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## Less is more conflict prevention

Policy makers increasingly recognise that material extraction, water exploitation and energy generation are interlinked to environmental degradation and the formation or exacerbation of armed conflicts. Sustainable development interventions in fragile settings are important, but do not sufficiently address this structural issue. As global consumption of materials, water and energy continues to soar unabatedly, addressing this challenge has risen to prominence on the policy agenda. A significant share of the global demand that contributes to armed conflicts emanates from countries with higher levels of welfare, notably the EU countries. This policy brief analyses how minimising material, water and energy consumption in the EU could contribute to conflict prevention. The brief recommends embracing socioeconomic models that discourage further consumption, accelerating the implementation of SDG 12, delivering on the Paris climate agreement and developing more robust measurements for determining the footprints of particular consumption patterns.

### Newfound urgency in addressing unsustainable consumption and strengthening conflict prevention

Both *The Assessment Report on Land Degradation and Restoration*, published by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) in March 2018, and the UN Intergovernmental Panel on Climate Change (IPCC) *Special Report on Global Warming of 1.5°C*, published in October 2018, catalysed global recognition that urgency is required in addressing the unsustainable anthropogenic impacts on terrestrial and oceanic biodiversity and the climate to safeguard vital ecosystems and maintain societal stability. The 2019 Planetary Security Conference examined how climate change, resource extraction and environmental degradation can exacerbate societal fragility

and armed conflicts.<sup>1</sup> To prevent and ameliorate such fragility and diminish the potential for conflict, conference participants discussed a host of interventions across the development-security spectrum and in line with the 2030 Agenda for Sustainable Development.

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1 The author expresses his profound gratitude to Clingendael and the PSI consortium for the opportunity to participate in the conference. In particular, the author thanks Luc Bas of the International Union for Conservation of Nature (IUCN) for convening the Nature and Conflict session. This policy brief draws heavily on the session's outcomes and the contributions of its participants: Kitty van der Heijden (World Resources Institute), Juha Siikimäki (IUCN), Kevin Chika Urama (African Development Institute), and Marianne Kettunen (Institute of European Environmental Policy). The content of this brief exclusively represents the views of the author and not those of the speakers and participants.

Sustainable development forms the bedrock of these interventions because it seeks to reconcile environmental and socioeconomic imperatives. According to Secretary-General Guterres, implementing the Sustainable Development Goals (SDGs) can therefore be considered ‘the best defence against the risks of violent conflict’.<sup>2</sup> As such, sustainable development interventions tend to emphasise win-win scenarios that synergise environmental sustainability and economic growth, while insufficiently recognising trade-offs.<sup>3</sup> They also obscure a systemic driver of armed conflict: the unsustainable levels of consumption in wealthier nations, including the European Union (EU). This policy brief analyses how the European Parliament’s recommendation of accelerating the implementation of SDG 12 – ensuring sustainable consumption and production patterns – in the EU could contribute to the prevention of armed conflict.<sup>4</sup>

## Accelerating global demand

Maintaining and expanding contemporary societies requires unprecedented rates of material extraction, water exploitation and energy generation.<sup>5</sup> Globalisation has increased the geospatial separation of production and consumption and accelerated global demand. Even when not traded physically, material, water and energy use and their social and ecological impacts may become ‘embodied’ in products that are traded. Embodiment refers to the intrinsic association between imported finished and semi-finished products and the material, water and energy required for their production throughout the entire

supply chain.<sup>6</sup> This is usually referred to as the material, water or carbon footprint of a product, depending on what aspect of embodiment is focused on.

### Demand: Materials

The global amount of extracted materials has increased tenfold since the early 1900s and doubled since 1980. In 2010, the total volume of annually extracted materials reached close to 72 gigatons (Gt) – two-thirds non-renewable – of which more than 10 Gt were destined for export. This is projected to increase to 100 Gt by 2030.<sup>7</sup> A raw material trade balance, based on the attribution of globally extracted materials to traded goods shows that only the EU and North America are net importers of materials. The average, annual, per capita material footprint in Africa is below 3 tons, between 9 and 10 tons in Asia-Pacific, Latin America and West Asia, and 20 to 25 tons in the EU and the United States (US). In contrast, the UN Environment Programme (UNEP) has determined that a maximum of 8 tons would constitute a sustainable lifestyle.<sup>8</sup>

### Demand: Water

Global water demand has steadily grown by 1 percent per year since the 1980s and is expected to increase another 20-30 percent by 2050. Agriculture is the largest consumer, accounting for 69 percent of water withdrawals. Industry accounts for 19 percent and households for 12 percent.<sup>9</sup> Although estimations for water footprints are imprecise, a substantial amount of extracted water is eventually consumed in wealthier nations, as embodied in imported products. While rich in water resources, the EU has externalised approximately 40 percent of its water footprint, deriving principally from

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2 UN Secretary-General. 2018. *Peacebuilding and Sustaining Peace Report of the Secretary-General*, 1.

