

Sustainable Development – an oxymoron?

Governments and quasi-statal institutions are not known to be radical, innovative and responsive to the needs of *aam janata* – the Common Man. The nature of institutions is such that the well-connected, the high-brow, the elite have a larger say in determining agenda and policy, flow of resources and the beneficiaries of its actions. This is more so in the nature of Government and international bodies, especially the UN.

There is one peculiarity though; the UN, with the preponderance of Developing Countries as its members, does have a radical rhetoric that is long on aspiration, but falls short on commitment. The SDGs with their all-encompassing goals and indicators seems to fall into this pattern. Will the SDGs elaborated by the United Nations through a long-drawn out process help us break out of the vicious circle of development and destruction? With rising poverty and inequality the end-result of this spiral? As we transit from the Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs), one is reminded of the proverb, 'A camel is a horse designed by a Committee'!

There are many who are skeptical, for whom nothing less than an overhaul of the system itself, beyond Capitalism, will ensure genuine Development – and this needs to come largely from below, bottom-up. There are others who believe that the systemic overhaul is possible within a modernist framework.

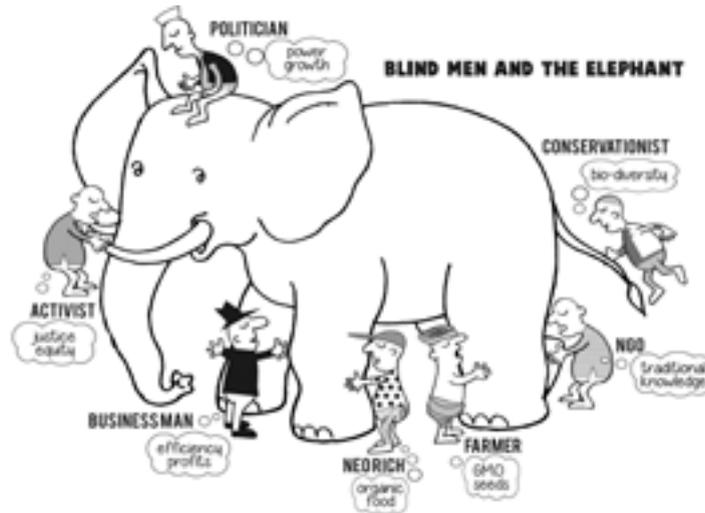
It is increasingly difficult to be hopeful that such a radical change will come to pass. The SDGs are of a piece with this perspective. The lack of concrete targets and commitments that run through the document; and the insistence of Western countries on the so-called market-mechanisms makes this an unlikely source of transformation; and furthermore make it a mixed bag – like the camel that was meant to be a horse!

And then, every now and then we are reminded of the fragility of our Development. The Chennai Floods are the latest manifestation in a series of such events in India.

[‘Development Disaster’ - The story of Chennai’s development](#)

[Sustainable development is failing but there are alternatives to capitalism](#)

[Introduction to an Eco Modernist Manifesto](#)



Can our Cities be transformed?

Everyone agrees that the key to sustainability is the transformation of our cities and metropolises. In our preoccupation with solar power and other renewable sources of energy, the major focus is on domestic and industrial consumption of electricity; and, to some extent, on the management of waste. But what about transportation - a major source of Greenhouse gases? We have not even begun to address these sectors in mainstream conversation on Climate Action.

Urban transportation is heavily skewed in favour of a small minority high on speed. Climate Discourse seeks to address the issue by making

it efficient, but misses the issue of inequity of resources and access to infrastructure. Technology is expected to solve the Climate problem, but as things stand, it will sustain the cornering of resources and infrastructure by the affluent minority.

Even then, however flawed its own centralized production systems, India cannot safeguard its own interests; the US has successfully taken India to the WTO for trade violations in its renewable energy programme, contesting India’s focus on developing local manufacturing capability and output; which reinforces the belief that it will not be possible, within the current paradigm, to explore sustainability that implies equity and decentralized options. It seems only systemic change can ensure that.

[Transportation is often the ignored piece of the energy transition puzzle.](#)

[How will the cities of the future be lit?](#)

[WTO Ruling against India’s Solar Push threatens Climate, Clean Energy](#)

The Primacy of Local Agency in the South

One view is that for better or for worse, we have states and institutional bodies that are based on democratic principles and practices, however flawed they may be. This is what we have; the best that we can do.

But there is a significant push from Southern activists and mass – organizations for direct action against the top-down approach that has been watered-down to a deceptive bottom up approach to Climate Action, as well as Sustainable Development.

Without concerted, localised and largescale action there is very little chance for human beings to safeguard their habitats, livelihoods and the very possibility of existence. Local, Regional, National and International Agencies need to bear in mind the primacy of grassroots action – local agency in the dispersed Global South is essential to deliver systemic transformation.

[Who lives in the real world: global south pessimists or northern optimists?](#)

'Development' Disaster

The story of Chennai's development is one of unregulated expansion helmed by capital that directs neoliberal growth in which profits rule and the poor struggle to survive.

This situation has arisen despite the planners having documented knowledge of what can happen if lakes or canals are encroached. One of the city's posh areas, which came up in the early 1970s, is called "Lake Area". Two popular private schools, Chennai Corporation's best public school, a tennis stadium of international standing where ATP matches are played, a preview theatre, and a memorial to the Tamil savant Thiruvalluvar are part of Valluvar Kottam or Nungambakkam's Lake Area. Every monsoon, after every sharp shower, most of the streets in these areas are under water.

Most of the other "planned" neighbourhoods of the past, too, suffer heavy flooding... The bus terminal at Koyambedu, said to be the largest in Asia when it was opened in 2001, is located on a waterbody. The DMK government did most of the construction work, but after a dome collapsed in 2000 the facility could not be inaugurated because Assembly elections were announced. The AIADMK formed the next government and Jayalalithaa, as Chief Minister, inaugurated the facility. Koyambedu has bare minimum draining facilities now. With construction all around the terminal, each rain will see major disruptions in transport schedules.

The IT expressway, Old Mahabalipuram Road, is another example of blatant, State-sanctioned encroachment on water bodies. In what should be the worst-constructed expressway for which toll is collected, the strangely illogical road has its



service roads at a much higher elevation than the carriageway. The result is that with every rain, water from all around and the service road empties into the carriageway of the much-marketed "IT Corridor". Though there are storm water drains along the median of the carriageway, these cannot handle the volumes emptying into the carriageway. On many stretches, especially close to the "world class" biotech park at Siruseri at one end of the highway and near Sholinganallur, an important town in the IT corridor, water stagnation can reach a few feet after a sharp downpour.

