

GLOBAL
SHIFT

BURNING
FOSSIL
FUELS

MIGRATION

SEVERE
CLIMATE
CHANGES

POLLUTION

NEGATIVE
IMPACT

INDUSTRIAL
DEVELOPMENT

CHALLENGES and OPPORTUNITIES for educators in the age of renewable energy



The world over families, communities and nations are confronted with the devastating impacts of excessive fossil fuel emission-driven climate change on local seasonal weather patterns, frequency of natural disasters -- among countless other effects -- that are posing concrete risks to the lives and livelihoods of the most vulnerable in our societies. In the South African context, much like many others around the world, the direct impact of historical industrial activities, such as mining, offer some of the most brutal examples of the legacy of the use of coal for the production of energy.

Recent technological developments have dramatically dropped the cost of a variety of renewable energy utilisation systems and in so doing have opened up the possibility for thinking through alternative energy systems that meet our need for basic services while also minimising the negative impacts on the environment. Critics, such as the National Union of Metal Workers of South Africa (NUMSA), have rightly voiced concerns that private companies may stand to capitalise on renewable energy developments as a result of the privatization of energy generation in South African (<http://www.numsa.org.za/article/motivations-for-a-socially-owned-renewable-energy-sector-2012-10-15/>). For educators thinking through how to engage renewable energy in the classroom, social movements, workplaces or within community spaces, it is necessary to encourage engagement with the social, political and economic context in which we experience the challenges and opportunities presented by renewable energy technologies today.

The history of education in South Africa is marked by the painful and difficult unresolved impacts of colonialism and apartheid, but crucially also defined by the rich and complex legacies of resistance. For example, education formed a crucial part of the racial apartheid state's project of separate development. Legislation such as the

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- Bantu Education Act condemned the 'black' working class to institutions that fed young people into an industrial economy which required their cheap labour for 'white' capitalists' profits. Universities established in 'homelands' were regular sites of strike actions where the unequal distribution of resources and discriminatory policies of the ruling regime were resisted. The idea that only the 'white' elite could participate in 'thinking work' while, existing in a hierarchical relationship to those geared towards 'physical work', were confined to strictly technical tasks, became formalised and institutionalised. It is through this learning of protest and resistance that the importance of people's participation in their own education surfaced as significant. As Paulo Freire, the Brazilian pedagogue, so eloquently said: the more people participate in the process of their own education, and the more people participate in defining what kind of production to produce, and for what and why, the more people participate in the development of themselves. The more people become themselves, the better the democracy.

- In thinking through the challenges and opportunities for educators in the age of renewable energy, key issues immediately arise that require consideration. To name only a few: the existing crises involving poor infrastructure in schools; a heavily bureaucratic public schooling system; an overburdened and underpaid teacher cohort who have been largely left at the coalface of the contradictions of the 'new' South Africa without the requisite support to address historical injustices, let alone contemporary shifts. As Freire describes, the question for educators is not simply a consideration of an updated curriculum and/or different delivery style, but instead it is about the development of learning spaces where critical engagement and participation

can happen, and forces that shape our schools, communities and broader society can be interrogated and exposed. For instance, engagement about developments in renewable energy should be relevant to the local learning space and directly responsive



to the particular community. It should not be about the application of a 'one size fits all' universal set of popular technologies.

Following from this it is important to critically engage with the state's emphasis on Science, Technology, Engineering and Mathematics (STEM) and its support to well-performing schools in the STEM. Critical engagement with this warrants reflection on the understanding of history and context that the anti-apartheid struggle accentuated in its fight against unequal education – in this case favouring STEM at the expense of social sciences. Investments in STEM is accompanied by a suppression of other disciplines, particularly those in the social sciences and the role they play in our society. Engaging in teaching and learning processes looking at renewable energy systems opens up a space where we can engage the historical legacies of particular technologies such as coal fire plants, diesel, petrol generators, and so on, alongside the technical aspects that form part of the traditional science or engineering curriculum. Such a learning process could create spaces to bring members of communities who hold local expertise (such as those who work or worked in factories) into educational endeavours. Schools could be opened as sites for community engagement, skills training and knowledge production in favour of community development rather than narrowly focused on assessment results.

The shift towards renewable energy systems does not have to mean high-tech imported technologies or a commitment to specific forms such as 'solar' or 'wind turbine.' It simply means rethinking our relationship with the environment and using the appropriate technologies based on our needs, our capacity, our visions and principles of community and society at large. What will be decisive for our future will be the extent to which our learning spaces, formal, non-formal and informal, will adapt to changing political and technological landscapes with criticality. For this the role of educators will be absolutely instrumental and, if history is a guide, then organised, collective responses of various scales will be necessary once more to fight against the grain of dependency and exploitation.

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ENERGY AND WATER SECTOR EDUCATION AND TRAINING AUTHORITY

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