3 Muridan, R. et al. 2013. ‘Payments for Ecosystem Services and the Fatal Attraction of Win-Win Solutions’, *Conservation Letters*, 6(4), 274–279.

4 European Parliament. 2019. *Annual strategic report on the implementation and delivery of the Sustainable Development Goals (SDGs)*, Brussels.

5 Martinez-Alier J. and Walter M. 2016. ‘Social Metabolism and Conflicts over Extractivism’, in: *Environmental Governance in Latin America*, ed. de Castro, F. et al., 58–86.

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6 Wiedmann, T. and Lenzen, M. 2018. ‘Environmental and Social Footprints of International Trade’, *Nature Geoscience*, 11(5), 314–321.

7 OECD. 2015. *Material Resources, Productivity and the Environment*, Paris.

8 UNEP. 2016. *Global Material Flows and Resource Productivity*, Paris.

9 UNESCO. 2019. *World Water Development Report 2019*, Paris.

importing cereals, industrial products and beef.<sup>10</sup>

### Demand: Energy

Increasing wealth and the adoption of modern lifestyles have skyrocketed energy use. The use of fossil fuels alone has lifted global energy use fifty-fold.<sup>11</sup> The current global demand for energy is equivalent to almost 14 million tons of oil, of which 81 percent is reliant on fossil sources. Demand until 2040 will likely grow 25 percent and will depend 74 percent on fossil fuels.<sup>12</sup> Historically, the greatest amount of energy has been consumed in North America and the EU, as contemporary social, political and economic systems developed through fossil fuel consumption.<sup>13</sup> As recently as 2000, Europe and North America accounted for more than 40 percent of global energy demand. The EU is already significantly lowering energy consumption, although it will likely remain dependent on importing around 40 percent of its energy.<sup>14</sup> Evidence suggests that if embodied energy in imported products is taken into account, this reduction might be offset by increased imports.<sup>15</sup>

### Externalised impacts

With globalisation, environmental and social impacts are equally externalised, as production and consumption are globalised and geographically decoupled. The sheer scale of anthropogenically induced changes is difficult to capture. The earth's surface modified by human activity has increased from around 15 percent to almost 80 percent over the past century, while land degradation already negatively impacts 3.2 billion

people.<sup>16</sup> It is estimated that 90 percent of biodiversity loss and water stress are caused by resource extraction and processing.<sup>17</sup> The state of tropical ecosystems, spanning 40 percent of the globe, is a case in point.

The tropics and tropical forests have been subjected to some of the highest rates of land-use change and concomitant degradation, driven primarily by the growing global demand for agricultural commodities, biofuels, timber and minerals, and the expansion of large-scale mobility and energy infrastructures. This is strongly correlated with EU consumption, as determined by an EU Commission study, detailing that the EU was the largest importer of embodied deforestation between 1990 and 2008, well ahead of North America or China.<sup>18</sup> Tropical coral reefs have also suffered severe environmental disturbances. Nutrient inputs from intensive agriculture, climate change and ocean acidification increase susceptibility to coral bleaching, diseases and the outbreaks of pests.

These processes have reached a tipping point, threatening the collapse of several tropical ecosystems, which imperils crucial ecosystem services and critically endangered biodiversity. Humid tropical forests and tropical savannahs provide 63 percent of global net primary productivity and 40 percent of carbon storage of the terrestrial biosphere. Tropical coral reefs provide fish and coastal protection for up to 275 and 197 million people, respectively.<sup>19</sup> The rate of species extinction, which is highest in the tropics, indicates that the world is entering its sixth mass extinction.<sup>20</sup>

10 Mekonnen, M.M. and Hoekstra, A.Y. 2011. *National Water Footprint Accounts*, Delft, UNESCO.

11 IRENA. 2019. *A New World: The Geopolitics of the Energy Transformation*, Abu Dhabi.

12 International Energy Agency. 2018. *World Energy Outlook 2018*, Paris.

13 Mitchell, T. 2013. *Carbon Democracy: Political Power in an Age of Oil*, London, Verso.

14 International Energy Agency, op. cit.

15 Moreau, V. and Vuille, F. 2018. 'Decoupling Energy Use and Economic Growth', *Applied Energy*, 215, 54-62.

16 IPBES. 2018. *The Assessment Report on Land Degradation and Restoration*, Bonn, 5.

17 International Resource Panel. 2019. *Global Resources Outlook 2019: Natural Resources for the Future We Want*, Nairobi, 4.

