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Climate change: progress on the United Nations sustainable development goals 6 and 7

Cambio climático: avances en los objetivos de las Naciones Unidas de desarrollo sostenible 6 y 7

SILVA RODRÍGUEZ DE SAN MIGUEL, Jorge Alejandro 1

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ABSTRACT:
This literature review is done with the purpose of determining if there was progress in two areas of sustainable development goals, considering global warming, set by the UN: 6 (access to clean water) and 7 (development and conversion to sustainable energy sources). I conclude that both indicators are problematic in the meeting targets; though, it is not known if there is a relationship between the narratives and the problems in reaching goals.
Keywords: Climate change, neoliberal narrative, water.

RESUMEN:
Esta revisión de la literatura se realiza con el propósito de determinar si hubo avances en dos áreas de objetivos de desarrollo sostenible establecidos por la ONU, considerando el calentamiento global: 6 (acceso a agua limpia) y 7 (desarrollo y conversión a fuentes de energía sostenibles). Encontré que ambos indicadores son problemáticos en cuanto al cumplimiento de sus metas; sin embargo, no se sabe si existe una relación entre las narrativas y los problemas para alcanzar los objetivos.
Palabras clave: Cambio climático, narrativa neoliberal, agua.

1. Introduction

The United Nations (UN) has declared climate change "the defining issue of our time"—publicly announcing their presence on the front line in the fight for our survival and that of the entire planet. The UN has identified its role as providing global oversight and governance throughout the course of this crisis of mass scale (United Nations, 2019).

"The UN family is in the forefront of the effort to save our planet. In 1992, its "Earth Summit" produced the United Nations Framework Convention on Climate Change (UNFCCC) as a first step in addressing the climate change problem. Today, it has near-universal membership. The 197 countries that have ratified the Convention are Parties to the

Convention. The aim of the Convention is to prevent “dangerous” human interference with the climate system (United Nations, 2019).

The UN website also acknowledges that in 2007 the Nobel Peace Prize was awarded jointly to former United States Vice-President Al Gore and the Intergovernmental Panel on Climate Change (IPCC)— the UN body for assessing the science related to climate change—"for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change."

The Peace Prize certainly gives credibility to the UN’s leadership role in consensus building among nations and providing oversight of the participating nations who have agreed to come under the UN umbrella in an ongoing cooperative effort to combat global climate change that began with the Earth Summit March 24, 1994. The Intergovernmental Panel on Climate Change (IPCC) Working Group I and II assessment report (Stocker et al., 2010) defines climate change as a dangerous global phenomenon evidenced by a century of temperature data which show the urgency of the situation; the IPCC scientific evaluation of the climate indicates that an 0.85% increase in the average global temperature has occurred over the time interval between 1880 and 2010— coincident with the beginning of the industrial age (see figure 1) (Stocker et al., 2010). The report, based on climatological modelling which uses the recorded mean rise in temperature across the planet as input, establishes the warming phenomenon showing a mean temperature v time plot with a steep positive slope that (Le Treut et al., 2007). The most recent findings of the committee confirmed the validity of earlier IPCC reports attributing the rise in average temperatures around the globe to human activity, stating, “most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations (United Nations, 2019).

Jamieson (1992) Hulme (2007) and Anderson, Hawkins, and Jones (2016) have pointed out that not only are the collective actions of humans altering the gas composition of the earth’s atmosphere leading to a rise in global mean temperatures across the planet—but, the mechanism for CO2 accumulation in the atmosphere and the effect that rising levels of atmospheric CO2 have on the earth’s mean temperature had been elegantly modelled and explicated by Svante Arrhenius in 1896. Arrhenius (1896) concluded that the continued, unchecked, emissions generated by burning coal would eventually increase levels of (CO2) in the atmosphere. The CO2 would absorb energy from sunlight in the infrared region of the spectrum— raising mean temperatures across the planet (Arrhenius, 1896).

The work on heat trapping of atmospheric CO2 published by Arrhenius (who is considered a co-founder of the field of physical chemistry—along with Jacobus Van't Hoff and Walther Nernst) gives a great deal of credibility to the assertion that global warming is a real physical phenomenon which can be verified through the scientific method (Chemistry Explained, 2019). However, knowledge of the physical chemical reaction mechanisms that occur in the atmosphere between water vapor, CO2, and other feedback gasses, is insufficient to define climate change. Jordan and O’Riordan (1997) contend that climate change is often presented as a positivist, scientific theory that is purported to be practically unchallenged within the scientific community. Still, this one-dimensional, physical definition, cannot convey what climate change is in a meaningful social context.

Climate change is socially constructed (Le Prestre & Stoett, 2006; Van de Poel, Fahlquist, Doorn, Zwart, & Royakkers, 2012). From the perspective of the individual citizen, determining what climate change is, has shown that it may be at once a problem and a context. In times of change and uncertainty, individuals look to their institutions, which serve to hold societies together and ensure their survival (Jordan and O’Riordan, 1997). The institutions work with the public to understand change and frame it within a shared social context; this is a process through which we construct meaning. These institutions will, in the end, negotiate with the public a socially acceptable, culturally relevant, and politically tolerable consensus interpretation of climate change— using science, and their own positions of authority as social tools for educating and steering the public toward their “best” definition through their control of the discourse (Jordan and O’Riordan, 1997). “There is, in short, no ‘climate change’ outside of a socially constructed framework (Jordan and

O'Riordan, 1997).

