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CRISIS, INJUSTICE, AND SOCIO-ECOLOGICAL JUSTICE¹

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ABSTRACT

This article theorizes on crises, injustice, as well as socio-ecological justice by taking the case study of a drought crisis occurring in shallow wells belonging to local residents vis-à-vis the deeper wells of hotel establishments in Yogyakarta. The hotel establishments themselves are facing a crisis of overproduction—an integral part of "Accumulation by Dispossession" (AbD). However, the theory of AbD, grounded in the contradiction between labour and capital, is inadequate in explaining this crisis. As the drought phenomenon comprises non-labour elements, the theory of overproduction needs to be supplemented with a theory of crisis of underproduction (*aleon*). The socio-ecological injustice resides in the operation of hotel wells that is dictated by exchange-value, while all household wells are governed by use-value. To achieve socio-ecological justice, this article suggests positing use-value as an axis in determining the relationship between humans and non-human elements to build an interconnected anti-capitalism movement.

Keywords: Accumulation by Dispossession, *aleon*, overproduction, socio-ecology, capitalism.

In their endeavours to illustrate unfurling crises, injustice, as well as to bring forth imaginations of justice, non-governmental organisations, researchers and corporations often invoke the phrase "socio-ecological" (see Jatam, 2018; Setyawan, 2018; Luthfi, 2017). One such researcher is the environmental scholar Hendro Sangkoyo who in the past two decades had strived searching for ways for society to recover from socio-ecological crises (see Sangkoyo, 2016). In his elucidation of this crisis, Sangkoyo views capitalism as the primary engine propelling the multiple processes that are happening right now (see Sangkoyo, 2018, p.

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137-151). Meanwhile, Dian Yanuardi and Swanvri put forth a theoretical discussion on socio-ecological crises being the result of capitalist expansion. They analysed these conditions as the consequence of capitalism's internal contradictions leading to a crisis of overaccumulation (see Yanuardi, 2014, p. 31-45).

As the term "socio-ecological" gained popularity and became more ingrained in public conscience—or as Gramsci (2000) puts it, "philosophy for the non-philosophers"—it is reasonable to expect that a more theoretical problematisation on what "crises, injustice, and socio-ecological justice" actually means is needed. In this regard, neither Sangkoyo nor Yanuardi and Swanvri have been sufficiently convincing in their arguments. Sangkoyo's account and analysis had been too general (see Sangkoyo, 2018), while Yanuardi and Swanvri approached the crisis of overproduction by emphasising the analysis of capitalism as a relation of production where capitalists exploit their underclass labourers. The question is, how do non-labour forces (or to be more precise, *non-human* forces) contribute to these crises? Is ecology merely the result of capitalist expansion? What role does ecology play within this crisis that it is dubbed a "socio-ecological crisis" rather than simply a "social crisis"? And finally, how should we conceptualise our understanding of crisis, injustice, and socio-ecological justice?

This article attempts to tackle these questions via a dialogism between the theory of "Accumulation by Dispossession" (hereinafter abbreviated as AbD) and the theory of the "crisis of overaccumulation" reintroduced by David Harvey for pragmatic reasons: by positing Accumulation-by-Dispossession as an explanatory framework for the rapid process of capital accumulation in Indonesia within the past few decades, one creates a resonance among users of the term "social-ecology" who tend to identify the genesis of socio-ecological crises within the expansion of capitalism.

Among other cases, this framework of AbD and capitalist expansion had been utilised to explain how residents in Yogyakarta had faced a water crisis due to their shallow wells drying up over the years. This particular case is chosen for its strategic advantage to problematise the aforementioned framework because it contains two separate dimen-

sions. The first dimension is the groundwater extraction activity, especially via wells "owned" by hotels in Yogyakarta. While the second dimension is the amount of time needed to refill the aquifers cannot keep up with the speed with which groundwater is extracted. It is the dialectic between these two dimensions that results in the drying up of the shallow wells belonging to local residents. The utilisation of AbD as a theoretical framework in this drought case, namely to illustrate groundwater extraction as a process of accumulation through mechanisms of dispossession, will prove to be insufficient: it fails to take into account the scarcity of water supply within the process of refilling the extracted aquifers, because the hydrological cycle as a factor within capitalist production involves non-labour elements. In other words, a different theory is needed to illuminate this drought crisis in Yogyakarta—one that opens up the space to complement, and not replace, the explanatory framework of Accumulation-by-Dispossession.²

To supplement the aforementioned theoretical concoction, this article incorporates Jason Moore's conceptualisation of capitalism as the combination between human and nonhuman elements, of which both provide value within capitalist production (see Moore, 2015). The value that capitalists "snatch" is not only from exploiting surplus-value of labour in an industrial system, but also appropriating other non-labour aspects. This framework of Moore's will be employed to explain the process of groundwater appropriation in Yogyakarta. The drying up of residents' wells because the hydrological cycle that replenishes the water table cannot keep up with the amount of water being extracted is identified in this paper as a moment of "crisis of underproduction" or *aleon*³.

² The contradiction between "shallow wells" versus "deep wells" did not only happen in Yogyakarta. A drought crisis in shallow wells had also occurred in the Gunung Pati District of Semarang, Central Java. In a discussion entitled "Mbalekke Banyu" (returning water) in the Kampong of Gebyok (12 July 2019), the narrative that developed was that newly-drilled deeper wells in a recently-constructed housing complex had taken all the water supply from the wells of local residents. In Labuan Bajo, East Nusa Tenggara, the shallow wells of local residents also ran dry due to extraction of groundwater from deeper wells belonging to commercial entities, namely hotels and industries (see, www.youtube.com/watch?v=C9732OmrWZc&feature=youtu.be). And in Jakarta, especially in its northern areas, groundwater extraction from deep wells have been the main culprit of land subsistence within the region (writer's research, yet to be published).

³ *Aleon* is a Mandailing word that explains "scarcity" (of harvest yields and commodities).