The IT corridor, officially named Rajiv Gandhi Salai, will need major corrective engineering, but even this will not suffice to prevent inundation because it is flanked by waterbodies on either side, the Pallikaranai marsh and the Muthukadu lake.

The first locality in Chennai to submerge almost every monsoon is Velachery, a residential area in the south, next to the Pallikaranai marshland. Many studies show that Pallikaranai has now been reduced to about a tenth of its size. More importantly, a storm water drain conveying water from Velachery to the marsh ends abruptly. "Part of the canal is no longer there because of encroachments," says Srivathsan. Velachery's problems will continue as long as the draining arrangements are not restored.

One of Stalin's first actions as Mayor was to hire the multinational sanitation firm Onyx to handle the city's garbage. He was hailed as a pioneer. But what he possibly did not realise was that he was dismantling the very foundation of the city's Solid Waste Management department: the 7,000-plus sanitary workers, who doubled up as round-the-clock relief workers and city beautifiers. Instead of

modernising the existing workforce and making them adapt—a difficult task—Stalin and his advisers took the short cut to city beautification: outsourcing.

The conservancy workers of the Chennai Corporation have, for long, been the workhorses and the backbone of the civic body. Barely literate, willing to work for long hours uncomplainingly with a servility that their bosses often misused, the workers were the unsung heroes of many a disaster in Chennai and its surroundings. They were slowly eased out and a contractor-driven system was being implemented.

Centre's contribution

The State government and those who make a living out of bending the rules are not the only encroachers of ecologically fragile areas. The Central government is an active participant and has encroached on all the three main waterways. Chennai's Mass Rapid Transit System, the first mass commuter movement system in the city, has come up in a heavily congested and built up area and is aligned along the Buckingham Canal... The secondary runway of the Chennai airport is across the Adyar. Together, the restriction of carrying capacity on these three flood carriers as a result of these developments is significant. A part of the Pallikaranai marsh is home to the Indian Institute of Ocean Technology. There are a few more contributions by the Centre.

The Army, too, did its bit. Concerned that the State government might put undue pressure to take over a large part of the unused Island Grounds next to the Gymkhana Club for construction of its new Secretariat

or other purposes, the local Area Headquarters built a slew of facilities in the flood plains that merge into the estuary. The biggest facility in the area, and possibly the only such facility in an estuary, is an 18-hole golf course for the use of defence personnel and selected, sufficiently high-ranking civilians.

CSE speaks

The Centre for Science and Environment (CSE), New Delhi, is of the opinion that Chennai could have fared better if it had protected and preserved its natural waterbodies and drainage channels. CSE director general Sunita Narain said: "We have repeatedly drawn attention to the fact that our urban sprawls such as Delhi, Kolkata, Mumbai, Chennai, Srinagar, etc., have not paid adequate attention to the natural water bodies that exist in them. In Chennai, each of its lakes has a natural flood discharge channel which drains the spill-over. But we have built over many of these water bodies, blocking the smooth flow of water. We have forgotten the art of drainage. We only see land for buildings, not for water."

A number of cities, including Chennai, are both water-scarce and prone to flooding. Both problems are related—excessive construction, which leads to poor recharge of groundwater aquifers and blocking of natural drainage systems, a CSE release said.

Says Sushmita Sengupta, deputy programme manager with CSE's water team: "While Chennai has been struggling to meet its water needs and has been even desalinating sea water at a huge expense, it allowed its aquifers to get depleted."

CSE said its research showed that Chennai had more than 600 waterbodies in the 1980s, but a master plan

published in 2008 said only a fraction of the lakes could be found in a healthy condition. According to records of the State's Water Resources Department, the area of 19 major lakes has shrunk from a total of 1,130 hectares (ha) in the 1980s to around 645 ha in the early 2000s, reducing their storage capacity. The drains that carry surplus water from tanks to other wetlands have also been encroached upon.

The analysis also shows that storm water drains constructed to drain floodwaters are clogged and require immediate desiltation. Chennai has only 855 km of storm water drains against 2,847 km of urban roads. Thus, even a marginally heavy rainfall causes havoc in the city.

Gopikrishna Warriar says the first priority should be to get rivers back in natural health so that this does not get repeated. "At least the future development of the city should be in line with its natural contours," he adds.

R.K. Radhakrishnan, *Frontline*, December 25, 2015
<http://www.frontline.in/cover-story/development-disaster/article7965568.ece>



Sustainable development is failing but there are alternatives to capitalism

All over the world, environmental justice movements are challenging growth-oriented development and neoliberal capitalism

In the face of worsening ecological and economic crises and continuing social deprivation, the last two decades have seen two broad trends emerge among those seeking sustainability, equality and justice.

First there are the green economy and sustainable development approaches that dominate the upcoming Paris climate summit and the post-2015 sustainable development goals (SDGs). To date, such measures have failed to deliver a harmonisation of economic growth, social welfare and environmental protection.

Political ecology paradigms, on the other hand, call for more fundamental changes, challenging the predominance of growth-oriented development based on fossil fuels, neoliberal capitalism and related forms of so-called representative democracy.

The false answers of the green economy

If we look at international environmental policy of the last four decades, the initial radicalism of the 1970s has vanished.

The outcome document of the 2012 Rio+20 Summit, *The Future We Want*, failed to identify the historical and structural roots of poverty, hunger, unsustainability and inequity. These include: centralisation of state power, capitalist monopolies, colonialism, racism and patriarchy. Without diagnosing who or what is responsible, it is inevitable that any proposed solutions will not be transformative enough.

Furthermore, the report did not acknowledge that infinite growth is impossible in a finite world. It conceptualised natural capital as a "critical economic



asset", opening the doors for commodification and did not challenge unbridled consumerism. A lot of emphasis was placed on market mechanisms, technology and better management, undermining the fundamental political, economic and social changes the world needs.

In contrast, a diversity of movements for environmental justice and new worldviews that seek to achieve more fundamental transformations have emerged in various regions of the world. Unlike sustainable development, which is falsely believed to be universally applicable, these alternative approaches cannot be reduced to a single model.