Indeed, climate change is both real in the positivist sense, and at the same time defining it contextually reveals that it is indeed a social construct with many different meanings depending on who is defining it and what their circumstances are in the world. Dynamic relationships between climate and society predate the historical record and have existed throughout all of human history and across all cultures; these relationships have at once held elements of creativity and fear; climate evokes strong emotional responses because it is and has always been out of our control. Nonetheless, the recent disclosure of the potential for grave consequences resulting from human caused warming is altering the course of social culture both through coming to terms with the consequences of our past actions which led to this tipping point— and through the present fear societies are dealing with as they face the massive disruption caused by our need to prepare for an ominous future painted by the predictive descriptions of climates yet to come (Hulme, 2007).

All of this is happening under the socially constructed phenomenon of "global warming". Hulme (2007) points out that the emergent phenomenon of climate change needs to be reconstructed because the old narratives, were constructed by the neoliberal elites and are rooted only in the positivist, natural sciences where the approach to problem-solving is to improve measurements and refine models based only on analysis of climate variables and without consideration for the social, ethical, and justice elements involved in facing the climate change problem. Such an approach leaves a small number of "experts" who can make predictions and refine them. This in turn has led to neoliberal global overreach and questions about the legitimacy of new forms of layered governance (Scholte, 2001).

Hulme (2007) further indicates that a new construct must involve the joint efforts of those in the natural sciences and the humanities. In the absence of input from the humanities to frame the current crisis in a historical and sociological sense, and in the absence of input from the public, the solution sets to climate issues provided by positivist, neoliberal approaches will fail. Although at present, neoliberal policies dominate the global responses to climate change, this may not continue much longer. Currently, elites control the discourse and use scientific claims and evidence to legitimize their overreach and justify their need to take "emergency measures". The narrative used to justify this haste, is that waiting to act or seeking input from socially marginalized groups, who may be displaced, lose, or relinquish some of their access to vital resources such as land and water as a result of policy directives mad in haste is too risky, since acting too slowly might have devastating consequences for all. Skilling (2014) and Barry and Elmes (1997) address aspects of the neoliberal narrative; in his paper discussing the ubiquitous nature of modern crisis narratives, Skilling (2014) asserts that crisis narratives succeed by design; they are political instruments designed to succeed by evoking a predetermined "preferred response". Barry and Elmes (1997) assert that not only must crisis narratives be persuasive, they need also to be somewhat unusual; this not only causes the crisis message to spread quickly, it also gives the crisis credibility.

The mechanism involved in the is framing and disseminating the justification narrative in a way that makes the "preferred response" appear urgently necessary. If consensus to act can be reached swiftly, there is minimal response time for the formation and dissemination of dissenting views (Skilling, 2014). Crisis narratives involve framing the driving discourse in a way that evokes emotion and emphasizes the "just nature" of the argument leading to the "preferred response" (Skilling, 2014).

Hulme (2007) predicts that climate change will unseat the hegemony of liberal elites and the legitimacy of positivist science as the only relevant source of "knowledge". The problem with the current dialogue as Hulme sees it is; its properties – endow it with a near infinite plasticity.

The existing framing of climate change – with its dominating material and global used to justify, *inter alia*, emissions trading, geo-engineering, wind turbines, nuclear power, national identity cards, flight rationing, carbon offsetting, etc. Climate change becomes a malleable envoy enlisted in support of too many rulers.

Not only is climate change discourse elastic in its properties, but beyond its malleability, the

actual language continues to mutate whenever expedient (Peck, 2013). Buzzwords appear with considerable frequency; —climate change —global warming —the Anthropocene age and so on; most recently the "nexus" appeared out of nowhere and it immediately began to saturate the climate change literature. The "nexus" of food—water—and energy, like the other buzz words and their supporting constructs, all serve to generate a dynamic discourse capable of supporting shape-shifted versions of the same neoliberal agenda (Peck, 2013; Cairns & Krzywoszynska, 2016).

Because discourse drives the construct of climate change, whether or not measures adopted through the UN by the policy makers within signatory countries have been successful in affecting real change in quantifiable indicators should be examined. This study will look at the ratio of 2 sustainable development goal indicators. The study will look at the consumption of fossil fuel energy (UN Sustainable Development Goal (SDG 7), target 7.2: increase global percentage of renewable energy). The study will also look at whether the SDG 6 (ensure access to water and sanitation for all) development goals are progressing SDG 6 looks at a number of water concerns (Ritchie, Roser, Mispy, & Ortiz-Ospina, 2018a):

1) Number of people using safely managed drinking water

2) Safely managed drinking water, rural vs. urban

3) Drinking water service coverage in urban areas

4) Drinking water service coverage in rural areas

5) Share of population using at least basic water sources

This study will examine whether access to clean water goals 1 and 2 are progressing.