THE DIALOGUE BETWEEN “ACCUMULATION-BY-DISPOSSESSION” AND THE CRISIS OF OVERPRODUCTION

David Harvey formulated the theory of AbD in several instances over his career as a geographer (see Harvey, 2003; Harvey, 2004; Harvey, 2005a; Harvey 2005b). Introducing it in his 2003 book *New Imperialism*, Harvey employed the theory to explain the constellation of international geopolitics hegemonised by the United States, albeit one that is characteristically different during the 1970s to the 2000s from its hegemony in the previous period (see Harvey, 2003). To explain this distinction, Harvey bases his analysis on two dialectic logics: the logic of state power and the logic of capital expansion. While state power is *fixed* within a defined territory, capital expansion is always *mobile*, bypassing borders hitherto defined in the workings of state power itself. Both logics were at work throughout the change of hegemony post-World War II.

From 1945 to the 1970s, the United States conducted their hegemony through state power, utilising their political and military might to become the dominant force in international geopolitics. Meanwhile, the 1970s to the 2000s became the era of neoliberal hegemony. The United States remained hegemonic in world geopolitics, but this time it is supported by big corporations that consolidated and managed to take over and supplant the Keynesian state since the 1970s.

Corporate consolidation of this era resulted in the over-accumulation of capital in the hands of American businessmen. Such excessive accumulation of capital necessitates its injection into the capitalistic circuit for it to sustain and generate new surpluses. Capital must always be on the move to keep generating profit—either via the exploitation of labour taking away the surplus-value generated through their work, or by appropriating anything that has yet to be usurped into the capitalist system. In short, capital must keep expanding geographically to ensure its continued existence.

Compared to AbD, over-accumulation theory has had a longer history. Harvey himself analysed the capitalist crises by understanding the contradictions between capital and labour. He laid out three types of crises which had become inseparable to capitalist development (see Harvey, 1981, p. 1-12). The first is borne as excessive capital accumula-

tion in the hands of the capitalist class occurs alongside a lack of demand amongst consumers (which often turns out to be labourers as well). As commodities cannot be sold in the market, this “crisis of over-accumulation” becomes near-synonymous with the “crisis of overproduction”. When commodities cannot be sold, a drop in factory productivity follows, which results in layoffs of labourers.⁴ The capital’s way out of this crisis of over-accumulation, Harvey argues, is to expand geographically, otherwise known as a “spatial fix” (see Harvey, 1981). In new territories, capital will find new resources, labour, and market. In other words, capital is in a constant desire to seek new frontiers to integrate into its circuit.

The second form of capitalist crisis arises from a contradiction within financial capitalism. This crisis is tied to the first, namely that capital pursues its spatial fix with the help of financial schemes. In essence, financial schemes merely postpone crises by “pawning” the future by disbursing credit to expand capital by deferring payment. At this point, spatial fix encounters temporal fix, morphing into a “spatio-temporal fix” (see Harvey, 2006, p. 142-166). Eventually, the newly opened frontier—now taken hostage by the laws of capitalist contradiction—will inevitably descend into yet another crisis of over-accumulation. The inherently speculative nature of financial schemes means that investments tend to be disjoined from effective demand. Harvey illustrates this with the example of property sector speculation (see Harvey, 2012). While real housing demand is not actually high, the “iron law of competition” (see Woods, 2002) dictates the capitalist to keep investing their capital—lest another capitalist will—even in less rewarding sectors with a long turnover time such as property.

Finally, the third kind of crisis involves a geographically uneven development. This crisis is the result of the asynchronous rhythm of development—a flux of capital within a certain region (see Smith, 2008) which “ravages” a territory before moving on to ravage the next one. This crisis is also exacerbated by international trade organisations, which are steered by the interests of gargantuan multinational enterprises.

⁴ This dynamic prompted some to identify the crisis of over-accumulation as an over-accumulation of labour.

These capitalist expansions, intended to mitigate the neoliberal crisis of over-accumulation, are what lead to Accumulation-by-Dispossession. In its utilisation, however—particularly within agrarian academic circles—AbD tends to be divorced from the context of the crisis that precede it (see Hall, 2013). David Harvey was inspired by Karl Marx’s account of primitive accumulation (see Marx, 1982)—the divorce between “traditional” independent producers and their means of production, otherwise referred to as the process of “proletarianisation” that forces people to sell their labour for a wage. Harvey argues (see Harvey, 2003; Harvey, 2005a) that the adjective “primitive” within “primitive accumulation” has misled us to think of this phenomenon as something that occurred in the distant past and is finished. In reality, the process of creating new proletarian subjects continues to this day in this neoliberal age. Accumulation happens not only through labour exploitation within productive sectors, but also through dispossession of things that already exist.

Although he did not organise it systematically, Harvey posited that AbD consists of three important, yet distinct, elements: an “iron law” which dictates the entire process of Accumulation-by-Dispossession; the “pillars” which enable the conditions of which AbD can flourish; as well as its specific mechanisms (see Schema 1).

Schema 1. The theory of Accumulation-by-Dispossession



This article employs various sets of data to examine how the shallow well drought in Yogyakarta is an integral part of the process of AbD, the crisis of overproduction, and *aleon*. The data on hotel occupancy in Yogyakarta from 2013–2017, which suggests a symptom of overproduc-

tion, was acquired from the Central Statistics Bureau (BPS) of the Province of the Special Region of Yogyakarta (DIY) in 2018. Meanwhile, information on what constitutes a minimally “secure” occupancy for hotels in Yogyakarta was derived from statements of several actors within the industry. Information regarding groundwater *aleon*, as well as the dynamics of drought in household wells, was gathered from different media reports. This article uses the Mount Merapi aquifer as a methodological instrument to gauge the volume and monetary value of groundwater extracted by hotels in the region. Merapi aquifer is the hydrogeological unit from where groundwater is extracted; geologically, its rocks are sediments coming from Mount Merapi (see Putra and Indrawan, 2014, p. 106). Hydrologically, the Merapi watershed unit is called the “Yogyakarta-Sleman basin”. In this article, the distribution of Merapi aquifers is analysed using a Geographic Information System software (ArcGIS—see Putra and Indrawan, 2014). The aquifers throughout Sleman Regency and the City of Yogyakarta, as well as some points in the Regency of Bantul (see, map on Image 1) are chosen as the hydrogeological units for analysis due to their important function in providing groundwater for all three areas. If drought or contamination occurs in any of these regions, the first hydrogeological unit that is investigated is the Merapi aquifer. In other words, this article proposes a method of groundwater-monitoring based on a hydrogeological unit that coincides with the socio-spatial footprint for socio-ecological justice.