Even Pope Francis in the encyclical *Laudato Si'*, together with other religious leaders like the Dalai Lama, has been explicit on the need to redefine progress: "There is a need to change 'models of global development'; [...] Frequently, in fact, people's quality of life actually diminishes [...] in the midst of economic growth. In this context, talk of sustainable growth usually becomes a way of distracting attention and offering excuses. It absorbs the language and values of ecology into the categories of finance and technocracy, and the social and environmental responsibility of businesses often gets reduced to a series of marketing and image-enhancing measures."



Radical alternatives

But critique is not enough: we need our own narratives. Deconstructing development opens up the door for a multiplicity of new and old notions and world views. This includes *buen vivir* (or *sumak kawsay* or *suma qamaña*), a culture of life with different names and varieties emerging from indigenous peoples in various regions of South America; *ubuntu*, with its emphasis on human mutuality ("I am because we are") in South Africa; radical ecological democracy or ecological *swaraj*, with a focus on self-reliance and self-governance, in India; and *degrowth*, the hypothesis that we can live better with less and in common, in western countries.

These worldviews differ sharply from today's notion of development, challenging the dogmatic belief in economic growth and proposing in its place notions of wellbeing. They are internally diverse, but they express common fundamental values, including solidarity, harmony, diversity and oneness within nature.

There are already thousands of initiatives practicing elements of such socio-ecological transformation: the reclamation of indigenous territories and ways of life in the Americas, the Zapatista and Kurdish movements for self-governance, solidarity economies, producer cooperatives, transition towns and community currencies in Europe, land, forest, and direct-democracy movements in Latin America and South Asia, the rapid spread of organic farming and decentralised renewable energy across the world, and others.

Many of these form a basis for transformational politics, potentially supported by the case with Syriza in Greece and Podemos in Spain. This is what has been called plan C, a reinvigorated bottom-up project of the commons and communal solidarity. This would be an alternative to the failed plan A (austerity) and untested, but flawed, plan B (Keynesian growth based on further indebtedness).

The inability or unwillingness of UN processes to acknowledge the fundamental flaws of the

currently dominant economic and political system, and to envision a truly transformative agenda for a sustainable and equitable future, is disappointing. Even as civil society pushes for the greatest possible space within the post-2015 SDGs agenda, it must also continue envisioning and promoting fundamentally alternative visions and pathways.

Radical wellbeing notions are unlikely to becoming prevalent in the current scenario. But it is not an impossible dream. As intertwined crises increase when even the green economy fails to deliver – as it inevitably must – people everywhere will be resisting and looking for meaningful alternatives.

Ashish Kothari, Federica Demaria and Alberto Acosta, Tuesday 21 July 2015 07:18 BST, The Guardian, UK
http://www.theguardian.com/sustainable-business/2015/jul/21/capitalism-alternatives-sustainable-development-failing?CMP=share_btn_tw

Ashish Kothari is a member of Kalpavriksh (Pune, India) and co-author of Churning the Earth (Penguin, 2012). Alberto Acosta is professor at Flacso (Quito, Ecuador) and author of El Buen Vivir (Icaria, 2013). Federica Demaria is a member of Research & Degrowth, a researcher at ICTA UAB (Barcelona, Spain) and co-editor of Degrowth: A Vocabulary for a New Era (Routledge, 2014).

As scholars, scientists, campaigners, and citizens, we write with the conviction that knowledge and technology, applied with wisdom, might allow for a good, or even great, Anthropocene. A good Anthropocene demands that humans use their growing social, economic, and technological powers to make life better for people, stabilize the climate, and protect the natural world.

In this, we affirm one long-standing environmental ideal, that humanity must shrink its impacts on the environment to make more room for nature, while we reject another, that human societies must harmonize with nature to avoid economic and ecological collapse.

These two ideals can no longer be reconciled. Natural systems will not, as a general rule, be protected or enhanced by the expansion of humankind's dependence upon them for sustenance and wellbeing.

Intensifying many human activities — particularly farming, energy extraction, forestry, and settlement — so that they use less land and interfere less with the natural world is the key to decoupling human development from environmental impacts. These socioeconomic and technological processes are central to economic modernization and environmental protection. Together they allow people to mitigate climate change, to spare nature, and to alleviate global poverty.

Although we have to date written separately, our views are increasingly discussed as a whole. We call

An Eco Modernist Manifesto

To say that the Earth is a human planet becomes truer every day. Humans are made from the Earth, and the Earth is remade by human hands. Many scientists express this by stating that the Earth has entered a new geological epoch: the Anthropocene, the Age of Humans.



Personal, economic, and political liberties have spread worldwide and are today largely accepted as universal values. Modernization liberates women from traditional gender roles, increasing their control of their fertility. Historically large numbers of humans — both in percentage and in absolute terms — are free from insecurity, penury, and servitude.

At the same time, human flourishing has taken a serious toll on natural, nonhuman environments and wildlife. Humans use about half of the planet's ice-free land, mostly for pasture, crops, and production forestry. Of the land once covered by forests, 20 percent has been converted to human use. Populations of many mammals, amphibians, and birds have declined by more than 50 percent in the past 40 years alone. More than 100 species from those groups went extinct in the 20th century, and about 785 since 1500. As we write, only four northern white rhinos are confirmed to exist.

Given that humans are completely dependent on the living biosphere, how is it possible that people are doing so much damage to natural systems without doing more harm to themselves?

The role that technology plays in reducing humanity's dependence on nature explains this paradox. Human technologies, from those that first enabled agriculture to replace hunting and gathering, to those that drive today's globalized economy, have made humans less reliant upon the many ecosystems

that once provided their only sustenance, even as those same ecosystems have often been left deeply damaged.

Despite frequent assertions starting in the 1970s of fundamental "limits to growth," there is still remarkably little evidence that human population and economic expansion will outstrip the capacity to grow food or procure critical material resources in the foreseeable future.

To the degree to which there are fixed physical boundaries to human consumption, they are so theoretical as to be functionally irrelevant. The amount of solar radiation that hits the Earth, for instance, is ultimately finite but represents no meaningful constraint upon human endeavors. Human civilization can flourish for centuries and millennia on energy delivered from a closed uranium or thorium fuel cycle, or from hydrogen-deuterium fusion. With proper management, humans are at no risk of lacking sufficient agricultural land for food. Given plentiful land and unlimited energy, substitutes for other material inputs to human well-being can easily be found if those inputs become scarce or expensive.