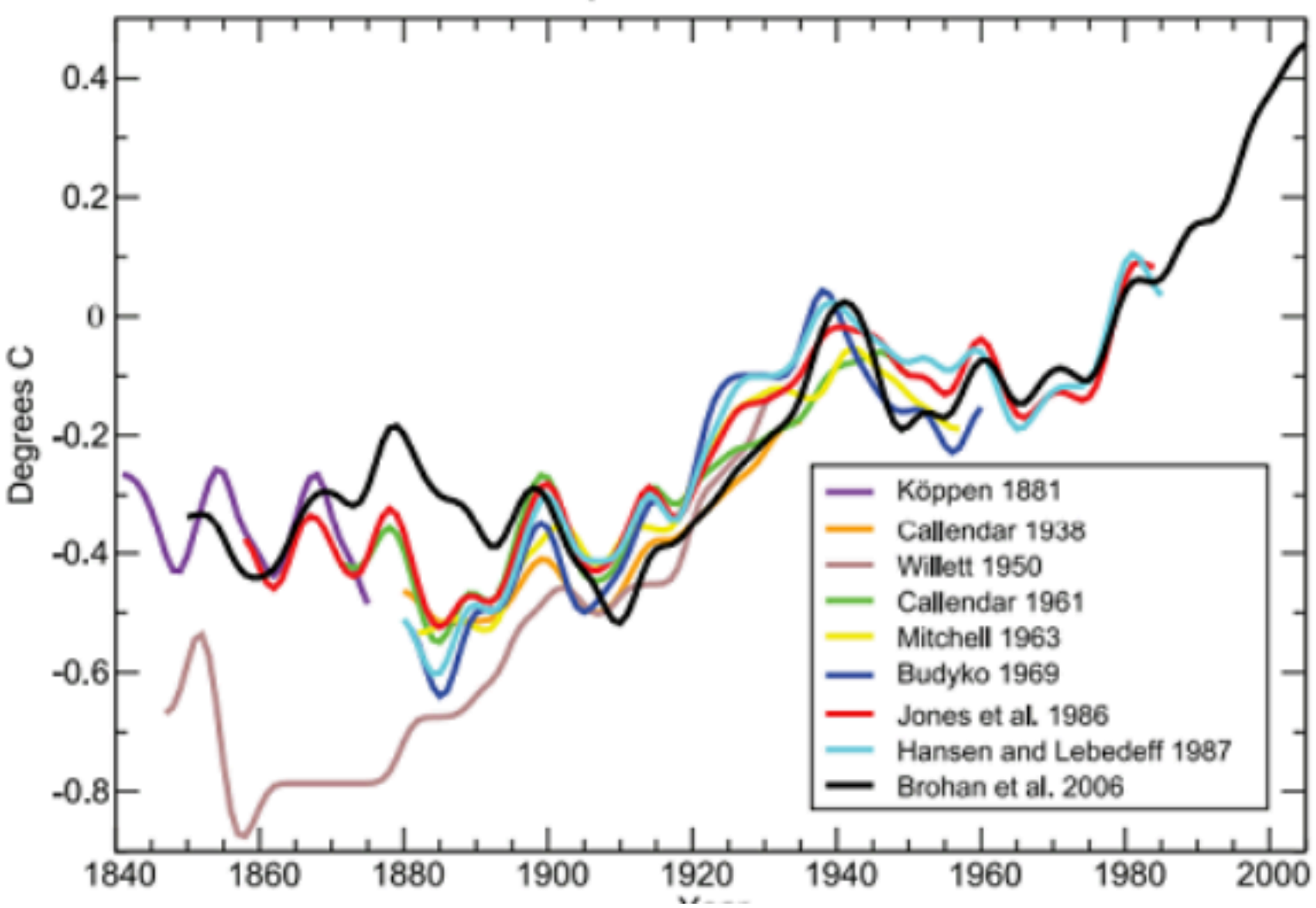
If the literature indicates that substantial change in outcomes through the current climate change construct are not occurring (Ritchie & Roser, 2019) (Ritchie, Roser, Mispy, & Ortiz-Ospina, 2018b), the study will try to determine if there is any evidence that the failure involves the discourse used to construct climate change.

The research approach in this study is interpretivist, constructivist and exploratory and will use purposive sampling and iterative keyword searches. The perspective of the researcher is that climate change is constructed and dynamic in ways that reflect the evolution of the dominant discourse narrative; climate change is a variable construct that appears different depending on whose perspective the observations are made from (Le Prestre & Stoett, 2006; Van de Poel et al., 2012). Perspectives are expected to be very different among people affected by water consumption, and those making use of water for other purposes. Climate change can be viewed at once, as a reality, an agenda, and a narrative reflecting mostly the dominant discourse (Jordan & O'Riordan, 1997). Geoghegan and Leyson (2012) assert that the lack of an adequate description in the (positivist sense) that can succinctly define global climate change, has effectively changed the discourse from that of early times — which focused on debating the ontological existence of climate change, to a current direction that reflects a need for a new, more relevant construction of climate change assertion that a wider perspective that includes contributions from the humanities and the natural sciences is necessary. This new construct will require that larger epistemologies that consider different ways of knowing which include historical and sociological perspectives that ground the narrative in an ethical base of concern for the well-being of society and not just from market perspectives.

The institutional response that will follow, will reflect the ability of our institutions to adapt to the greater needs of the society (Hulme, 2007). Hulme (2007) contends that if neoliberal institutions fail to adapt, they will likely be replaced because; the current policy goals have not been constructed in a climate of consensus and thus are not the type of goals around which the world will be re-engineered willingly.

