Istituto Affari Internazionali

Drought, Desertification and Displacement: Re-Politicising the Climate-Conflict Nexus in the Sahel

by Luca Raineri

New-Med research network

ABSTRACT

Policy and media discourses have frequently evoked the existence of a nexus between climate change and conflict. The Sahel, where conflicts are on the rise and environmental degradation undermines access to dwindling natural resources, appears to provide a most-likely case study to assess the climate-conflict nexus hypothesis. Looking at long-term trends, an analysis of the Sahelian droughts in the 1970s-80s and of the ongoing (alleged) desertification of central Sahel highlights the relevance of a political ecology approach to the climate-conflict nexus. While neither sufficient nor necessary to trigger armed violence, climatic changes may fuel violent conflicts because they contribute to an erosion of fragile socio-economic systems and the relative mechanisms of conflict regulation. Governance schemes carry crucial "weight" in making conflicts over natural resources veer towards either violent escalation, or peaceful management. But it also notes that in the long run governance mechanisms themselves can be affected or disrupted by the impact of changing climatic conditions.

Sahel | Climate change | Food security | Crisis management | Sustainable development

keywords

IAI PAPERS 22 | 04 - MARCH 2022

ISSN 2610-9603 | ISBN 978-88-9368-241-1

ISSN 2610-9603 | ISBN 978-88-9368-241-1

Drought, Desertification and Displacement: Re-Politicising the Climate-Conflict Nexus in the Sahel

by Luca Raineri*

1. Introduction: The Sahel, a key test for the climate-conflict nexus hypothesis

Environmental fragility is a defining characteristic of the Sahel. The concept of "Sahel" as a geo-political identifier was hardly in use until early post-colonial times.[1] Its salience increased dramatically after the major droughts that hit the region in the 1970s and 1980s. The early regional organisations grouping Sahelian countries – such as the Sahel Group at the Organization for Economic Cooperation and Development (OECD), the Community of Sahel-Saharan States (CEN-SAD), the Comité permanent inter-État de lutte contre la sécheresse au Sahel (CILSS) and the Autorité du Liptako-Gourma (ALG) – all stressed environmental fragility as a defining feature of the region. Building on this view, the modern Sahel was then identified as a transitional eco-region characterised by a scarce – but not absent – pluviometry, in between the absolute dryness of the Sahara and the abundant rainfall of the tropical band.[2]

Structural environmental fragility in the area is increasingly compounded by climate change, which risks exacerbating the vulnerability of Sahelian countries, societies and individuals. Traditionally, the rhythmic alternation of dry and rainy seasons (respectively, from October to June, and from July to September) dictates

[1] Gregory Mann, *From Empires to NGOs in the West African Sahel. The Road to Nongovernmentality*, Cambridge, Cambridge University Press, 2014.

[2] Olivier Walther and Denis Retaillé, "Sahara or Sahel? The Fuzzy Geography of Terrorism in West Africa", in *CEPS/Instead Working Papers*, No. 2010-35 (November 2010), https://liser.elsevierpure.com/en/publications/sahara-or-sahel-the-fuzzy-geography-of-terrorism-in-west-africa.

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· This paper was prepared in the context of the New-Med Research Network, a project run by the Istituto Affari Internazionali (IAI) with the support of the Italian Ministry of Foreign Affairs and International Cooperation (MAECI), the OSCE Secretariat in Vienna and the Compagnia di San Paolo Foundation. Views expressed are the author's alone.

the sequencing of agriculture and pastoralism. These activities contribute to the livelihoods of the overwhelming majority of the Sahelian population – 60 to 75 per cent in Mali and Niger, according to the World Bank.[3] Rainfall determines a complex social organisation based on the rotation of land use and animal transhumance.[4] Climate change, however, can seriously affect the fragile balance that sustains this customary way of life. Available evidence suggests that the Sahel is exposed to major rainfall variability. Rainfall decreased overall throughout the 20th century, with extreme droughts in the 1970s and 1980s prompting fears that the frequency and severity of Sahelian droughts was experiencing an upward spiral.[5]

More recently, growing precipitation has been compounded by greater unpredictability, with irregular seasonal cycles, erratic geographic migration of the Sahel rainband and more frequent extreme events. Furthermore, long-term climate trends indicate that temperatures are rising across the region – albeit unevenly[6] – leading to unprecedented heat peaks. Increasing evaporation, in combination with ill-devised irrigation schemes and unsustainable logging to meet the demands of a growing population, is feared to be paving the way to desertification of the Sahel. This trend was first detected in the late 20th century, although evidence is today more ambiguous.[7] Overall, these changes run the risk of upsetting local patterns of productivity, mobility and livelihoods across the region, with potential reverberations on social stability and even peace and conflict.