There remain, however, serious long-term environmental threats to human well-being, such as anthropogenic climate change, stratospheric ozone depletion, and ocean acidification. While these risks are difficult to quantify, the evidence is clear today that they could cause significant risk of catastrophic impacts on societies and ecosystems. Even gradual, non-catastrophic outcomes associated with these threats are likely to result in significant human and economic costs as well as rising ecological losses. Much of the world's population still suffers from

more-immediate local environmental health risks. Indoor and outdoor air pollution continue to bring premature death and illness to millions annually. Water pollution and water-borne illness due to pollution and degradation of watersheds cause similar suffering.

Even as human environmental impacts continue to grow in the aggregate, a range of long-term trends are today driving significant decoupling of human well-being from environmental impacts.

Decoupling occurs in both relative and absolute terms. Relative decoupling means that human environmental impacts rise at a slower rate than overall economic growth. Thus, for each unit of economic output, less environmental impact (e.g., deforestation, defaunation, pollution) results. Overall impacts may still increase, just at a slower rate than would otherwise be the case. Absolute decoupling occurs when total environmental impacts — impacts in the aggregate — peak and begin to decline, even as the economy continues to grow.

Decoupling can be driven by both technological and demographic trends and usually results from a combination of the two.

The growth rate of the human population has already peaked. Today's population growth rate is one percent per year, down from its high point of 2.1 percent in the 1970s. Fertility rates in countries containing more than half of the global population are now below replacement level. Population growth today is primarily driven by longer life spans and lower infant mortality, not by rising fertility rates.

ourselves ecopragmatists and ecomodernists. We offer this statement to affirm and to clarify our views and to describe our vision for putting humankind's extraordinary powers in the service of creating a good Anthropocene.

Humanity has flourished over the past two centuries. Average life expectancy has increased from 30 to 70 years, resulting in a large and growing population able to live in many different environments. Humanity has made extraordinary progress in reducing the incidence and impacts of infectious diseases, and it has become more resilient to extreme weather and other natural disasters.

Violence in all forms has declined and is probably at the lowest per capita level ever experienced by the human species, the horrors of the 20th century and present-day terrorism notwithstanding. Globally, human beings have moved from autocratic government toward liberal democracy characterized by the rule of law and increased freedom.

Given current trends, it is very possible that the size of the human population will peak this century and then start to decline.

Trends in population are inextricably linked to other demographic and economic dynamics. For the first time in human history, over half the global population lives in cities. By 2050, 70 percent are expected to dwell in cities, a number that could rise to 80 percent or more by the century's end. Cities are characterized by both dense populations and low fertility rates.

Cities occupy just one to three percent of the Earth's surface and yet are home to nearly four billion people. As such, cities both drive and symbolize the decoupling of humanity from nature, performing far better than rural economies in providing efficiently for material needs while reducing environmental impacts.

The growth of cities along with the economic and ecological benefits that come with them are inseparable from improvements in agricultural productivity. As agriculture has become more land and labor efficient, rural populations have left the countryside for the cities. Roughly half the US population worked the land in 1880. Today, less than 2 % does.

As human lives have been liberated from hard agricultural labor, enormous human resources have been freed up for other endeavors. Cities, as people know them today, could not exist without radical changes in farming. In contrast, modernization is not possible in a subsistence agrarian economy.

These improvements have resulted not only in lower

labor requirements per unit of agricultural output but also in lower land requirements. This is not a new trend: rising harvest yields have for millennia reduced the amount of land required to feed the average person. The average per-capita use of land today is vastly lower than it was 5,000 years ago, despite the fact that modern people enjoy a far richer diet. Thanks to technological improvements in agriculture, during the half-century starting in the mid-1960s, the amount of land required for growing crops and animal feed for the average person declined by one-half.

Agricultural intensification, along with the move away from the use of wood as fuel, has allowed many parts of the world to experience net reforestation. About 80 percent of New England is today forested, compared with about 50 percent at the end of the 19th century. Over the past 20 years, the amount of land dedicated to production forest worldwide declined by 50 million hectares, an area the size of France. The "forest transition" from net deforestation to net reforestation seems to be as resilient a feature of development as the demographic transition that reduces human birth rates as poverty declines.

Human use of many other resources is similarly peaking. The amount of water needed for the average diet has declined by nearly 25 percent over the past half-century. Nitrogen pollution continues to cause eutrophication and large dead zones in places like the Gulf of Mexico. While the total amount of nitrogen pollution is rising, the amount used per unit of production has declined significantly in developed nations.

Indeed, in contradiction to the often-expressed fear of infinite growth colliding with a finite planet,

demand for many material goods may be saturating as societies grow wealthier. Meat consumption, for instance, has peaked in many wealthy nations and has shifted away from beef toward protein sources that are less land intensive.

As demand for material goods is met, developed economies see higher levels of spending directed to materially less-intensive service and knowledge sectors, which account for an increasing share of economic activity. This dynamic might be even more pronounced in today's developing economies, which may benefit from being late adopters of resource-efficient technologies.

Taken together, these trends mean that the total human impact on the environment, including land-use change, overexploitation, and pollution, can peak and decline this century. By understanding and promoting these emergent processes, humans have the opportunity to re-wild and re-green the Earth — even as developing countries achieve modern living standards, and material poverty ends.

April 2015, www.ecomodernism.org



Transportation is often the ignored piece of the energy transition puzzle.

A clean transport system is harder to achieve than domestic and commercial electricity because we just don't have feasible low-carbon alternatives yet –

engines still need oil.

But we must decarbonise transport and the current approach, mainly based on small improvements in fuel efficiency, has limited potential. We need to think bigger.