Figure 1

Published records of surface temperature change over large regions



(Le Treut et al., 2007)

Köppen (1881) tropics and temperate latitudes using land air temperature. Callendar (1938) global using land stations. Willett (1950) global using land stations. Callendar (1961) 60°N to 60°S using land stations. Mitchell (1963) global using land stations. Budyko (1969) Northern Hemisphere using land stations and ship reports. Jones et al. (1986a, b) global using land stations. Hansen and Lebedeff (1987) global using land stations. Brohan et al. (2006) global using land air temperature and sea surface temperature data is the longest of the currently updated global temperature time series (Section 3.2). All-time series were smoothed using a 13-point filter. The Brohan et al. (2006) time series are anomalies from the 1961 to 1990 mean (°C). Each of the other time series was originally presented as anomalies from the mean temperature of a specific and differing base period. To make them comparable, the other time series have been adjusted to have the mean of their last 30 years identical to that same period in the Brohan et al. (2006) anomaly time series (Le Treut et al., 2007, p. 101).

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2. Methodology

This review is a simple qualitative literature study to determine first, if the current construct and narratives for global warming are achieving any level of success in two of the UN Sustainable Development Goals 6 and 7 (SDG 6, SDG 7). The study will look at the ratio of sustainable energy use relative to consumption of fossil fuel energy over time to determine if development and use of sustainable energy is taking place as required by SDG 7. The study will also look at whether access to clean water a major goal of for SDG 6 (“ensure access to water and sanitation for all”) is progressing. If there is a lack of progress the study will use purposive keyword sampling to try and determine if the construct and narrative are allowing participating governments and outside players to side-step operate within the requirements of the UN efforts while at the same time finding ways to avoid complying with the spirit of the regulations. If the literature shows that the sustainability indicators are showing progress, the literature may show how the narrative might be in part responsible. The goal is to look at the narrative against the two indicators. The research approach is constructivist, interpretivist, exploratory study that uses purposive sampling. This is preliminary bibliography study that will hopefully provide information useful to researchers planning larger studies. Larger studies may help inform policymakers.

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3. Results

This exploratory literature review was designed to look at whether or not the constructive narratives of climate change and goals to mitigate the effects of climate change on the most vulnerable populations are congruent with the outcomes. The study found that for the indicator of access to clean water, reports show that good progress has been made globally on increasing access to clean water for people who did not have such access in the past. Unfortunately, sub-Saharan Africa, one of the areas with large populations of vulnerable people, has suffered less access over the period between 1990 and 2015. Part of this may be weather related, but it could also be the result of the commoditization and marketing of water. The World Council warned of the possibility of such exploitation of poor populations by wealthy agents—they suggested a global water governance agency to provide oversight as an avenue for remedying this. However, the literature has shown many studies where corruption or lax government in impoverished areas has made officials who would normally ensure their populations had first access to water less than protective of local water rights. There should be concerns about the negative aspects of virtual water since there appears to be some agenda to change the paths of governance of local water and virtual credits provide a strong tool to release water from its location and local people from their water.

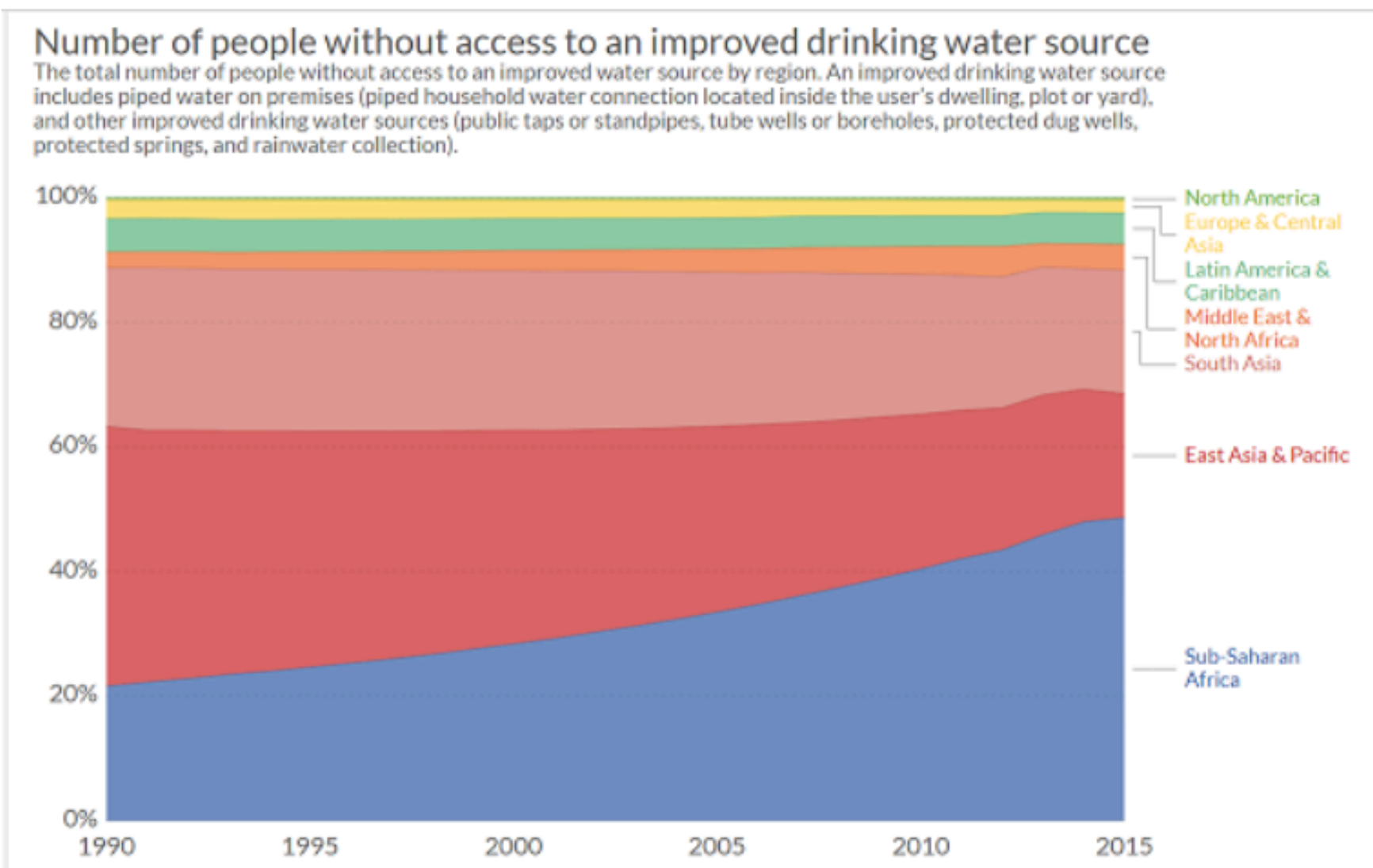
Progress on the SD6 Target for access to clean drinking water (figure 2) Globally, access to fresh water has increased significantly. Unfortunately, the number of people with access to clean drinking water in sub-Saharan Africa has dropped %. Sub-Saharan Africa was home to 22% of the global population that had no access to fresh water in 1990; sadly, this number has increased over time such that in 2015 almost half of the global population with no water access are now living in sub-Saharan Africa (Ritchie & Roser, 2019). There has been no significant funding for or use of alternative renewable energy in any country. This is because renewable energy is not being funded.