18 EU Commission. 2013. *The impact of EU consumption on deforestation*, Brussels.

19 Barlow, J. et al. 2018. 'The Future of Hyperdiverse Tropical Ecosystems', *Nature*, 559(7715), 517-526.

20 Barnosky, B. et al. 2011. 'Has the Earth's sixth mass extinction already arrived?', *Nature*, 471, 51-57.

Similarly, water supplies are being exhausted rapidly. At least one-third of the world's major aquifers is being mined at higher rates than they can replenish.<sup>21</sup> Since 1970, 80 percent of inland wetland species populations and 36 percent of coastal and marine populations have declined. In 18 large river basins over 80 percent of water is withdrawn for consumption, creating 'extreme water stress'.<sup>22</sup> Since the 1990s, water pollution has worsened in almost all rivers in Latin America, Africa and Asia. Dams, used both for irrigation and hydroelectricity, further aggravate the ecological condition of rivers, leaving only 120 of the 292 large river systems free-flowing.<sup>23</sup> Regardless, dam construction is experiencing a global boom that will reduce the number of free-flowing large rivers by another 20 percent.<sup>24</sup>

## Conflicts over materials, water, and energy

With a rising global population, expanding global demand and increasing impacts of climate change, competition over materials, water and energy will intensify, which is considered a key driver of so-called resource wars.<sup>25</sup> The presence of materials, water and energy is not a cause in and of itself for armed conflict, but rather contributes indirectly and in interaction with other drivers.<sup>26</sup> Nevertheless, 40 percent of intrastate conflicts since the Second World

War are linked to resources.<sup>27</sup> This is most pronounced in how land scarcity contributes to conflicts, acting as a causal driver in seven out of ten armed conflicts since 1990.<sup>28</sup> As resource frontiers encroach on vulnerable ecosystems, they also increasingly strain the access of communities to such ecosystems, which intensifies social and political tensions, thus contributing to the formation and exacerbation of conflicts.

Paradoxically, the abundance of resources is also associated with conflict. The revenue potential of resource exploitation can motivate armed conflict. Non-renewable materials, water and renewable resources are targeted in a majority of conflicts, either to deprive an opponent of access or to strengthen a belligerent's own capacities. Control over resources and the revenue they generate can shift from being a method to constituting a goal in its own right.<sup>29</sup> This phenomenon is considered part of the so-called *resource curse*.<sup>30</sup>

### Conflicts: Materials

The role of rough diamonds, more than 80 percent of which are internationally traded through Antwerp, in motivating and financing various conflicts in Africa is notorious. Diamonds motivated belligerents' actions in: the Sierra Leone civil war between the Revolutionary United Front with support from Charles Taylor's National Patriotic Front of Liberia and the Sierra Leone government from 1991 to 2002; the Angolan civil war between two of the liberation movements directly following independence in 1974; and the 1998 to 2003 Second Congo war, in which neighbouring nations were engaged in large-scale pillaging of Congolese territories through the support of proxy rebel forces,

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21 Richey, A.S. et al. 2015. 'Quantifying Renewable Groundwater Stress with GRACE', *Water Resources Research*, 51(7), 5217-5238.

22 Gassert, F. et al. 2013. *Aqueduct country and river basin rankings*, Washington DC, World Resources Institute.

23 Ramsar Convention on Wetlands. 2018. *Global Wetland Outlook*, Gland.

24 Zarlf, C. et al. 2015. 'A Global Boom in Hydropower Dam Construction', *Aquatic Sciences*, 77, 161-170.

25 Homer-Dixon, T. 1999. *Environment, Scarcity and Violence*, Princeton, Princeton University Press.

26 Le Billon, P. 2012. *Wars of Plunder: Conflicts, Profits and the Politics of Resources*, London, Hurst and Company.

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27 Rustad, S.A. and Binningsbø, H.G. 2012. 'A price worth fighting for? Natural resources and conflict recurrence', *Journal of Peace Research*, 49(4), 531-546.