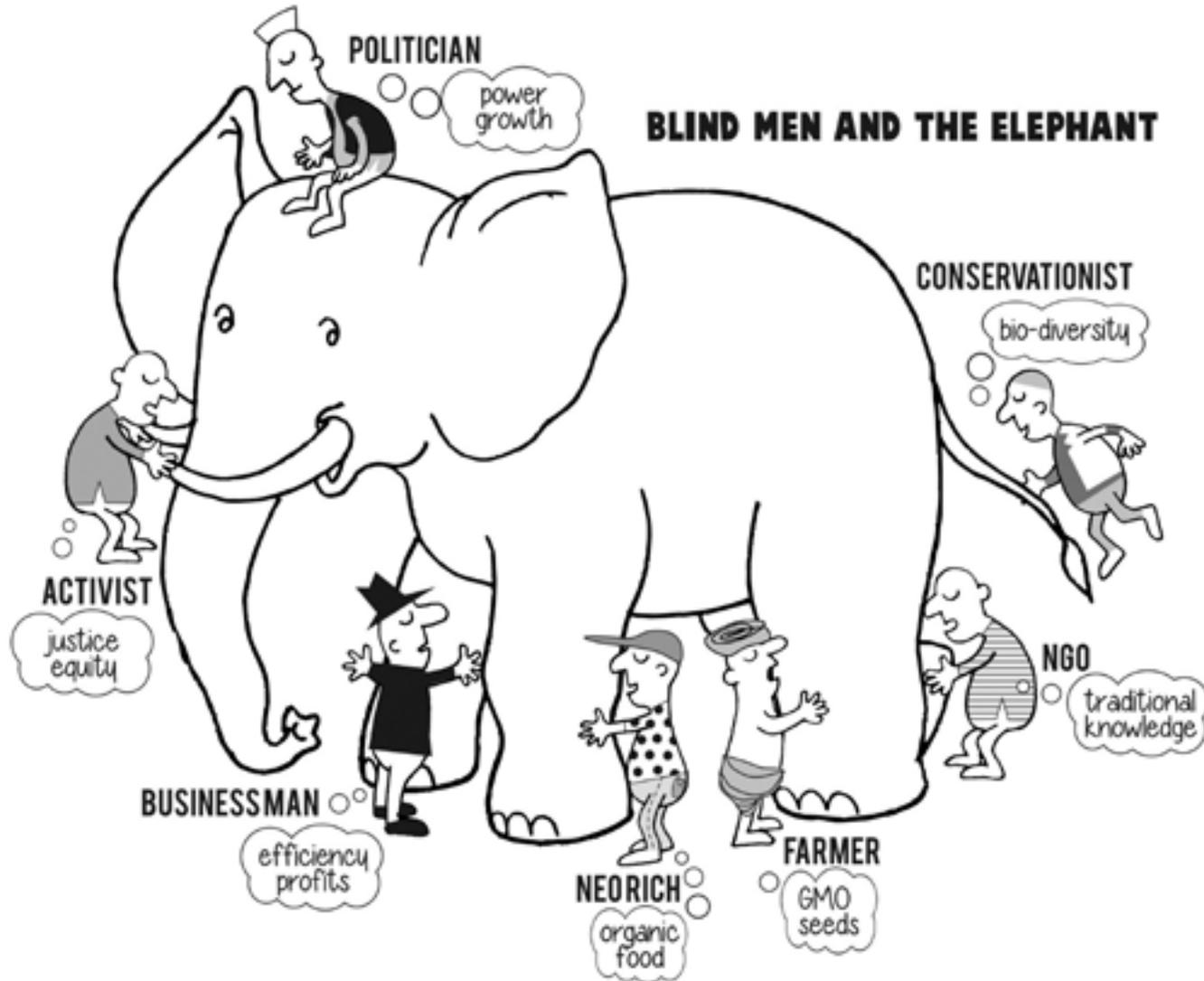
The alternative we need?

Last week Bloomberg New Energy Finance (BNEF) released new analysis of the electric vehicle sector, confidently predicting that the market for clean vehicles will start to take off by 2022, reaching 35% of new car sales globally by 2040.

BNEF points to the rapidly decreasing cost of batteries that will soon make the average electric car cost-competitive with the average fuel car. And in the UK we're already seeing a sharp rise in 'ultra-low emissions vehicles' (see this week's graph).

This is an important shift, as well as a major threat to oil producers. How do we make sure our transport system keeps moving in the right direction?

- We should think beyond cars. Any transport system based predominantly on cars is likely to bring with it huge inequalities – the top 20% of income earners drive nearly three times as many miles as the lowest 20%. Will zero carbon vehicles be made affordable and accessible to everyone? Would improving public transport be a more resource efficient and equitable alternative?
- Electric vehicles are only clean if electricity is clean. While renewable electricity generation



WHAT IS SUSTAINABILITY?

and electric vehicles work well together, we must not forget that transportation is just one element of a wider transition. Investing in fancy new electric cars is no good if our electricity is still made with coal and gas.

- We should make sure that new opportunities are shared by all. Recent developments in technology, including driverless vehicles and mobile apps like Uber, could lead us to an entirely different kind of system in which most people, perhaps even some generations alive today, never own a private vehicle. How do we make sure that the benefits of such a system aren't just captured by a small number of large corporations?

Big changes in energy technologies and the wider economy are afoot. Equally important are the changes to our culture and our society. Defending the principles of social justice and democracy in the transport system is more critical now than ever.

by email: "Stephen Devlin (NEF)"

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How will the cities of the future be lit?

From the medieval candle to phosphorescent trees and glow-in-the-dark concrete, Daryl Mersom charts the trajectory of urban light, and asks how the problem of light pollution can be tackled in the modern era

The ever-increasing demand for the 24-hour illumination of cities is blighting urban residents with two distinct forms of pollution. Current lighting solutions rely on vast amounts of energy, of course, much of which is not yet generated from renewable resources. According to the International Energy Agency, lighting accounts for almost 20% of global electricity consumption – and thus high levels of carbon emissions.

But there is also an increasing acknowledgement that light itself constitutes a form of pollution – and mounting evidence that our exposure to urban lighting at unnatural times is making us ill. It is reported that the glow of Los Angeles is visible to planes 200 miles away, while in Reykjavik, light pollution is obscuring the northern lights.

With our current lighting technologies being called into question, it is time we considered the numerous

alternative lighting solutions being pioneered. Indeed, 2015 was declared the International Year of Light and Light-based Technologies, in recognition of the critical role that photonics (the science of light particles) now plays in our urban lives and communications.

Some of the most interesting plans to tackle the two-fold problem of urban light pollution include experiments with phosphorescent trees, light emitting algae, glow-in-the-dark concrete and light scheduling based on big data.

According to the Dutch artist and designer Daan Roosegaarde, we must move into a brave new world of green illumination. After tracing the history of urban lighting from the innocuous and personal candle to light bulbs and increased energy demands, Roosegaarde says the next step is for us to explore bioluminescence.