3.1. Progress on SD6

Progress on the SD6 Target for access to clean drinking water (figure 2) shows a rise in the number of people lacking access to clean drinking water over time in sub-Saharan Africa and to a lesser extend in East Asia and Pacific (where this is particularly evident between 2013-2015) These two regions are home to high numbers of marginalized and impoverished people (Ritchie & Roser, 2019). SD 6 targets for access to clean drinking water unfortunately indicate better access that is distributed equally with respect to location. The data show significant improvement in access to clean water on the global scale with losses in access to clean water occurring among some of the world’s most vulnerable citizens (Ritchie & Roser, 2019). These scaling issues occur within countries as well as can be seen in the lack of response to the water crisis in Detroit and Flint Michigan. The numbers of people without access to clean water have continued to rise in some regions even after the UN SDGs brought global efforts to bear on the problem.

In 1990 roughly 42 percent of the global population without access to water lived in East Asia & the Pacific. By 2015, the numbers had dropped by 20 % in the region. Sub-Saharan Africa was home to 22% of the global population that had no access to fresh water in 1990; unfortunately, this number has increased over time such that in 2015 almost half of the global population with no water access are now living in sub-Saharan Africa. In fact, the number of people throughout the world without access to clean water has fallen across all regions over this 25-year period except for Sub-Saharan Africa. The number of people in Sub-Saharan Africa having no access to an improved water source increased between 1990 and 2015 from 271 million to 326 million (Ritchie & Roser, 2019).