28 UNEP, *Environmental Cooperation for Peacebuilding Programme Final Report*. 2016. Nairobi.

29 Bannon, I. and Collier, P., eds. 2003. *Natural Resources and Violent Conflict: Options and Actions*, Washington DC, World Bank.

30 Humphreys, M. et al. 2007. *Escaping the Resource Curse*, New York, Columbia University Press.

including the looting of other valuable resources.<sup>31</sup> In Colombia, gold extraction and smuggling played a central role in defining the contours and geography of the long conflict that began in the 1960s between self-professed communist guerrilla forces and the Colombian government, which employed right-wing paramilitary death squads. All sides to the conflict, which lasted until 2013, cooperated closely with organised crime groups to operate illegal gold mines and smuggle gold to neighbouring countries to be shipped directly to the Netherlands via its municipalities in the Caribbean.<sup>32</sup> Even materials that are less valuable can become integral to conflict dynamics. In India, the 'Sand Mafia' is one of the most powerful and violent organised crime groups, having killed hundreds of people in just the state of Bihar. In the so-called 'sand wars' different Sand Mafias violently battle for control over mining rights and illegal mining sites. Other casualties include activists and government officials who attempt to report or halt these practices.<sup>33</sup>

Renewable resources can equally spur armed conflicts. The most well-known examples are crops used for the production of narcotics. Marijuana in Aceh on the Indonesian island of Sumatra, for instance, bankrolled both the Indonesian army and the Free Aceh Movement, the separatist group seeking independence for the Aceh region through a 30-year armed struggle that lasted from 1975 to 2005.<sup>34</sup> Innocuous plants, such as trees, can also be a major source for conflict funding. In the Central African Republic, French loggers paid millions to both sides

in the 2013 civil war and subsequent post-conflict violence between the Séléka rebels and the anti-Balaka militias to facilitate illegal timber exports to the EU.<sup>35</sup> Wildlife too is a potential driver for conflicts. Illegal overfishing by predominantly Spanish fleets to supply European tuna demand and illegal dumping of European toxic wastes in the Gulf of Aden enabled by payments of tens of millions of euros to Somali warlords were partially responsible for the significant increase in pirate activities off the Somali coast during the ongoing Somali civil war. The increasing attacks eventually triggered an EU-led military counter-piracy operation in 2008, which is still active.<sup>36</sup>

### Conflicts: Water

Water is another potential contributing factor in armed conflicts. The conflicts in Syria and Israel-Palestine illustrate how water stress can be a root cause of unrest and tensions. A multi-season, multiyear period of extreme drought from 2006 to 2011 and the concomitant water stress is hypothesised to have contributed to the subsequent outbreak of the Syrian civil war.<sup>37</sup> In the Israeli-Palestinian conflict, access to water is an undisputed factor of concern, as 'the control of water resources has always been seen as part and parcel of national security' in Israeli security discourse.<sup>38</sup> Reliable access to water is vital not only for Israeli primary demand, but also for its chemical and technological industries, which in 2017 exported €9.1 billion to the EU (60 percent of the EU's total imports from Israel). These stresses are likely to worsen globally, as demand and supply pressures on water resources increasingly converge with climate change.<sup>39</sup>

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31 Le Billon, P. 2008. 'Diamond Wars? Conflict Diamonds and Geographies of Resource Wars', *Annals of the Association of American Geographers*, 98(2), 345-372.

32 Rettberg, A. and Ortiz-Riomalo, J.F. 2014. 'Golden Opportunity, or a New Twist on the Resource–Conflict Relationship', *World Development*, 84, 82-96.

33 Rege, A. 2016. 'Not Biting the Dust', *International Journal of Comparative and Applied Criminal Justice*, 40(2), 101-121.

34 Drexler, E.F. 2008. *Aceh, Indonesia: Securing the Insecure State*, Philadelphia, University of Pennsylvania Press.

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35 Global Witness. 2015. *Blood Timber*, London, January.

36 Sumaila, U.R. and Bawumia, M. 2014. 'Fisheries, ecosystem justice and piracy: A case study of Somalia', *Fisheries Research*, 157, 154-163.

37 Gleick, P.H. 2014. 'Water, Drought, Climate Change, and Conflict in Syria', *Weather, Climate and Society*, 6(3), 331-340.