One Studio Roosegaarde project involves utilising the luminescent properties of marine bacteria in small plants. While the technology is protected and still being developed, Roosegaarde imagines that it could be scaled up to provide trees that offer biological alternatives to lampposts. "Yes we are changing things," says Roosegaarde, "but in a way we are doing already on a massive scale. Let's not be scared – let's be curious."

Another tantalising trajectory for his "glowing nature project" involves light-emitting algae. "The algae is beautiful. When you move your hand through the water, it starts to light up. It becomes very responsive, very interactive and that's something we are pushing. It's not copper wires and cables; it's a living thing, and you can sense that." While the interface is still in development, Roosegaarde suggests that the algae could be used in lampposts as a way of illuminating our streets.

In response to the potentially harmful influence of these new technologies on the ecosystem, he admits, "there are George Orwell scenarios where we completely damage existing systems". It is impossible to predict how new technologies will impact the ecosystem, and they may impinge on certain species, causing irreversible damage. Nevertheless, he contends that "there are also Leonardo da Vinci scenarios" where we discover safer ways to light our cities.

One creative Roosegaarde solution to the unlit bicycle paths in the Dutch town of Nueneen involves using thousands of twinkling stones to create an



illuminated route. The Van Gogh path, named after the artist that lived in the town in 1883, blends the traditional with the contemporary in a gesture that points both back to the painting *The Starry Night*, and forward to the innovative future of urban lighting.

South Korean artist Koo Jeong-A has, like Roosegaarde, been involved with the Unesco Year of Light, and was invited this year to build a glow-in-the-dark skatepark in Everton, after Liverpool City Council learned of the success of her previous work with glow-in-the-dark concrete in France. When I asked her about the availability of the material, she told me that since the project took place in France in 2012, it has become a lot easier to procure. While her use of the material is largely concerned with aesthetics, it is not difficult to imagine how the technology might provide solar-powered illumination in more practical urban scenarios.

In Glasgow, an alternative lighting solution has been developed based on big data. Future Cities says: "Glasgow is leading the way with the trial of intelligent street lighting, looking at ways to add more control and efficiency to our lighting network while harnessing the power of real time data to improve both lighting and safety throughout the city." The lighting responds to our interactions with the city, as we produce data based on our patterns of movement. This project surely nods towards a more Orwellian future of urban lighting.

Contrary to Glasgow's pioneering work, Roosegaarde believes that the contemporary obsession with technology is on its way out. "I think technology will completely disappear, and you see that in a way already. It will be there but less invasive than it is

right now. For me, bio is the new digital."

Whether or not any of these early trajectories for bioluminescent lighting materialise by late 2016 – the date by which Roosegaarde aims to launch a bigger project – he is opening up a dialogue about how we tackle this endemically urban problem. He argues that there needs to be a radical shift away from fuel-based lighting towards alternative and intuitive lighting. "Just planting trees and putting grass on roofs is great, but it's not enough. We need more radical ideas. I'd love to be a pioneer in that."

For now, though, big data lighting and glow-in-the-dark concrete offer tentative solutions to the problems posed by our cities' thirst for light.

Daryl Mersom, *The Guardian*, 31 December 2015

<http://www.theguardian.com/cities/2015/dec/31/howwillthecities-ofthefuturebelit>



WTO Ruling against India's Solar Push threatens Climate, Clean Energy

"The U.S. should be applauding India's efforts to scale up solar energy — not turning to the WTO to strike the program down."

The World Trade Organization (WTO) ruled against India over its national solar energy program in a case brought by the U.S. government, sparking outrage from labor and environmental advocates.

As power demands grow in India, the country's government put forth a plan to create 100,000 megawatts of energy from solar cells and modules, and included incentives to domestic manufacturers to use locally-developed equipment.

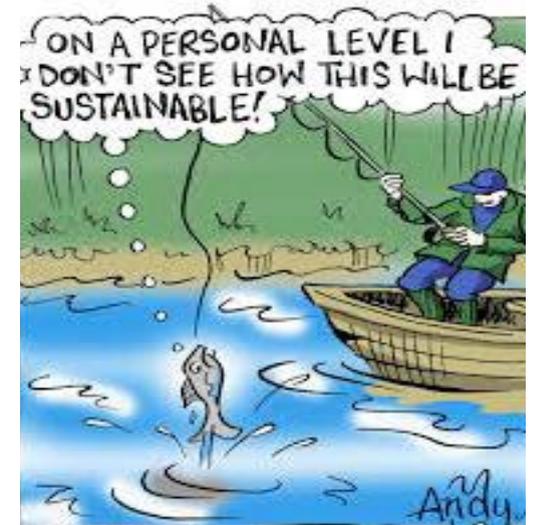
According to Indian news outlets, the WTO ruled that India had discriminated against American manufacturers by providing such incentives, which violates global trade rules, and struck down those policies—siding with the U.S. government in a case that the Sierra Club said demonstrates the environmentally and economically destructive power of pro-corporate deals like the Trans-Pacific Partnership (TPP).

"Today, we have more evidence of how free trade rules threaten the clean energy economy and undermine action to tackle the climate crisis," Ilana Solomon, director of the Sierra Club's Responsible Trade Program, said on Thursday. "The U.S. should be applauding India's efforts to scale up solar energy—not turning to the WTO to strike the program down."

According to Indian media outlet Livemint, the U.S. government

...has resorted to similar measures, specifying local content requirements and offering a range of subsidies for promoting its renewable energy sector at the federal, state, regional and local levels.

India spoke repeatedly against the US at WTO's committee on subsidies and countervailing measures, stating that American subsidy schemes relating to local or domestic content requirements for its solar companies are inconsistent with its global trade obligations.



In addition, Livemint reports, the ruling "goes against the spirit of an agreement signed early this year... [in which] the two sides agreed to promote clean energy and expand solar energy initiatives."

Regardless, Solomon said, the WTO "needs to get out of the business of hampering climate action in countries around the globe. The outdated trade rules on the books now and under negotiation in trade pacts including the Trans-Pacific Partnership and the Transatlantic Trade and Investment Partnership encourage trade in fossil fuels and discourage countries from developing local clean energy capacity."

"These rules simply do not reflect the urgency of solving the climate crisis and stand in the way of clean energy growth," Solomon said.