Figure 2
Number of people without access to
an improved water source by region

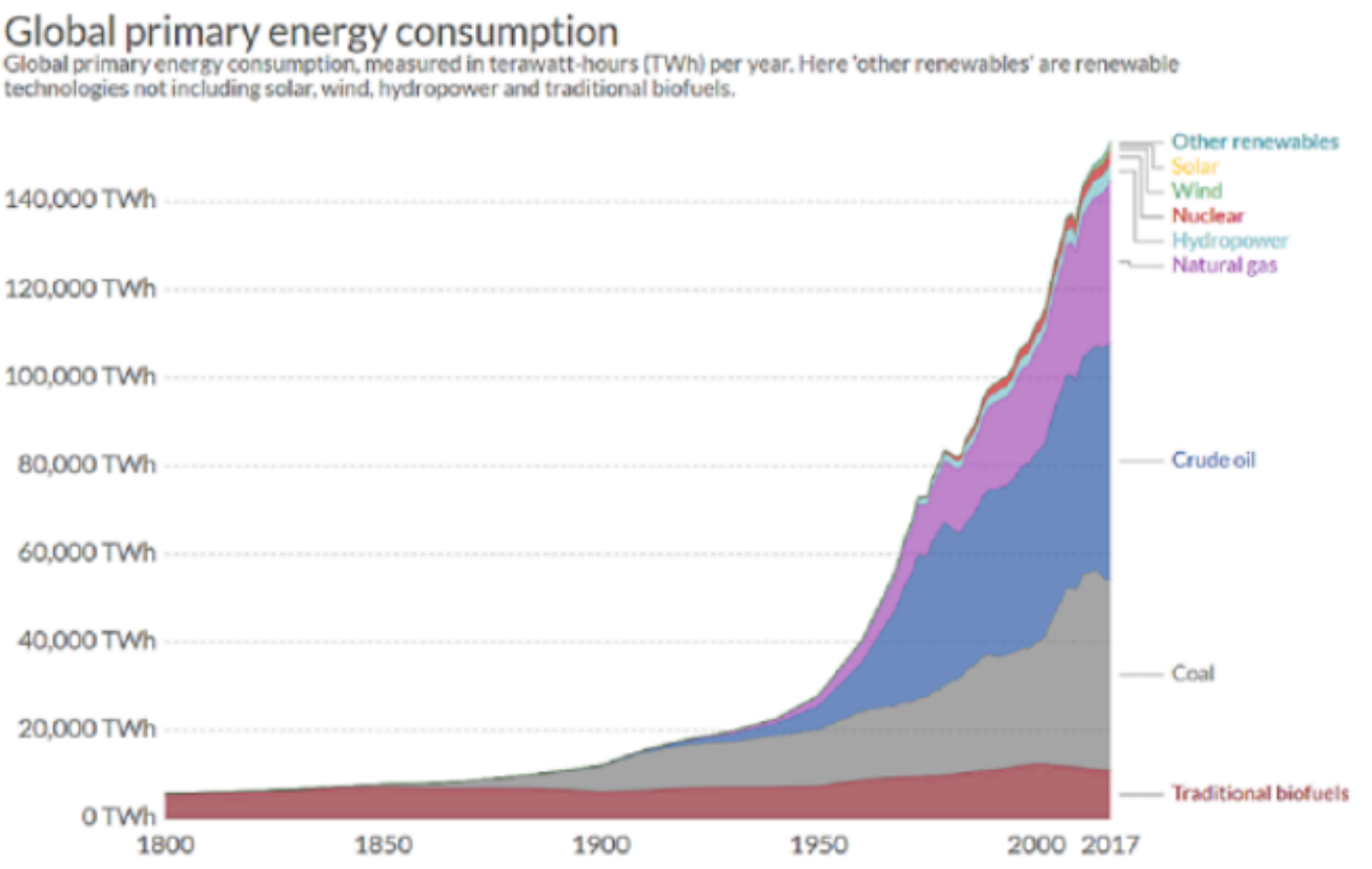


(Ritchie & Roser, 2019)

3.2. Progress on SDG7

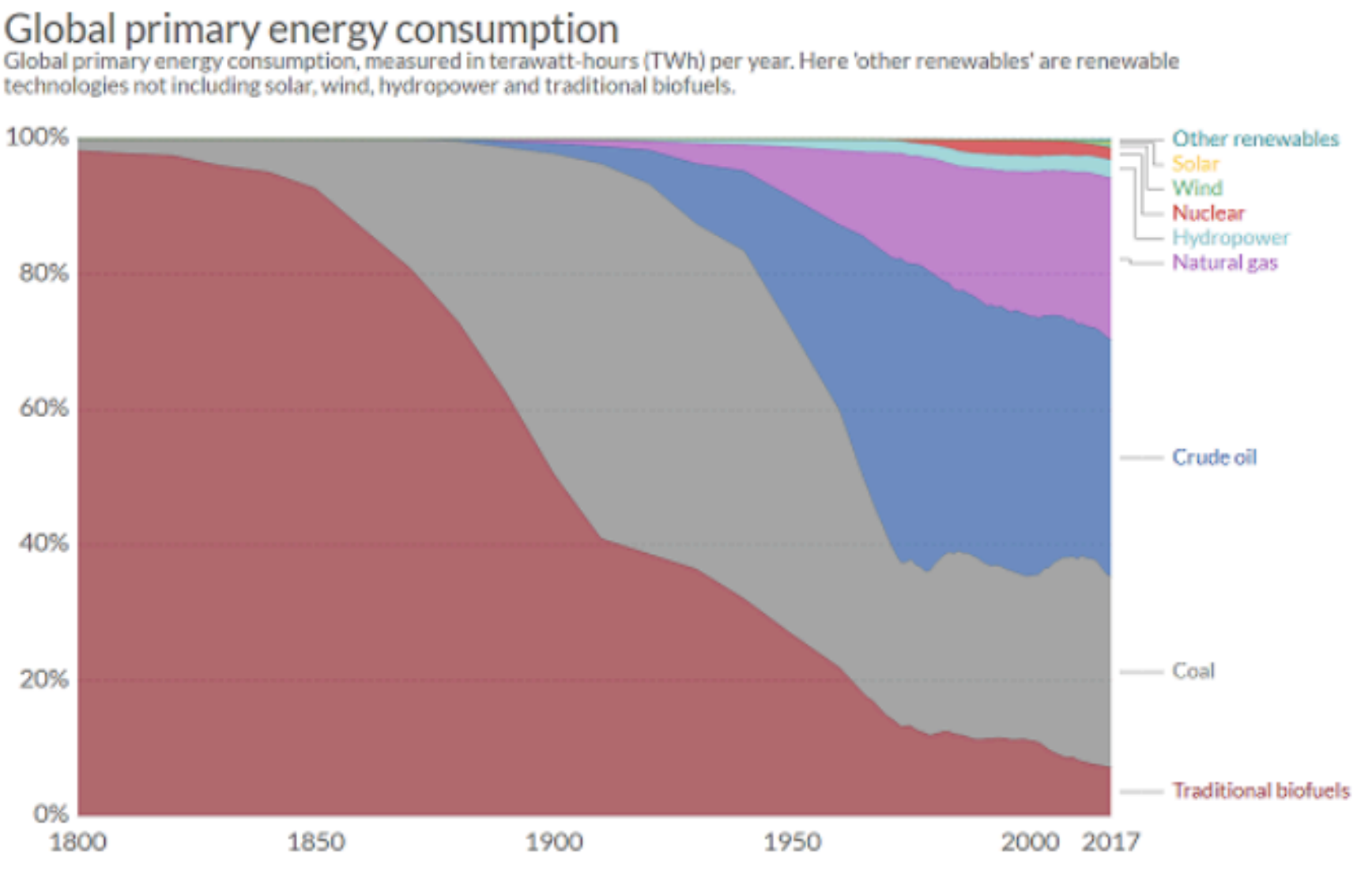
Figure 3a. shows that starting in 1800 almost all of the world's energy was produced through burning wood. The world used a small amount of coal ~ 2% with the UK using slightly more than other countries. The Segway into consumption of oil began around 1870 Followed by a switch to natural gas and hydroelectricity around 1890. By the turn of the century, coal consumption had risen significantly and accounted for half of the energy being produced and used at the time. The remaining half of energy in use at the time came from biomass, since energy produced consumption from oil, gas and hydroelectricity remained small. By the middle of the 20th century, coal consumption dominated traditional biofuels and oil production rose by ~ 20%. Nuclear energy consumption entered the mix around the 1960s—with renewables (modern biofuels, wind, and solar) appearing in the mix in the 1980-90s. Other renewables including geothermal and marine are too small to consider currently. By 2015, world consumption of energy had reached 146,000 terawatt-hours (TWh) of primary energy ~ 25 % more than was consumed in 1800 (Ritchie & Roser, 2019). Ritchie and Roser (2019) point out that current levels of global energy consumption indicate that the total contribution from renewables remains small < 5%; this included biofuels and hydropower. The data show that despite continuing narratives and rhetoric about commitment to renewables, sustainable, renewable, energy makes only a tiny contribution to the mix —the reason being that the development of renewables is not being funded anywhere. Figure 3b. Shows the Global consumption of energy between 1800-2017; mix in percentage of global total.

