing social metabolism has reached about 12 tons of used materials (sand and gravel, fertilisers, metals, biomass, fossil fuels) and 5 tons of CO2 emissions per capita per year (Krausmann et al, 2018). Both averages hide very large variations between rich and poor. The fossil fuel economy caused many injustices, which are now compounded by the search for new materials required to achieve the net-zero economy (Stock and Sovacool, 2024, Temper et al., 2020).

Inhabitants of "sacrificed zones" suffering from extractivism and heavy pollution, such as the Mukwasi villagers, need to migrate, or grumble and complain to the authorities, or take to the street and demonstrate, march or even blockade roads. An "environmentalism of the poor" (and "the Indigenous") complaining against "multidimensional impoverishment" is apparent in the thousands of "ecological distribution conflicts" collected in the EJAtlas (ejatlas.org) and in the many studies on socio-environmental conflicts (Martinez-Alier 2002, 2023).

Assume a poor family with two or three dollars per adult member per day supplemented by the crops of their food garden (say, 100 kg per year). In ecological economics terms, the food garden is a small "fund" providing a flow of so-called free "ecosystem services". This family, with a few children, is likely to be below the poverty line considering the education and health dimensions of the MDP index. However, does their meagre "consumer basket" include the rainwater for the food garden? Does it include the tree shade for summer and the customary entitlement to collect wood from the village commons? Will the MDP index count the losses to the family by the "planetary injustices" of climate change with heat waves, storms, droughts? What will the family lose if displaced by a tree plantation, a dam, a new road, an open cast mine, or an oil well? The "portfolio" of this poor rural family implicitly includes a small CO2 emissions entitlement, a rainwater and sun energy entitlement that comes (outside markets) with the space allotment. Displacement means deprivation of such entitlements. The increase in poverty might or might not be compensated for by the indemnity paid for the expropriation and by the wages in a new mine, plantation or factory.

Integrating environmental indicators into poverty measurement is needed for public policies but also relevant for social activism (Ocheng 2024, Perez-Cirera et al 2017). The indices of multidimensional poverty were introduced because of dissatisfaction with GDP per capita, and the well-known poverty line used by the World Bank and the UN of one (or later two) dollars per capita/day. Instead of an "indirect method" of measuring poverty (how much money people have and which commodities can they buy), a "direct method" is used of looking at the state in which people live. Health, longevity, and attendance to school were introduced in the Human Development Index. Some "environmental" domestic aspects involve availability of drinkable water at home, sanitation facilities, and the type of cooking fuel.

The MDP index could also incorporate impacts from climate change, such as heat waves and droughts. The indices of poverty have been ideologically committed to the view that as the economy grew, the environment would improve, as hypothesized by the Environmental Kuznets Curve (Grossman and Kruger 1995). Instead, the richer the people, the larger their CO_2 emissions.

In fact, the EJAtlas compiles numerous investment projects that cause ecological, livelihood and cultural losses as they pursue economic growth. Let us look at the arguments and decision procedures that saved a highly biodiverse valley in the Nujiang River from a hydropower project in Yunnan, China (Martinez-Alier 2023: 225). The Nujiang (Nu River) is at the epicentre of Chinese biodiversity. In 2016, a government and private industry plan for building two reservoirs and 13 dams along the middle and lower reaches of the Nujiang River was stopped by persistent civil society movements.

In 2003, the Huadian Group and Yunnan provincial government established the Yunnan Huadian Nujiang Hydropower Development Corporation. Since the Nu River is a UNESCO world heritage site and one of the world's biodiversity hotspots –including the Gaoligong Mountain Nature Conservation Zone, hosting 25 percent of the country's wild animal species– the dam project ignited bitter public controversy. Governmental rhetoric soon changed from achieving rapid economic growth towards the pursuit of "scientific development". This, alongside the passage of the EIA Law in 2003, allowed State Environmental Protection Administration to legally express its "serious reservations" towards the Nujiang plan.

A political opportunity arose for environmentalists. Wang Yongchen, founder of the environmental NGO Green Earth Volunteers, seized the occasion to mobilize the media, environmental NGOs and other environmentalists. Core activists formalized their cooperation as the China Rivers Network (CRN, Zhongguo Hewang) in 2004, with seven organizations as founding members: Friends of Nature, Global Village Beijing, Green Earth Volunteers, Green Watershed, the Institute for Environment and Development, Brooks Education Institute, and Wild China Films based out of Friends of Nature's office in Beijing.

Members of the CRN faced almost immediate retaliation from government authorities, with Green Watershed's founder Yu Xiaogang losing his affiliation with the Yunnan Academy of Social Sciences while having his passport confiscated for a year. Other network members faced similar reprisals, with Global Village Beijing being accused of assisting in the promotion of foreign agenda since it received funding from the

Heinrich Boll Foundation, affiliated with the German Green Party. In 2006, members of CRN agreed to end formal operations and return to an informal structure like the one that had emerged organically in 2003. By December 2016 the environmental alliance could celebrate after ten years of fighting that the large dams on the Nujiang River, which would displace over 50,000 people, mainly ethnic minorities, destroy biodiversity and damage spectacular landscapes over 2,500 sq. km, were set aside.

Can the MDP Index help us understand the potential impoverishment that such a displacement would have caused?

4. Does development lead to freedom?

The Yunnan success meant that livelihoods and environment were preserved by peaceful means. In the EJAtlas, almost twenty per cent of entries are deemed as "successes" of environmental justice, while about fifty per cent are "failures". The remaining thirty percent are "not sure". Failure is the rule, meaning that economic development sets other values aside.