The Indian government will appeal the decision to the WTO's highest court, the appellate body. It is the second time that the WTO has ruled against India in a case with the U.S., which first brought legal action against the country's food security program in 2014. The WTO ruled on that case in June, when it decided that the Indian ban on certain foods from the U.S. was "inconsistent with the global norms."

Nadia Prupis, staff writer, Common Dreams, Thursday, August 27, 2015

commondreams.org/news/2015/08/27/wto-ruling-against-indias-solar-push-threatens-climateclean-energy



Sierra Club blasts anti-India WTO ruling on solar power

A top American environmental group slammed the World Trade Organisation on Wednesday for its ruling against India's solar localisation policies for US firms.

Alleging that almost half of US states have a programme like that of India, the Sierra Club urged the US to drop its case against India.

"The WTO ruling is a step in the wrong direction, away from the climate progress that the global community committed to achieve in December's Paris climate agreement," Ilana Solomon, director of the Sierra Club's Responsible Trade Program, said after WTO ruled against India's local sourcing rules. By offering solar power companies government subsidies and longterm contracts, India's programme has already

rapidly scaled up solar energy, Solomon said.

The programme aims to achieve 100,000 megawatts of solar power capacity by 2022, more than the current solar capacity of the world's top five solar producers combined, the environmental group argued.

The WTO ruled against India because its first phases require power companies to use solar cells and modules made in India in order to benefit from the government subsidised programme (See: Indian solar power norms discriminatory: WTO).

"Clean, renewable energy like solar is becoming cheaper in the US and abroad, creating new jobs, helping us move beyond coal and other dirty fuels and solve the climate crisis. We cannot afford to let decades old, overreaching trade rules trump policies that can create new green jobs and accelerate the transition to 100% clean energy," Solomon said.

"Almost half of US states have programmes that, like India's, offer incentives for renewable energy production that create local, green jobs. The US should drop this case to avoid undermining climate protections abroad and at home," Solomon demanded. "This decision is a warning against expansive trade deals like the TransPacific Partnership that would replicate rules that undermine clean energy initiatives and constrain climate progress. Destructive trade deals like the TransPacific Partnership go far beyond trade and interfere with common sense policies needed to solve the climate crisis," the group said. "Congress should view this ruling as another reason to stand up for green jobs and climate action by rejecting the TransPacific Partnership," Solomon said.

The Sierra Club is America's largest and most influential grassroots environmental organisation, with more than 2.4 million members and supporters.

domainb.com: Sierra Club blasts anti-India WTO ruling on solar power. February 2016
http://www.domainb.com/industry/power/20160225_club_blasts.html#25



Another Climate Strategy is Possible

Climate politics, as we have known it, is tied into the conventional eurocentric dualisms that support capitalist patriarchal reasoning from religion to law to commerce and beyond. Thus,

- economy over ecology
- capital over labour
- masculine over feminine
- North over South
- land over water.

Entering into a political contestation based on these hierarchical assumptions is to invite defeat. Such anthropocentric framing is by definition antagonistic to the goal of protecting life-itself. On the other hand, an ecocentric strategy can dampen these traditional antagonisms, helping build political unity. Protecting life on earth is not about economic exchange value, but about enhancing a metabolic value that is neither unitary nor computable, but qualitative and observable as natural cycles interact. So far, climate politics has enabled massive gains in extractivism, accumulation, and centralising control

by the transnational ruling class. First, the mysteries of carbon reductionism distracted environmentalists from nuclear irradiation, species loss, gene technology, and toxic chemicals. Second, the discourse of economics by its lack of correspondence with ecology led to public confusion, stalling clear initiatives for change. Third, quantifying devices like pricing and aid funding put activists on the back foot by having to make their case in an alien language.

Meanwhile, given the perennial crisis-fallout from free-wheeling globalisation, capitalist lawyers are now at work on schemes for overarching institutional governance, as argued in my chapter to a recent collection of political ecology. Any notion of governing earth systems is not only extreme anthropocentrism, it relies on an imperialist version of science with the IPCC (Intergovernmental Panel on Climate Change) averaging out climate phenomena on a global scale. In the name of objectivity, this ideological practice leaves existing sustainable provisioning models invisible. For example, in the global South, wherever development has not destroyed livelihood resources, local economies attuned to geographic and cultural conditions show climate politics to be yet another neocolonial imposition.

A COP21 side event, the International Tribunal on Rights of Mother Nature, did address the logic of ecology. But the Paris negotiations as such, should have been declared null and void by social movements at the outset. This would constitute step one in a dual power strategy. Once the master discourse is refused, the global majority – women, indigenous,

and peasants – can lead with ecological insights grounded in life affirming regenerative skills. The era of technocrat environmentalism bypassed this meta-industrial labour class. But care for new generations, for water, and for forests, is a prerequisite to food, energy, and other kinds of sovereignty. Even in the global North, conspicuous consumption is now transitioning into degrowth, and joyful commoning for eco-sufficiency. This approach to climate crisis was articulated at the 2007 COP13 in Bali and in the 2010 Cochabamba Summit vision of buen vivir – and we the peoples must hold to it.

Yes, Another Climate Strategy is Possible by

displacing the top down abstractions of international climate politics with practical action. To consider one model the new water paradigm: Slovak hydrologist and anti-dam activist Michal Kravcik argues that local water management is the key to global climate stabilisation. This is not carbon denialism but relies on an holistic science beyond the central dogma of land versus water. The repressive mission of eurocentric hydrology separated the two, then either controlled water by expelling it in concrete channels to the sea or harnessing it behind dam walls.

Based on this classic land versus water dualism, 'modernising development' – meaning deforestation

for industrial scale agriculture, grazing, or mining – ultimately dries out and desertifies land. Rain on cleared earth without vegetation to break its fall or organic humus to absorb it, denudes slopes and washes fertile soil into streams. In cities, impervious surfaces result in flooded streets and damaged homes. Urban areas with no capacity for natural evapotranspiration through trees, result in dysfunctional heat silos in the air above them. The local small water cycle that brings rain is now disturbed and random atmospheric heating sets up the chaotic weather patterns known as global warming.