The data on two types of hotels—namely “star hotels” (S) and “non-star hotels” (NS)—is acquired from BPS DIY featured hotel directory that lists hotels down to subdistricts level (see, Badan Pusat Statistik Daerah Istimewa Yogyakarta, 2016). BPS also provides the data on hotel occupancy in 2016, as well the average occupancy per room (Badan Pusat Statistik Daerah Istimewa Yogyakarta, 2018). Meanwhile, the information on water consumption per hotel room of 380 liters a day (or a daily rate of 0,38 m³) is taken from the documentary film “Behind the Hotel” (Belakang Hotel) produced by Watchdoc (2015). The water tariffs refer to Yogyakarta Mayor Regulation Number 56/2013 on Drinking Water Tariffs for Regional Drinking Water Company (PDAM) Tirtamarta Yogyakarta, which stipulates a tariff of IDR 5,500/m³ for inns and lodgings,

categorised as “small business”, and IDR 10,500/ m³ for hotels, categorised as “large business”. The tariff actually increases for every 10m³ of water consumption, but this article does not take that into account. All water tariff conversions are calculated similarly at 0-10 m³ increments. Following Yogyakarta Mayor Regulation Number 56/2013, star hotels are designated as “Hotels”, while non-star hotels as “Inns/Lodgings”.

There are nonetheless two methodological limitations for such calculation methods. *Firstly*, the distribution of Merapi aquifers are concentrated within a central area and thins out toward the peripheries. This means that hotels and inns located throughout the latter are unable to extract groundwater from these aquifers. *Second*, the sorting of hotels by subdistricts means that the outlines of Bantul Regency may not precisely coincide with the distribution of Merapi aquifers. In other words, hotels and inns in subdistricts that are largely located outside of Merapi aquifers, such as Pajangan and Piyungan, may actually extract groundwater from Merapi aquifers, while those located within aquifer areas may actually extract their groundwater from elsewhere.

ACCUMULATION BY DISPOSSESSION OF GROUNDWATER AND THE CRISIS OF HOTEL OVERPRODUCTION

The documentary film “*Belakang Hotel*” illustrates how shallow wells belonging to residents in Yogyakarta were hit with severe drought in 2014 due to the presence of deeper wells belonging to hotels within the city. As such, groundwater extraction from aquifers beneath Yogyakarta became a competition between a group with lesser resources (in this case the residents) and another group with better resources (hotel owners). This asymmetry of resources is directly manifested in the depth of groundwater well of each: residents usually owning traditional wells of more shallow depth, while the more sophisticated hotel wells are able to penetrate deeper into the ground. This entire process can be argued as Accumulation-by-Displacement as hotels now dominate groundwater extraction—a resource that originally belonged to no one, but is then claimed by the state, which then levies taxes for its usage. This extraction process allows hotel owners to conduct accumulation by renting out hotel rooms while, on the other hand, the wells belonging to local residents dry up. In other words, residents bear the brunt of the effects of capi-

tal accumulation by being dispossessed of the groundwater which they were able to acquire for free before. By being pumped up from underground, water is brought to the surface-world of commodity relations.

Within the overall scheme of AbD (as summarised through Scheme 1 above), the act of acquiring groundwater can be categorised as the “privatisation of previously commonly-owned property”; indirectly, it is also the commodification of groundwater. However, it is worth noting that groundwater itself is *not* the traded commodity as such: what the hotels are actually offering are the rooms for their guests, of which groundwater is part of the services one gets by acquiring the rooms. This is different from the commodification of bottled drinking water that directly trades water as the commodity. In the case of Yogyakarta’s hotels, water assumes a “lubricating” function in the overall capitalist production process of hotel businesses and the hospitality sector.

Furthermore, there is also the moment of an overproduction crisis in the form of an oversupply of hotel rooms that exceeds effective demand. One can outline this crisis by measuring how occupancy rates of hotel rooms in Yogyakarta have always been short of “healthy market conditions”. From 2013 to 2017, hotel occupancy in DIY Province—both that of star and non-star hotels—had always been under 60 percent (see, Graph 1). According to the Director of the DIY chapter of the Indonesian Association of Hotel and Restaurants (PRHI) Istidjab M. Danunegoro, a 60 percent occupancy signifies the minimal level of optimal market conditions, with lower rates leading to unhealthy competition between hotels, including price wars (Wardhani, 2018). Below the 60 percent threshold, capitalist hotel owners are also likely to suffer a significant dip in revenue, even losses. As such, maintaining that 60 percent rate seems to be essential to enable capitalists to accrue profit, as well as avoiding “price wars” among hotel owners.

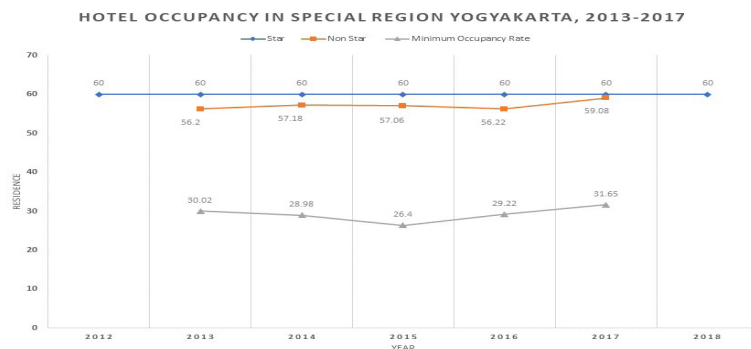
However, a new contradiction had since appeared in spite of these low hotel occupancy rates: in January 2019, the City Government of Yogyakarta ended the moratorium of new hotel building in the city. In spite of the already-sluggish market condition among the existing 624 hotels in Yogyakarta, the city government now allows new ones to be constructed—in particular four-star and five-star hotels, as well as guesthouses.

The government claims that the moratorium was ended to anticipate the influx of visitors to the city after the completion of the New Yogyakarta International Airport (NYIA). The increased tourist traffic is expected to increase the earning of local residents as well as the income of hotel owners (See Wijaya, 2019).