38 EcoPeace Middle East. 2018. *Israeli Water Diplomacy and National Security Concerns*, January, 8.

39 Council of the European Union. 2013. *Council Conclusions on EU Water Diplomacy*, July.

Already more than half of the world's population lives in regions experiencing water stress. If the degradation of the natural environment and the unsustainable pressures on water resources continue, 52 percent of the world's population and 40 percent of global grain production will be at risk by 2050.<sup>40</sup>

### Conflicts: Energy

Energy resources occupy centre stage in debates about the relationship between resources and armed conflict. From Russian gas pipelines in Ukraine to safe passage through the Panama Canal and Strait of Hormuz, energy security pertains firmly to the ambit of geostrategic thought and imperialist politics.<sup>41</sup>

Oil is especially infamous for its association with armed conflict. Not just for motivating 'Great Power' politics, but also for engendering intrastate armed conflict. In Nigeria, the 6th largest provider of energy to the EU, the marginalising effects of the social and environmental impacts of oil production by Royal Dutch Shell and the failure of oil wealth to materialise in the producing regions, contributed significantly to the outbreak of the armed conflicts in the Niger Delta.<sup>42</sup> The exploitation of other energy sources, including renewables, can also give rise to conflict dynamics. The expansion of hydropower production throughout Latin America has given rise to significant violence against communities that resist these energy infrastructures.<sup>43</sup> In Mexico, the 9th largest provider of energy to the EU, organised crime groups like Los Zetas are directly responsible for clearing potentially troublesome communities of their land to prepare territories for the introduction of energy infrastructures. In 2018, the EU imported €4.2 billion from Mexico in fuels,

the second most imported product type from Mexico.<sup>44</sup>

## Conclusion and recommendations

Although a certain degree of environmental determinism exists between the environment, resource exploitation and armed conflict, the interaction is largely embedded in the interconnections of local political economies of resource exploitation and global demand for resources. Increasing pressure on already vulnerable ecosystems, combined with the social and environmental impacts of further material extraction, water exploitation and energy generation, will globally increase the likelihood and duration of armed conflicts.

Sustainable development interventions in fragile settings are important, but do not sufficiently address this structural issue. A significant share of the global demand that contributes to armed conflicts emanates from countries with higher levels of welfare, notably the EU countries. Although this is rarely a straightforward and direct relation, consumption of a wide range of products and commodities in the EU, including cars, electronic equipment, beef, narcotics, oil, diamonds and timber is dependent on material extraction, water use and energy generation in conflict areas throughout the world. As the largest single market with some of the highest global consumption patterns, fully incorporating agenda 2030 in the EU could significantly reduce the impact of its consumption on environmental degradation and the financing of armed conflict, particularly in mining, energy and forestry production chains. There is ample room for the implementation of relevant policies, as the EU scores on average the lowest on implementing SDG 12.<sup>45</sup> Minimising consumption within the EU can thus significantly contribute to the prevention or

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40 UNESCO. 2019. *World Water Development Report 2019*, Paris.

41 Fieldhouse, D.K. 2008. *Western Imperialism in the Middle East*, Oxford, Oxford University Press.

42 Watts, M. 2004. 'Resource Curse? Governmentality, Oil and Power in the Niger Delta, Nigeria', *Geopolitics*, 9(1), 50-80.

43 Del Bene, D. et. al. 2018. 'More Dams, More Violence?', *Sustainability Science*, 13(3), 617-633.

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44 Correa-Cabrera, G. 2017. *Los Zetas Inc: Criminal Corporations, Energy, and Civil War in Mexico*, Austin, University of Texas Press.

45 European Commission. 2019. *Reflection paper Towards a Sustainable Europe by 2030*, January.

amelioration of conflict dynamics. This policy brief thus recommends that the EU:

1. embrace socioeconomic models that discourage further material, water and energy consumption;
2. accelerate implementation of SDG 12;
3. deliver on the Paris climate agreement, which would entail a net reduction in global energy demand and a drop in fossil-reliance to at least 60 percent.
4. develop more robust measurements for materials, water and energy footprints, integrating imported 'embodied' materials, water and energy.


## About the Planetary Security Initiative

The Planetary Security Initiative aims to help increase awareness, to deepen knowledge, and to develop and promote policies and good practice guidance to help governments, the private sector and international institutions better secure peace and cooperation in times of climate change and global environmental challenges. The Initiative was launched by the Netherlands Ministry of Foreign Affairs in 2015 and is currently operated by a consortium of leading think tanks headed by the Clingendael Institute.

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