Kravcik's numeracy is compelling, even for those who have reservations about relying on metrics, as argued by Martin Winiacki and Leila Dregger: the annual loss of 50,000 square miles of forest and the additional soil sealing of 20,000 square miles per year have reduced the water that is able to circulate in small rainwater cycles. He estimates that, throughout the last century, around 8900 cubic miles of water for these climatically crucial cycles was lost. This equals three times the water volume of Lake Superior. If you calculate the effect this has on the oceans, you end up with a sea level rise of around four inches ... Rainwater and humidity are vital parts in the cooling system of the atmosphere. During evaporation, a gallon of water spends 2.5-kilowatt hours of solar energy. The loss of significant amounts of water and the desiccation of soil and of air therefore produce potential heat, which amounts to, as Kravcik calculated, the gigantic figure of 25 millionterawatt hours. This is 1600 times more heat produced annually than all of the planets' powerhouses combined.

closely with biodiversity and soils to rehydrate land and subterranean aquifers. The model is inexpensive, with hands-on water restoration technologies using local stone, wood, and plants, designed and carried out by neighbourhoods and communities. Its methodology is synergistic: that is to say, it simultaneously restores livelihood, provides jobs and education; it grows solidarity, cultural autonomy, empowerment, and spiritual renewal.

This analysis not only provides an integrative reading of climate change, but reclaims it as an ecological not economic problem. The new water paradigm indicates that climate solutions through repair of the small water cycle are readily available to people whether they live in rural or urban spaces. Autonomous versions of this paradigm are corroborated in Australia, China, India, Canada, the US and Europe, as I have argued. Leading water activist Maude Barlow commends it and it validates Via Campesina's claim that small scale provisioning is 'cooling down the earth'.

Rather than pricing hypothetical units of carbon and relying on neocolonial elites to give their money away, activists can revive environmentalism with an integrative water-soil- biodiversity coalition for climate. It's time for a globally democratic political strategy that brings climate politics down to earth by celebrating people's sovereign intelligence.

Ariel Salleh, *Progress in Political Economy (PPE)*, December 23, 2015

<http://ppesydney.net/author/ariel-salleh/>

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The Bottom-up approach

The secret of the new water paradigm is working

Who lives in the real world: global south pessimists or northern optimists?

As NGOs in the global north attempt to bring about change, poor people on the frontline are taking a moral stand I remember one particularly long discussion with Colombian NGO colleagues in which we talked about how to improve our work on behalf of communities displaced by conflict over minerals and export crops, such as bananas and palm oil.

Towards the end, I said: "I can see precisely where you are coming from, but it doesn't sound like much of a change strategy." My friend, a youth leader and son of farmer activists, replied: "It isn't a change strategy. It's a moral stand."

I think of that often. It seems to sum up an important breach between northern and southern perspectives on development.

Everything I had done up to that moment had been built around tactics and strategies to change things for the better. Of course, all our work was founded on moral principles; that was a given. But in the world of campaigning, in the world of politics, actual change is generally considered a higher purpose than sticking to fundamental principles.

There's no point in just being right, that's the easy bit. The point is to change things.

Here was someone far closer to the action than me, with a far greater stake in the outcome, who had reflected on the politics and strategies of the situation far more profoundly. And he was more concerned about taking a moral stand than inching towards a slightly fairer deal for marginalised communities that might not even come off anyway.

These are the kind of people who infuriate NGOs in the global north; the ones they clash with at international strategy meetings; the ones

who would prefer to lose valiantly than to win something marginal.

This perspective emanates from the lived experience of so many activists, campaigners, advocates, lawyers, trade unionists and politicians in the global south. I have heard terms like "crazies" applied to people who have spent their lives struggling against incredible odds for a more just society. To understand that taking a moral stand, even if it doesn't sound like a great change strategy, is not crazy but a powerful expression of someone's reality is to take the first step towards building mutual understanding and perhaps, ironically, a fairly good change strategy.

Politically savvy northern campaigners consider the overly radical southern voices naive because "they're calling for too much" and "we need to live in the real world".

But the southern campaigners are living in the real world, and they think the northerners are naive. Why? They don't believe that the kind of tweaking-around-the-edges advocacy that earns the label "change strategy" will really lead to meaningful change at all.

For my Colombian friend, my attempts to build a three-year campaign strategy to defend the land rights of a dispossessed community by working with the various government institutions set up for that purpose flew in the face of his historical analysis that every attempt by peasant farmers to be reasonable had been met with either closed doors or violence.

They had tried change strategies, he said. They hadn't worked. Now they were taking a moral stand. In short, I was espousing an optimism about the possibilities for change that he thought ahistorical. So who is naive: the "change strategy" optimists or the "moral stand" pessimists?

On balance, optimism seems justified so long as we insist on realistic and winnable change strategies. We are letting down the poorest if we don't.

The key is not to be a naive optimist. Or worse, deliberately to sell optimism about sunlit uplands without recognising how hard it is to



overcome entrenched elite interests, and how frequently attempts to do so fail.

My theological training leads me to draw on religious examples to explain my balance of optimism and realism. The injustice the prophets of the Old Testament railed against thousands of years ago is so similar to what friends and colleagues around the world are fighting today: greed, power, moral blindness. As long as humans are human, selfishness and the conflict that flows from it will remain.

Yet, there is also that wonderful phrase of Martin Luther King – hard to disagree with, especially if you are a campaigner – that "the arc of the moral universe is long but it bends towards justice".

Whether you are mired in the political games of a strategy calculated to achieve short-term change for a carefully identified beneficiary group, or you are simply standing in a roadblock alongside a displaced community holding banners, you need to believe something like that to keep going.

Jonathan Glennie, The Guardian, 18 January 2016

<http://www.theguardian.com/global-development/2016/jan/18/who-lives-in-the-real-world-global-south-pessimists-or-northern-optimists>

Living Religion

KNOW WHAT YOU'RE FIGHTING FOR

Activist and author Naomi Klein tells a story about the time she traveled to Australia at the request of Aboriginal elders. They wanted her to know about their struggle to prevent white people from dumping radioactive wastes on their land.

Her hosts brought her to their beloved wilderness, where they camped under the stars. They showed her "secret sources of fresh water, plants used for bush medicines, hidden eucalyptus-lined rivers where the kangaroos come to drink."

After three days, Klein grew restless. When were they going to get down to business?

"Before you can fight," the elders gently revealed, "you have to know what you are fighting for."



Published by:

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Centrespread: Concept - Walter Mendoza; Art - A. Muralidharan

Other drawings: Internet

Design & Layout: Radha Kunke, Ground Zero+