Figure 3a
Global consumption; energy mix from 1800 to 2017



(Ritchie & Roser, 2019).

Figure 3b
Global consumption of energy between 1800-2017;
mix in percentage of global total



(Ritchie & Roser, 2019).

3.3. Market commoditization of water

The concept of virtual water is a narrative constructed with the stated intention of providing a more just and equitable climate for transnational market exchanges by taking into consideration the water content that goes into end products (Vos & Boelens, 2018). Quantifying the water content of products provides a standard measure for 'embedded' water; i.e. the water used in production, processing and trade of commodities (Pedersen et al., 2014). As an example, the virtual water content of 1 Kg of wheat is estimated at 1000 litres of virtual water. The virtual water content needed to produce a Kg of beef is much higher—with the virtual water content of beef estimated at 15.000 litres for cattle raised in Europe or America (Pedersen et al., 2014). Virtual water content is adjusted to level the trade floor between water rich and water poor countries and to help counties decide what crops are best for them to grow and what would make sense to import based on water content (Vos & Boelens, 2018). The ideal is to better distribute wealth. However, the practice is not as distributive as it would appear since water, which in the past had been largely governed locally, has intrinsic value that cannot be measured against market forces but is recognized by local people.

As a result of these market ideas, water has been transformed into a monetized commodity with an assigned value generated by global actors responding to transnational market forces (Vos & Boelens, 2018). As a result, some argue that the virtual water trade disempowers local governance and introduces actors with no legitimate authority into the governance of local watersheds (Boelens et al. 2016; Romano, 2016 and Hoogesteger, Boelens, & Baud, 2016)

There is disagreement among academics on whether virtual water is beneficial or harmful to people struggling in poverty. Other concerns have been raised about the process of trading water. Virtual water presents a way of monitoring market transactions in order to bring to light hidden production advantages enjoyed by water rich countries; as a result, there is fear among governments in water rich countries that a water footprint is never neutral (Roth & Warner, 2008).

Those in water poor countries (especially if there is high poverty) see the virtual water system as presenting a false equity narrative as in order to pressure poor nations and their cash strapped governments into accepting modest payments for the sale of a scares, valuable resource to non-consumptive water users such as transnational energy interests (mining companies) or beverage and bottling companies like Coca Cola (Vos & Boelens, 2018); the ethics of such transactions are questionable because of the power gradient between wealthy and poor traders; if water is marginal and other pressures cause access to water becomes difficult for local consumers the ethical breach can cause illness in populations and contribute to loss of life (Gawel & Bernsen, 2013).

The term 'virtual water' is frequently used in the context of the global water trade (Allan, 1998; Gawel & Bernsen, 2013). Virtual water makes it possible to keep track of trade flow through the establishment of standard values for the virtual water content of products (which are adjusted depending on location of production). If virtual trades are made in conjunction with the calculation of the water footprint of the traders involved, the information can cause controversy; Roth and Warner (2008) point out that water footprints are not politically neutral. Academics have different perspectives regarding the value of these quantification methods for tracking water and the moral implications of recording and monitoring transactions in this context as well as ethical concerns about the potential for exploitation of impoverished populations by big business and agriculture continue to be debated (Gawel & Bernsen, 2013). Virtual water footprints where virtual water accounting is employed over time, are referred to as flows. Consumption of virtual water can be tracked under flows, to yield consumption records at all scales —from the individual to the nation state (Hoekstra & Hung, 2003).