Take for instance Madagascar, reported in Martinez-Alier (2023, ch.13). An attempt to build a MDP Index (MPI) for Madagascar integrates environmental indicators (IIEP, 2022). Meanwhile, big environmental conflicts arise in Madagascar from large-scale land grabbing by foreign companies for agricultural exports or for "carbon credits", mining projects of ilmenite and rare earths, export of rosewood, or overfishing by foreign vessels (EJAtlas, n.d.). When the poor and those who give voice to them report that "ancestral graves in Maniry commune in Madagascar risk being displaced because of graphite mining by Australian company Evlon" (EJAtlas 2023), we observe environmental impoverishment. Is compensation the right approach when the values in dispute involve the ancestors?

Negative environmental impacts on poverty caused by economic growth have been left aside from such MDP measurements. Recent attempts are being made to correct this (Schleicher et al, 2025), which represent a promising approach, albeit still unable to connect with socioenvironmental conflicts. Poor and Indigenous people at the frontiers of commodity extraction and waste disposal experience the clash between environmental sustainability and economic growth. In reaction, an environmentalism of the subaltern and the downtrodden expresses complaints in incommensurable valuation languages. Taking land from small farmers or communal land and turning it to cattle farming, palm oil, eucalyptus, sugar cane or rubber plantations for export might be described as economic development leading to poverty reduction. Yet the goal of tackling global poverty has served to legitimised once and again questionable development projects (Scheidel, 2016). In other words, development sometimes means multidimensional impoverishment.

5. Conclusions

Eradicating poverty across the world should start by stopping the impoverishment. How many of the urban homeless have been previously evicted? The multiple deprivations captured by the MDP index include low income per capita but also bad health, few years of schooling, cooking with dung or wood, insufficient food intake for physical work, no safe drinking water or sewage disposal. If a family in that situation is displaced by open cast metal mining, a coal extracting company, a hydropower dam, a gas fracking field, a new road or airport, then it is further impoverished. Their doings and beings such as living in a little dwelling, growing their own food or using forest and communal pastures (their capacities and functionings) are impaired. Much is lost materially, and much might be lost in cultural values and spiritual bonds that are hard or impossible to monetize (Hanaček et al 2024).

Following Scheidel et al (2013, 2023) we integrate on a conceptual level the notion of multidimensional poverty –as largely discussed within development economics– into an ecological economics and political ecology framework. Increasing incomes sometimes benefit the environment; for instance, they allow the use of cooking fuels which are less damaging to the domestic environment. However, higher incomes led to higher emissions of greenhouse gases, and higher rates of genetic erosion. Economic growth implies socio-metabolic growth and ecologically unequal trade, as well as degraded land, water and air, sacrificed to the extractive industries. Climate change (and unequal appropriation of the atmosphere and other carbon sinks) and land and water grabbing cause environmental impoverishment. If you get some extra money by getting a paid job but lose access to land, clean water and air because an extractive industry grabs your place and pollutes your family, you experience new socio-ecological deprivations. You are poorer in some dimensions. Your autonomy, capabilities and freedoms have been further curtailed.

The EJAtlas shows that the actors in environmental conflicts display contested values–some would accept money compensation, and some declare that the damage is priceless. Or they initially refuse money but later, as the company starts the extractivist project and the protest actions die out, they would accept a little money as compensation. Their choices narrow down with economic development.

While the MDP approach accepts the notion of "sustainable development", an ecological distribution conflicts approach favours Degrowth or Postgrowth (Hickel 2019, Menton et al 2020). Since 1987 ecological economists tried too politely to save the word "development" by tracing a difference between "growth" and "development". We should have instead joined Sachs et al (1992) critique of the notion of Development as expressed also by Ivan Illich, Gustavo Esteva (2022), Ashish Nandy, Arturo Escobar and others. Sen did not mention Sachs' dictionary (1992) or Arturo Escobar's successful book "Encountering Development: The Making and Unmaking of the Third World" that looked at equitable and environmentally sustainable Alternatives to Development, later promoting the Pluriverse from India and Latin America while deconstructing "sustainable development" (Kothari et al 2019).

Proposals of economic Degrowth (Kallis et al 2010) are meant for the Global North. However, the theory of ecologically unequal trade plus the claim for an ecological debt from the Global North to the Global South, together with the myriad grievances and claims geared to stop open cast mining, plantations, oil and gas extraction in the Global South, can be identified as "degrowth in practice". Economic Degrowth in the Global North would be supported by the environmental movements of the South active in resource extraction conflicts (Martinez-Alier 2009, 2012, 2023). It is true that direct observation unveils concerns from environmental activists in the Global South against Degrowth (Rodriguez-Labajos et al 2019). The notion of "degrowth in practice" helps to reconcile this distance. The Degrowth movement may find support in the movements against extractivism and for environmental justice in the Global South (movements that confront in practice the insatiable metabolism that supports "the imperial mode of living", Brand et al 2021) as well as among some Indigenous and peasant groups who profess values of sharing, sufficiency and common ownership while opposing land and water grabbing.

Ultimately poverty is relational and capitalist growth produces poverty alongside wealth. By highlighting this relation, EDC help break the cycle of impoverishment. Against the vision of "development as freedom" we consider "development as causing multidimensional impoverishment" at local and global levels, which curtails choices. To eradicate poverty, avoid climate change, toxic waste and biodiversity loss, the social metabolism of the rich must decrease and enter into a post-growth or degrowth period. Escaping from the obsession for economic growth, thinking instead that there is enough at world level if there is redistribution, is a better road to freedom.

CRediT authorship contribution statement

Joan Martínez-Alier: Writing – original draft, Investigation, Formal

analysis, Conceptualization. **Beatriz Rodríguez-Labajos:** Writing – original draft, Methodology, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

No data was used for the research described in the article.

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