The question: if the demand for hotel rooms has been lower than its supply and market conditions are unhealthy, thus forcing hotel owners to descend into price war, why keep building new hotels at all? Aside from the alleged need to cater for the (projected) influx of tourists, it is the crisis of capital overaccumulation, or in other words, overproduction, which forces them to continue building new hotels in Yogyakarta. With low occupancy rates signifying an excess supply of hotel rooms, further injection of capital into an already sluggish market suggests that the capital accumulated in the hands of capitalists or financial institutions need to be kept being mobilised within the capitalist production circuit to generate further revenue, no matter the margin.

However, the overproduction or oversupply of hotel rooms is only one part of the conjuncture of crises that led to the drought of wells in Yogyakarta; the other part involves the Merapi aquifer itself as the site of groundwater extraction. Yet if moments of overproduction can be theoretically elucidated by outlining the internal contradictions of capitalism—namely between capital and labour, or between supply and demand—it takes a different theory to explain the role of aquifers, a non-human factor, within this crisis.

Graph 1. Hotel Occupancy in Special Region Yogyakarta, 2013-2017



- Bintang: Star
- Non-Bintang: Non-Star
- Pasar Sehat: Minimum Occupancy Rate
- Y Axis = Hunian [%] : Occupancy [%]
- X Axis = Tahun : Year

Sources: 1. Occupancy rates for Star and Non-Star Hotels 2013-2017 from the Central Statistics Bureau (BPS) of the Special Region of Yogyakarta (DIY) (2018); 2. Minimum occupancy rates for a healthy market condition from jogja.tribunnews.com (2018)

- Source: Central Statistics Bureau of the Special Region of Yogyakarta, Occupancy Rate of Hotel Rooms (Yogyakarta: BPS DIY, 2018).

The *Aleon* Crisis in Capitalism

In his analysis of industrial capitalism, Karl Marx heavily emphasised the process of exploitation towards labourers. He imagined surplus-value being derived from the excess unpaid work of the proletariat converted to a commodity for trade; it is through this process that capitalists are able to make a profit. The first three chapters of *Capital* volume I, for example, can be read as Marx’s unrelenting attempt to posit labour as the epicentre of his book about capital (see Marx, 1982). He mentioned, “The truth is, the value of every yard (linen fabric) is none other than the materialisation of several homogeneous labour work whose uniform quantity is determined socially” (see Marx, 1982, p. 202). So important is this particular passage that the Institute of Marxism-Leninism was “compelled” to provide a footnote to it:

“In a letter dated 28 November 1878 to NF Danielson, the translator of *Capital* to Russian, Marx made these following changes: ‘In truth, the value of every yard is none other than the materialisation of several quantities of social labour work inscribed within several yards itself.’” (see Marx, 1982, p. 202).

The distinction between the original passage in *Capital* and its accompanying footnote lies in *how* far labour-work plays a role in the production of value embedded within linen fabrics: in the first passage, labour tends to assume a determinant role. In its following footnote, this determination is visibly tuned down.

The perspective that puts great emphasis on such labour contribution is better understood by outlining the process of valorisation of capital in factories (see Marx, 1982, p. 321). A single production cycle begins with a certain starting point in time (t_0) and ends when the product has been made (t_n). In the beginning of this process (t_0), capitalists own a total amount of capital (C) in the form of means of production (denoted as c , or constant capital—for example: machines, fuel, and raw resources), as well as cash to purchase labour-power (referred to as V —variable capital). Brought together, the starting condition of production (t_0) is notated as follows:

$$C = c + V \dots \text{(Formula I)}$$

By the time production has ended (t_n), capitalists had exploited their labourers and now possessed the surplus-value embedded within their products. This means that their total capital has already grown from its initial starting point—now denoted as C' —due to the addition of surplus-value (S) acquired by the exploitation of labourers. This exploitation process is as exemplified as the following: in truth, a factory worker only needs to work for two hours a day to fulfil their living needs (something Marx refers to as “necessary labour”). However, labourers work for 8 hours a day while being paid the value equivalent of only 2 hours of work (V). It is these 6 hours of “surplus-labour” that is taken away, or exploited, by capitalists for their own profit. As such, Formula I has now been altered to:

$$C' = c + V + S \dots \text{(Formula II)}$$

The caveat here is that several elements, such as groundwater, are not explicitly taken into account within both formulations. In other words, their contribution is rendered invisible compared to that of workers in the production of surplus-value. As elements such as groundwater in Formula I and II are subsumed under the more general category of

constant capital (c), we need to adjust these formulas to bring light to their contribution in the valorisation of capital from C to C' . In this regard, the conceptual distinctions presented by Jason Moore are of great help (see Moore, 2015). He differentiates between “value” and “value-relations”; of “what becomes the character of capital” and “what is done by capital”; the “logic of capital” and “history of capital”; as well as “exploitation” versus “appropriation”.

In the production of capital, “value” is a specific term which refers to the process by which wealth is created—something that Marx stipulates as originating from the contribution of surplus-value exploited from surplus-labour of workers. However, Moore contends that in reality the creation of wealth is not merely generated from surplus-labour, but also the appropriation of non-labour elements such as water, land, groundwater, to the various forms of “reproductive work” done by domestic helpers, housewives, and the like, so that other members of the household can continue working as labourers for the capitalist class. These non-labour relations are referred to by Moore as “value-relations”.

Ultimately, the logic of capital is to accumulate as much profit as possible. As the personification of capital itself, capitalists are only willing to pay for wage labour and explicitly refuse to compensate for other non-labour contributions as this might reduce their profits, or even make them suffer a loss. If we pay attention to the history of capital, the accumulation of wealth has not only been enabled by exploiting labour, but also seizing others’ means of production, such as land belonging to peasant farmers, until eventually these people are forced to sell their labour. As stated before, Marx refers to this process as “primitive accumulation”, while Harvey designates it as AbD .