There are those who support the idea of virtual water as having the potential to bring about

a more equitable distribution of resources through market valuation (Gawel & Bernsen, 2013). The idea is that, the market will adjust in such a way that nations with a greater supply of water will produce the most water-intensive products—thus reducing the burden on water poor countries to produce these items for themselves. Water poor countries will see savings by importing these items and rather than producing them. They can then put their efforts into producing products that do not rely heavily on water (Hoekstra & Hung, 2003; Gawel & Bernsen, 2013).

There is an obvious concern about the very act of delocalizing water. Water is necessary for life and those in vulnerable positions may be tempted to address an immediate need by selling something without which they cannot survive. The counter argument (Gawel & Bernsen, 2013) is that the market will protect all individuals by promoting better business models based on increased knowledge and attention to thing like which crops to plant. Although the intent may be sound, the market will not necessarily protect some populations from exploitation if local governance over water is corrupt or interfered with in a pressuring manner once water slipped from the tether of its geographic location. Once water becomes a tradable commodity, risk increases for the local population and for the health of the watershed (Vos & Boelens, 2018).

The World Water Council (2004) expressed concerns that such exploitation is possible particularly in situations where trade occurs between parties in which there was a significant difference in wealth. The proposed solution was the establishment of global water governance system with legitimate authority to act across national borders (World Water Council, 2004).

Virtual water schemes are most often backed by international financiers who collaborate with governments (Roth & Warner, 2008; Solanes & Jouravlev, 2007; Smaller & Mann, 2009). Mehta, Veldwisch and Franco (2012) and Smaller and Mann (2009) have found two main attributes about virtual water schemes that they feel are important to the understanding of the concept;

1) Virtual water trade is detrimental to the environment and social structure in arid regions. They imply that virtual water trades should not be allowable in eco-fragile areas because the pollution of the groundwater is significant, and the damage done mostly affects the poor.

2) Virtual water flows throughout the world are driven by financing schemes funded by private multinational corporations who receive substantial returns on their investments; these are mostly agro-export companies and retail conglomerates.

Vos and Boelens (2018) discuss the neoliberal governmentality of water. Water governance which in many rural places around the world was largely a local issue historically, are now being brought under neoliberal forms of governance. Narratives of “efficiency”, “productivity”, and “stakeholder” are being used to sell the idea of jointly governing resources that were once considered the commons with individuals representing business interests and governments —who do not live there. The language used by the non-local participants is often academic and reasonable sounding (Vos & Boelens, 2018). Indeed, there are new narratives which espouse ideals that include social justice incentives on the part of the extractive business as a driving force for the business collaborate with local people. Neoliberal narratives for water governmentality operate using three basic themes, efficiency, stewardship, and water footprint.

Efficiency is described by Vos and Boelens (2018) as;

1) Efficiency—since there multiple stakeholders, water should be prioritized in an efficient manner by giving first right to use to the party that will produce the highest value product.

2) Technical discourse which is based on various calculations of water content of product and market value of water under various scenarios—with special emphasis on the “fact” that the results of various calculations values for the water on a given day that are “universally accepted” i.e. no claim can be made by a local person that the worth more since the whole world is in agreement with the number that is present to them.

3) Mechanisms and narrative designed to install guilt in local people for not understanding what everyone else understands and for using water unwisely water-rich countries to water

poor ones.

Stewardship has 4 themes:

1) Private water stewardship

2) Water offsetting

3) Claiming increased water-use-efficiency

4) Techniques to make water use more visible

Private stewardship involves collaborative business organizations with credible names that often have non-profit status and an environmental mission statement; these include such organizations such as Roundtable on Responsible Soy. Many of these organizations share knowledge of best practice agriculture and help financially and labour wise in helping set-up sustainable projects in rural areas. The water stewardship approach is inclusive, and locals are generally not given much access; certainly not in any decision-making capacity. They do make recommendations to the local governments and report the inefficiencies such as water waste from improper irrigation that are going on everywhere (Vos & Boelens, 2018). This often leads to officials allowing or requesting their input in legislation that favours their use of resources–since they will use them more efficiently.

Multinational companies also claim reduced water use numbers over time as evidence of their environmental awareness. They report these numbers in percent reduction since to give actual numbers would be counter to their argument (Vos & Boelens, 2018). Finally, these corporations use the water footprint to make local people feel guilty for poorly handling their water use.

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4. Conclusions

After my review and literature analysis show that both indicators are problematic in the meeting UN SDG targets; though, there is no way to tell if there is a relationship between the narratives and the problems in reaching SDG goals for either clean water access or conversion to clean energy. However, it is clear that multinationals are investing in extraction activities in impoverished countries, further studies could be done to determine if, for instance, water credits were in any way responsible for the increase in persons in sub-Saharan Africa without access to clean water or if there is another explanation such as lack of rain. Of course, there are likely multiple factors involved. This is certainly a question that should be looked into. If water was extracted from the area, who obtained the water or product and how was that justified in a dry impoverished region under SDG 6? This regional discrepancy may reflect climate or possibly equity issues arising from virtual water schemes and the construction of water as a market commodity under neoliberal narratives.

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1. PhD in Administrative Sciences. CIIEMAD, Instituto Politécnico Nacional. This work was derived from SIP-IPN Project 20190178: Modelo para mejorar la gestión de las energías renovables en México. j.a.silva@outlook.com

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