Over the last decade, the Sahel's environmental fragility has been predicated in the context of a variety of complex and interconnected crises. While the Sahel is stricken by worsening climatic trends, demographic growth in the region is reaching worldwide heights, fuelling fears of a rapid depletion of natural resources. At the same time, the Sahel is experiencing major political and security crises, in which weakening state control and communal polarisation have unleashed widespread violence and massive population displacement. The Tuareg-led rebellion of 2012 has precipitated Mali into a spiral of political crises, military-led coups and overall state collapse. Profiting from the weaknesses of Mali, transnational networks of organised crime and terrorism have proliferated across the region, progressively

[3] World Bank Data: *Employment in Agriculture (% of Total Employment)*, https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS.

[4] Luca Raineri and Youssouf Bâ, "Hybrid Governance and Mobility in the Sahel: Stabilisation Practices Put to Test", in Bernardo Venturi (ed.), *Governance and Security in the Sahel: Tackling Mobility, Governance and Climate Change*, Brussels, FEPS / Rome, IAI, 2019, p. 15-38, https://www.iai.it/en/node/10476.

[5] Sharon E. Nicholson, Chris Funk and Andreas H. Fink, "Rainfall over the African Continent from the 19th through the 21st Century", in *Global and Planetary Change*, Vol. 165 (June 2018), p. 114-127, https://doi.org/10.1016/j.gloplacha.2017.12.014.

[6] Aoife McCullough, Leigh Mayhew and Sarah Opitz-Stapleton, "When Rising Temperatures Don't Lead to Rising Tempers. Climate and Insecurity in Niger", in *BRACED Working Papers*, September 2019, https://odi.org/en/publications/when-rising-temperatures-dont-lead-to-rising-tempers-climate-and-insecurity-in-niger.

[7] Tor A. Benjaminsen, "Let the Desertification Zombie Rest in Peace", in *Climate and Conflict PRIO Blog*, 4 December 2017, https://blogs.prio.org/ClimateAndConflict/?p=42.

ISSN 2610-9603 | ISBN 978-88-9368-241-1

sweeping across large portions of neighbouring countries including Burkina Faso and Niger. The growing presence of criminal, rebel and terrorist cells across the broader region, including in Nigeria, Libya, Ivory Coast and Chad, are testing the resilience of local societies and the capacities of international responses.

Within this framework, the Sahara-Sahel region is increasingly portrayed as a conveyor belt which, owing to its inherent connectivity, could project its shockwaves to North Africa, fuelling the destabilisation across the Mediterranean Basin.[8] The trans-Saharan smuggling of weapons between North and Sub-Saharan Africa is rampant, and the strong connections between jihadist formations in Algeria and Mali, as well as Libya and Niger, are now well documented.[9] It is therefore not by chance that the Sahel has been framed as part of the broader Mediterranean space by regional security strategies of foreign interveners, first and foremost the EU and its member states. In this context, the migration flows from Africa to Europe via the Sahel, the Sahara and North Africa are depicted as an illustration of the complex interactions between fragile environments, conflict settings and precarious livelihoods.

The concomitance of these trends has spurred debate that the coexistence of worsening climatic and security trends may be in fact indicative of correlation, if not causation. Policy and media discourses increasingly air the belief that there may be a direct causal link between climate change and armed conflicts.[10] Building more or less explicitly on the Malthusian assumption that population growth erodes the sustainability of ecosystems and will lead to the exhaustion of natural resources, the so-called climate-conflict nexus hypothesis argues that climate change, in combination with population growth, leads to environmental degradation and dwindling natural resources, which in turn fuel increased competition and conflict escalation. The prominence of climatic stress and conflict dynamics makes the Sahel a quintessential case to test this hypothesis and explore its scope-conditions.

[8] Judith Scheele, *Smugglers and Saints of the Sahara. Regional Connectivity in the Twentieth Century*, Cambridge, Cambridge University Press, 2012; Mark Micallef, *The Human Conveyor Belt: Trends in Human Trafficking and Smuggling in Post-Revolution Libya*, Geneva, Global Initiative Against Transnational Oragnised Crime, March 2017, https://globalinitiative.net/?p=19042.

[9] Djallil Lounnas, *Le djihad en Afrique du Nord et au Sahel. D'AQMI à Daech*, Paris, L'Harmattan, 2019.

[10] Illustrating this, the French President Emmanuel Macron frequently emphasises the alleged link between climate change and conflicts, most notably in the Sahel (see: Statement by the President of France, Emmanuel Macron, at the UN video-teleconference on "Maintenance of international peace and security: Climate and security", 23 February 2021, https://undocs.org/en/S/2021/198). Also, international (UNCCD) and regional (EU, AU, G7) organisations have embraced the idea that the fight against environmental degradation can contribute to tackling the root causes of violent conflicts in the Sahel.