For Moore, “exploitation” is a specific terminology used to explain how capitalists accumulate profits from extracting surplus-labour out of workers. “Appropriation”, on the other hand, is the act of dispossession done by capitalists to non-labour elements. Moore argues that these non-labour elements—such as energy, raw materials, fuel, food and the non-labour “reproductive” work—are considered “cheap” because capitalists do not put in the effort to produce them. Fossil fuels such as oil or natural gasses, for example, are the result of thousands of

years of naturally-occurring geological processes; all that capitalists do is just appropriate them. Even though these appropriation processes surely incur some sort of cost, the non-labour elements themselves are nonetheless not “paid for”, but are freely taken away. This also applies to the groundwater underneath Yogyakarta: capitalists do not “produce” water—they drill a hole in the ground, pump the groundwater up, and then distribute it to their hotel rooms.

If Marx’s formulation had rendered these non-labour elements to be invisible by meshing them under constant capital (c) in both Formula I and II, the distinction offered by Moore through reconceptualising the valourisation of capital might be notated as follows:

$$C' = A + Ac + T + V + S \dots \text{ (Formula III)}$$

C' is the capital after the production process had ended (tn)

A is the notation for energy, raw materials, food and drink, as well as the various “cheap” non-labour work being appropriated.

Ac is the notation for energy, raw materials, food and drink, as well as the various “cheap” non-labour work being appropriated.

T refers to the tools needed by capitalists for their production process.

V is the variable capital, namely wage for the laborers

S stands for surplus-value

Formula III provides an “expanded conception of capitalism” as employed by Nancy Fraser to explain how capital has always derived profits not only from elements directly related to the market, such as labour or factory machinery (see Fraser, 2014, p. 55-72), but also those that seem disconnected to it—such as the non-labour workforce, and care or household work. Henri Lefebvre and Rosa Luxemburg designate these processes involving non-labourers as “the reproduction of relations of production” and “social reproduction”, respectively (see Lefebvre, 1973; Luxemburg, 2003). It seems that Fraser (see Fraser, 2014), Moore (see Moore, 2015), Lefebvre and Luxemburg here are all referring to the same process, namely the non-labour elements which had greatly contributed to the valourisation of capital, and as such require to be brought forth in a more explicit manner.

This does not mean that Marx was oblivious to the processes involving non-labour elements. His great emphasis on labourers might be

the result of his own political aim, namely that “labourers are the fervour of the revolution”. In other words, the proletariat is his main interlocutor. Meanwhile, in *Grundrisse*, Marx explicitly identified the appropriation of non-labour workforces, which he described as the “appropriation of alien labour” (see Marx, 1993, p. 458), namely the workforce which still exists outside the circuit of capital and, for valourisation purposes, are appropriated by capital to be part of the circuit itself.

Marx’s political vision aside, the distinction on how capital is valourised between Formula II and III consequently leads us to a different imagining of the capitalist crisis. As mentioned by Karl Marx and Frederick Engels (see Marx and Engels, 2008, p. 70) and subsequently expanded by David Harvey, the crisis of capitalism, in accordance with Formula II, is the crisis of overproduction. Through Formula III, however, our attention is shifted along the realisation that capital is dependent on appropriating cheap non-labour elements to survive.

In providing this different formulation, I also respond to Noer Fauzi Rachman and Dian Yunardi’s account of socio-ecological crises being “created by the expansion of capital” (see Rachman and Yunardi, 2008, p. 68). In capitalism, crises are not a consequence, but a prerequisite: in order to keep on thriving, capitalist relations of production are *dependent* on crises. Theoretically, this means that a crisis is not merely a moment of overproduction and overaccumulation in the hands of capitalists, as well their over-investment which results in the excess of commodity in the market, but also involves moments of lack and even scarcity of production (*aleon*). Simply put: the flow of cheap non-labour elements from the frontiers are not sufficient to cater to the demands of the system.

THE ALEON CRISIS OF GROUNDWATER EXTRACTION IN YOGYAKARTA

In January 2018, the Director of PDAM Tirtamarta Yogyakarta Dwi Agus Triwidodo disclosed that only 156 out of the 418 hotels in the region subscribed to water from the company. We can be sure that the other 262 hotels extract groundwater independently. Moreover, despite having pipe connections to PDAM, some hotels also opt to extract

groundwater to cut operational costs. For hotel owners, freely extracted groundwater is truly a gift of nature; one only needs to purchase a pump and pay their relatively meagre electric bills and maintenance costs (PDAM Kota Yogyakarta, 2019; Amrta Institute, 2017).

By drilling their own wells, hotel owners have committed an investment that will be converted to profits in the future. Within the logic of Formula III, groundwater is “appropriated” by hotel owners for their business operations. Here, the relation between hotels and Merapi aquifers is dictated by the logic of exchange-value, where groundwater is extracted, processed, and integrated into the world of commodities. This entire process stands in contradiction with the utilisation of groundwater by ordinary residents who do not draw water for exchange via market mechanisms, but for daily use. Their relation to the Merapi aquifer is that of a simple use-value.

Image 1. Map of Merapi Aquifer Distribution

Kabupaten Sleman = Sleman Regency

Kota Yogyakarta = City of Yogyakarta

Kabupaten Bantul = Bantul Regency

Legend: Aquifer Merapi -> Merapi Aquifers ; DIY -> Special Region of Yogyakarta

Source of Merapi Aquifer Map: Putra and Indrawan (2012)

Gambar 1. Peta Persebaran *Aquifer Merapi*

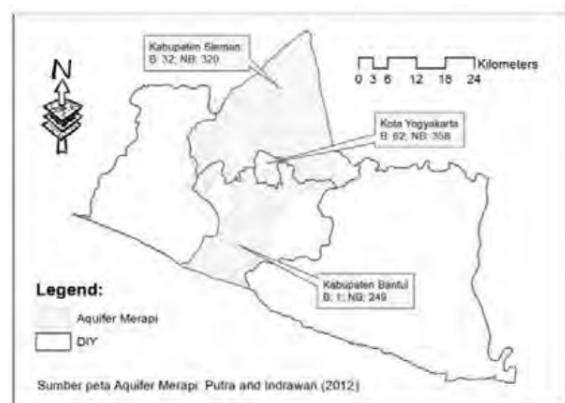


Image 1 illustrates the distribution of Merapi aquifers. In this case, the hotels that are most likely to extract water from Merapi aquifers are 32 star hotels and 320 non-star hotels in the Sleman Regency; 62 star hotels and 358 non-star hotels in the City of Yogyakarta, as well as one star hotel and 249 non-star hotels in the Regency of Bantul. Table 1 shows the locations of both S and NS hotels in Yogyakarta, as well as the occupancy in all hotels throughout 2016. The total number of occupants in this table have been converted proportionally. For example, there are 96 star hotels in the entire Yogyakarta Province, while 95 of these hotels are expected to extract water from Merapi aquifers. Proportionally, the number of occupants in star hotels that have extracted groundwater from Merapi aquifers is simply derived by this simple formula: (the number of hotels suspected to extract from aquifers *divided by* (/) the total number of hotels in Yogyakarta), *multiplied by* (x) (total number of hotel occupants throughout 2016). In numbers, this would lead to a calculation of $(95/96) \times (3,371,195) = 3,336,078$ occupants (see, Table 1 and Table 2). The same formula also applies to occupants of non-star hotels.

Meanwhile, the number of “occupied rooms” is derived by dividing the “number of occupants” with “the average guest per room”. These rooms are then multiplied by the daily rate of water use per room (0.38 m³), and then converted to a monetary value of IDR 10,500/m³ for star hotels and IDR 5,500/m³ for non-star hotels (inns and lodgings) per Yogyakarta Mayor Regulations Number 56/2013. Using this formulation, the total monetary value of extracted groundwater from Merapi aquifers in the entire Yogyakarta Province for all hotels (Star and Non-Star) is estimated to be around IDR 8.2 billion in 2016 (Table 2).

Finally, continuous extraction of groundwater in Yogyakarta has also led to the consistent fall of the water table in the region. According to Totok Gunawan, Professor of Hydrology at Universitas Gadjah Mada’s Faculty of Geography, the water table throughout Yogyakarta has fallen at a rate of 1-2 meters per year (see Republika, 2017). This consistent drop is what led to the crisis of drought of shallow wells belonging to local residents. Here, “crisis” is defined as a condition where the rate replenishment of groundwater in aquifers cannot keep up with

the speed with which groundwater is extracted by a capitalistic-parasitic city. In other words, it is the moment of *aleon*.

Table 1. Total Number of Hotels and Occupants in both Star (S) and Non-Star (S) Hotels throughout Yogyakarta (2016)

	Regency	Subdistrict	Star (S)	Non-Star (NS)
Merapi Aquifers	Sleman Regency		32	360
	City of Yogyakarta		62	358
	Bantul Regency	Srandakan		4
		Sanden		22
		Kretek		212
		Banguntapan		5
		Sewon	1	6
		Kasih		9
Total		95	976	
Non -Merapi Aquifer	Gunung Kidul		1	87
	Kulon Progo			26
	Bantul	Pajangan		1
		Piyungan		1
	Total		1	115
Total number of hotel occupants (persons) in all hotels throughout Yogyakarta, 2016			3.371.195	2.726.129

Table 2. Estimated Groundwater Extraction from Merapi Aquifers from Star and Non-Star Hotels in the Special Region of Yogyakarta (2016)

	Star	Non-Star	Total
Number of hotel room occupants consuming groundwater	3.336.078	2.438.774	5.774.852
Average number of guests per room	2,54	1,74	
Occupied rooms	1.313.417	1.401.594	2.715.011
Water consumption (m³)	499.098	532.606	1.031.704
Monetary value of consumed groundwater	5.240.532.582	2.929.331.405	8.169.863.987

TOWARDS A THEORY OF SOCIO-ECOLOGICAL CRISIS

Through the theory-case dialectic of drought in household wells throughout Yogyakarta occurring simultaneously within moments of overproduction as well as *aleon*, this part will theorise the socio-ecological crisis as the eventual culmination of both events. Here, dialectics is posited as “creating real movement” (see Lefebvre, 2009, p. 29) from an idea toward praxis through synthesis. In theorising this socio-ecological crisis, we are informed by the realisation that crises are something *produced*: in the context of capitalism. Crises are not posited as an effect, but a precondition for its perpetual operation. Consequently, this point will lead our theorisation to engage with theories of the “production of nature” exemplified by Neil Smith (see Smith, 2008). This theory attempts to reconstruct the relation between humans and nonhumans—hitherto simply referred to as “nature”—which had previously been treated as two separate entities. Such dualistic conception is the consequence of a Cartesian paradigm that paved the way for capitalist expansion. By imbuing the idea of nature being something outside the realm of human subjects, this dualism gives rise to the attempt of subjugating the external “non-human” object of nature.

As the drought crisis in Yogyakarta sees the entanglement of human subjects doing the extraction with “non-human factors” that replenish Merapi aquifers, a significant part of this theorisation will attempt to shed light on this entanglement through the terms “socio-ecology” and “socio-nature”. Finally, the role of non-labour elements in the production process will also be explained through the aforementioned expanded conception of capitalism.

To explain how nature itself “produces”, Smith provided us with what he designates as three distinct production processes: (1) production in general, (2) the production of nature, and (3) capitalist production. In the case of “production in general”, the relation between humans and nature operates under the logic of use-value, such as when one pumps groundwater to simply utilise it for their daily needs. However, the “production of nature” converts natural objects from their “first nature”—the immediate manifestation of nature during production-in-general for their use-value—to a “second nature”, in which the relations between nature and humans are governed by the logic of exchange-value. When one extracts water from underground to sell it to others, the act is not driven by a desire to satisfy one’s needs; it is not dictated by use-value, but to derive exchange-value from the profits accrued by the transaction of water-as-commodity. Eventually, all production processes under capitalist production are directed to accumulate as much profit as possible, and social relations (between humans) are also consequently affected by the pursuit of profits through the extraction of surplus-value.

Neil Smith employed the term “production of nature”, although in his book *Uneven Development* he argued that both nature and society/humans are to be seen as a singular entity during the production of nature. Yet Smith was not always consistent: in several other parts of his book, he still utilises the binary division of “nature versus society”. This binary thinking has been criticised by Eric Swyngedouw who argued that Smith’s conception of a “socially-produced” nature nonetheless favours social relations as a determining factor, thus enabling the pretence of perpetuating binary oppositions between nature versus society (see Swyngedouw, 1996, p. 68-80). Thus, we require the concept of a social ecology (or socio-ecology) introduced by Murray Bookchin (see Book-

chin, 1982), as well as the socio-nature approach of Swyngedouw. While socio-ecology is “a more reconstructive approach towards the serious problems culminating from the pseudo-contradiction of man versus nature” (see Bookchin, 1982, p. 21), socio-nature attempts to reconstruct both humans and non-human objects into a single inseparable ecology.

The city of Yogyakarta is a socio-ecological illustration of how mushrooming hotel establishments have led to a crisis of drying household wells through the continuous extraction of groundwater. The drying wells are social ecology proper—a phenomenon resulting from the co-production of human and non-human elements. The human factor is the deeper wells of hotels with more powerful pumping capacity, and the non-human part is the metabolic process of aquifers that replenishes the water table below the city of Yogyakarta from the Mount Merapi watershed (see Karnawati, Pamumijoyo and Hendrayana, 2006, p. 6-10). It is virtually impossible to separate the human and non-human factors within the drying household wells: under an expanded conception of capitalism, both are intertwined and enmeshed into a single socio-ecological crisis. Non-labour elements are now explicitly included as providing value within the capitalist process of wealth accumulation; in turn, the socio-ecological crisis leads to a socio-ecological injustice in access of water.

SOCIO-ECOLOGICAL INJUSTICE

In 2014, a local media reported about the drying up of wells of residents of Kampung Miliran in Yogyakarta. The residents suspected that Fave Hotel, which reportedly supplied their water from an 80-meter deep well, was responsible for their predicament (see *Tribun Jogja*, 2014). Prior to 2014—the year the hotel was erected—the residents’ wells in the area had never dried up, even during prolonged dry seasons (see *Kompas*, 2014). Local wells are comparably much more shallow, with average depth of 16-20 meters, and cost around IDR 15 million to construct.⁵ Meanwhile hotel wells may cost up to IDR 400-500 million to drill (see Amrta Institute, 2017).

⁵ There are at least three main components in installing drilled wells in a residential home: (1) the well itself; (2) a water pump, and; (3) the installation of the pump. The internet provides plenty of information on well-drilling prices. For example, <http://www.ahlisumurboryogyakarta.com/> mentions that the construction of a shallow

This particular crisis affecting residents of Kampung Miliran also demonstrates how experts often assume a central role in forming public opinion. This phenomenon is part of the standard formula of neoliberalism which favours the individual while being averse to the voices of the ordinary people (see Harvey, 2005a, p. 66). In particular, experts, while giving an impression of neutrality, have been utilised by companies to win over cases against the concerns of regular folk, effectively serving as an instrument of the iron law of Accumulation-by-Dispossession.

As Noel Castree had identified (see Castree, 2001, p. 189-207), experts do not exist within a vacuum: to an extent, experts' opinions are also conditioned by the interests and agendas of institutions where they preside. Geologists affiliated with PT Lapindo, for example, will never reveal arguments that might undermine the interests of their client corporation (see Batubara and Utomo, 2010, p. 67-96). Similarly, in the case of PT Semen Indonesia (SI) most experts have testified positively about their much-ridiculed operations in Rembang Regency, Central Java (see Batubara, 2015, p. 55-64). In essence, these experts are an extension of the Cartesian paradigm which has always assumed that they can "subjugate" nature, while simultaneously use their expertise to pave the way for the expansion of capital.

It was no different in the case of Kampung Miliran dry well crisis. Experts have rationalised that the groundwater extraction by hotel establishments still falls within "acceptable levels" and poses no detrimental effects. One expert had even challenged the residents' claim by asserting that their shallow wells did not dry up due to the deeper well operated by Fave Hotel, but because of an especially prolonged dry season. They also offered an argument that they have run a series of pumping tests to observe the effects on the water table and the relationship between shallow and deep wells in the area. After running the hotel's pump for 8,45 hours straight, they claimed that the water table in shallower household wells actually rose by 8 centimetres, while the deeper well water table

well will cost IDR 250.000-300.000 per meter. For a 30 meter-deep well, this component costs up to IDR 7,5 million. Meanwhile, the internet page <http://www.liatharga.com/harga-pompa-air/> puts the price of a water pump able to extract groundwater to a depth below 9 meters at around IDR 3 million. Finally, installation costs will take half of the total amount of drilling activities and pump price, namely IDR 5 million. Summed up, the total cost of all three components will be IDR 15 million.

decreased. They further supported their case by claiming that there is a 6-metre-thick layer of claystone at 40 metre of depth that separates the shallow and deeper groundwater.

While it is understandable that an expert or public officer have their own vested interest of publicly demonstrating that their institution has done their job well, this alone cannot preclude that there may be other possibilities, or that it is a guarantee of the truthfulness and/or scientific accuracy of their claims. Moreover, the writer contends that the aforementioned expert claim was not backed by convincing technical evidence. Even if a geological survey proves the existence of a layer of impermeable claystone separating higher and lower groundwater under Kampung Miliran, this does not necessarily prove that the layer is *completely* impermeable. Although their capacity in letting water seep through is relatively lower than sandstone, claystone layers are nonetheless permeable. Similarly, the pumping test might have failed to detect a drop of the higher water table as the dense claystone layer 40 meters below may have delayed the drop. Given enough time, water levels will eventually drop. This is proven after the City of Yogyakarta's Department of Order sealed off the deep well belonging to Fave Hotel, water "reappeared" in Miliran household wells (see Astuti, 2017, p. 104).

Table 3 provides a quantitative and qualitative schema on the asymmetry of socio-ecological access to groundwater in several Yogyakarta areas. It clearly shows how an iron law preys and dispossesses until one party is run aground and demolished; the hotel wells "emerge victorious" over and over, while residents' wells suffer continuous "defeats".

Table 3. Contradiction of Hotel Wells versus Wells Belonging to Residents: A Schema on Socio-Ecological Injustice in the Case of Drought Occurring Within Shallow Household Wells in Yogyakarta

Number	Hotel Wells	Household Wells	Score (Description)
1	Large Capital	Small Capital	1:0
2	Exchange-Value	Use-Value	2:0 (hotel owners derive profits through exchange-value)
3	Deep	Shallow	3:0
4	More powerful pumps	Less powerful pumps	4:0
5	Abundant	Dry	5:0
6	Clean Water	Relatively Less Clean Water Quality	6:0
7	Defended by Experts	Unsupported by Expert Opinion	7:0

TOWARDS A SOCIO-ECOLOGICAL JUSTICE: ANTI-CAPITALIST MOVEMENTS

This section aims to invoke the imagination of socio-ecological justice by adopting Socratic methods which begins from the notion of injustice itself (see Plato, 2000). In other words, we learn about socio-ecological injustice to attain an ideal/dream/utopia of socio-ecological justice: if drought is a socio-ecological *crisis*, while the contradiction between deep hotel wells and shallow household wells constitutes a socio-ecological *injustice*, then socio-ecological justice is a vision of ways to eradicate such injustices.

In our attempts to outline this crisis, we contend that socio-ecological (in)justice is both a “process” as well as a “product”. This is of salience if we are to avoid the standard neoliberal interpretation which tends to favour results/products, while being largely oblivious to the production processes that propel a structure into existence. Through a neoliberal

lens, access to water is an essential Human Right that must be fulfilled. However, its preoccupation with simply “fulfilling” a right means that liberal interpretations would be receptive to privatisation of water management (see Baker, 2010, p. 150). On the other hand, a non-liberal reading (or critical reading) of the situation would put greater emphasis on a production process. Although both share a common goal of fulfilling access to water, a critical lens would still problematise the means and organisation by which this access to water is fulfilled. If it is fulfilled by neoliberal means of surrendering water management to market mechanisms, convinced that this is the best way of fulfilling access to water, critical interpretations would reject this solution by demonstrating how some individuals/groups/companies will have greater leeway in accumulating wealth through dispossessing access to water—inherently, a “commons”/owned by no one. Consequently, the idea of socio-ecological justice chronicled throughout this article is situated deeply within a tradition critical of capitalism.

The conception of an “expanded capitalism” aids us in recognising cases involving the appropriation of non-labour elements such as energy, resources, materials for food and drink, as well as cheap non-labour work as a part of capitalistic production processes. In turn, this reading enables us to see the opportunity in building a more connected anti-capitalism movement across sectors and areas—from movements opposing extractive industries, to those espousing an environmental, labour, agrarian, and women agenda, as well as involving the urban poor, domestic workers, et cetera.

It might sound utopian to posit the primacy of use-value as the central node toward which this movement would gravitate, supplanting exchange-value and surplus-value in human (social) and non-human relations. However, it is also necessary to understand the trajectory of this growing movement: in the case of wells drying up throughout Yogyakarta and the treatment of Merapi aquifers, it is essential for use-value to be the axis in achieving socio-ecological justice by governing human interactions with aquifers within a socio-spatial site. This means that water from Merapi aquifers must not be exploited for commercial purposes

nor traded as a commodity, but should be used by everyone living on top of it.

There is no single solution to every problem. In the times of capital accumulation employing mechanisms of dispossession—supported by various pillars and mechanisms, although under the same logic of iron law—it might be necessary to conceive a sketch on the direction of anti-capitalism movements. The uniqueness of each case will bring us further to a point where every problem has to develop their own organic alternatives; what needs to be established is the connection, solidarity, and horizontal relations between specific cases (see Springer, 2016). As the progressive capitalist revolution has crammed spaces, to counter it it is necessary to build an anti-capitalist movement that can similarly cram these spaces as well.

One possible trajectory is to rebuild mechanisms of collective ownership and care, or by abolishing the notion of ownership at all, within sectors of productive resources as an antithesis to private ownership and rule. And there are plenty of examples of collective organisations for us to learn from—from the cooperative efforts within the property sector in Denmark, to the collective management of drinking water in Bolivia. The final trap to be avoided is how these schemas do not descend into practices of gentrification (see Leach, 2016). Other forms of collectivity that can be practiced include urban land management, such as “community land trusts” (see Mackenzie, 2008), or the communal lands that still exist to this day around the slopes of Bukit Barisan range in Sumatera. Like how rural residents of Bukit Barisan manage their rivers without “owning it”, alternatives can only be established if there are people armed with praxis—practices equipped with theoretical knowledge and/or experience—to begin gathering, following Springer’s formula, as a movement in the here and now (see Springer, 2016. p. 20).

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CRITIQUES OF JOKOWI'S POLITICAL ECONOMY OF AGRARIAN REFORM AND SOCIAL FORESTRY (RAPS) AS INSTRUMENTS OF UNIVERSAL AGRARIAN REFORM

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ABSTRACT

Agrarian reform is an essential populist development program as the bedrock of economic development. Without agrarian reform, economic development agenda will be crippled as it perpetuates economic inequality due to the gap in control of and access to agrarian resources, as we are now witnessing. The existence of current agrarian policy that merely adopts the terminology of agrarian reform is not aimed to enact agrarian reform consistently and comprehensively, but as a mechanism to allow the use of land for the purposes and interests of large capital imbued with post-Washington Consensus economic policy formula.

Keywords: neoliberalism, Washington Consensus, Social Forestry, Agrarian Reform, Agrarian Law

After the agrarian reform agenda was put into dormant for decades by the New Order, the term started to be introduced gradually in the government's agrarian programs and discourses, particularly under the presidencies of Susilo Bambang Yudhoyono (SBY) and then Joko Widodo (Jokowi). It is now a subject of intense discourse among researchers, agrarian sector workers and activists, and the general public.

Some organizations claim that the Indonesian government's agrarian policy is a political arena that might be advantageous for agrarian reform agenda in Indonesia¹ — at the least, there is a possibility for an

¹ Among them are Serikat Petani Indonesia (SPI; eng: Indonesian Peasant Union) and Konsorsium Pembaruan Agraria (KPA; eng: Consortium for Agrarian Reform). KPA proposed a priority map of agrarian reform objects with, supposedly, a participatory approach, yet never issued an institutional statement renouncing RAPS. As a matter of fact, they organized the Global Land Forum, an International Land Coalition (ILC) event in collaboration with the government that includes Presidential Staff Office, Ministry of Agrarian Affairs and Spatial Planning/National Land Agency, Ministry of Environment and Forestry, as well as National Commission on Human Rights in Bandung, 24-27