ISSN 2610-9603 | ISBN 978-88-9368-241-1

2. Exploring the nexus across time

In recent years, several studies have tested the validity of the climate-conflict nexus hypothesis, whether in general[11] or in the Sahel in particular.[12] These studies, have reached divergent conclusions regarding how and how much climate change is impacting the Sahel. Most importantly, they have failed to exhibit any unambiguous and consistent causal link between climate factors and (in-)security events in the region.[13] Instead of climatic factors per se, these studies highlight the significance of governance, especially at local level: the legitimacy, efficacy and cogency of customary norms, local institutions, dispute-settlement mechanisms and participatory commissions matter overwhelmingly in making potential conflicts over natural resources veer towards either conflict escalation or peaceful management.

These results, while providing a healthy dose of scepticism vis-à-vis simplistic Malthusian assumptions underpinning the early conceptualisations of the climate-conflict nexus, are arguably influenced by methodological shortcomings.[14] The search for correlations – in this case, between climate and conflict events – has in fact led scholars to uncritically import positivistic approaches originally devised for econometric studies, which however are ill-suited to exploring complex social phenomena. The well-known challenge of coding conflicts is only magnified by the diversity of proxies used to capture the independent variable (climate change), with some studies focusing on rainfall levels and others on changing temperatures, freshwater availability, natural disasters, agricultural output and so on. Furthermore, most of these studies are based on the analysis of temporal correlations between climate events (however considered) and conflicts (however coded) occurring in the same year. Some more sophisticated studies perform analyses to explore whether climatic variations might affect conflict in the year that immediately follows. These approaches implicitly assume a mechanism whereby exceptional climatic variations are supposed to trigger competition and conflict in a very short timeframe. Yet, as political ecologists have long argued, "resource conflicts" are less akin to sudden outbursts of violence than to protracted processes of political contention intercepting long-term socio-political struggles.

[11] Thomas F. Homer-Dixon, Environment, Scarcity, and Violence, Princeton, Princeton University Press, 1999; Ole Magnus Theisen, Nils Petter Gleditsch & Halvard Buhaug, "Is Climate Change a Driver of Armed Conflict?", in *Climatic Change*, Vol. 117, No. 3 (2013), p. 613-625.

[12] Sebastien Hissler, *Econometric Study on the Impact of Rainfall Variability on Security in the Sahel Region*, Paris, OECD, 2010, https://www.oecd.org/swac/publications/44245104.pdf; Tor A. Benjaminsen et al., "Does Climate Change Drive Land-Use Conflicts in the Sahel?", in *Journal of Peace Research*, Vol. 49, No. 1 (January 2012), p. 97-111; Erik Alda, *Rising Tempers, Rising Temperatures: A Look at Climate Change, Migration and Conflict and the Implications for Youth in the Sahel*, Washington, World Bank, 2014, http://hdl.handle.net/10986/23838.

[13] See also Halvard Buhaug, "Climate Not to Blame for African Civil Wars", in *PNAS*, Vol. 107, No. 38 (21 September 2010), p. 16477-16482, https://doi.org/10.1073/pnas.1005739107.

[14] Jan Selby, "Positivist Climate Conflict Research: A Critique", in *Geopolitics*, Vol. 19, No. 4 (2014), p. 829-856.

ISSN 2610-9603 | ISBN 978-88-9368-241-1

It is therefore unsurprising that positivistic analyses of the climate-conflict nexus have proved unable to identify any meaningful linkage between climatic and conflict events.

At the same time, the lack of a demonstrable correlation between climate change (proxies) and conflicts has led a second generation of studies to tone down the early scholarship's emphasis on causal claims and positivistic approaches. Following the 2015 *New Climate for Peace* report commissioned by the G7, recent research has reframed the understanding of the climate-conflict nexus less in terms of direct causality than of a multiplier of threats and risks coming from pre-existing vulnerabilities. Methodologically, this more recent scholarship has increasingly rejected abstract, generalisable approaches, and focused instead on single case-studies. This has paved the way to the analysis of fine-grained qualitative evidence – including interviews with experts and key informants – across longer timespans. Such developments have enabled scholars to illustrate that climatic and environmental factors may indeed be linked to conflict exacerbation in the Sahel, particularly in countries like Mali,[15] Niger[16] or Burkina Faso.[17] Nevertheless, the actual "weight" of climatic factors in determining conflict outcomes is only vaguely addressed by these studies, meaning that the overall climate-conflict nexus hypothesis remains underspecified.

The mixed results of existing research exhibit some common shortcomings and highlight where additional research is most needed. Both the difficulty that quantitative studies encounter in demonstrating a verifiable correlation, and the shallowness of qualitative studies in illustrating a compelling connection, point to the need to devote more attention to understanding the causal mechanisms that can reasonably link climate trends and events to conflict dynamics.

Building on the available literature and extensive fieldwork experience, this study hypothesises at least four mechanisms[18] that, in the case of the Sahel, can plausibly link climate and conflict events, especially when the problematic temporal correlation assumption is dropped, and potential impacts are considered

[15] Chitra Nagarajan, *Climate-Fragility Risk Brief: Mali*, Berlin, Adelphi, 28 May 2020, https://www.adelphi.de/en/node/56472; Fara Hegazi, Florian Krampe and Elizabeth Seymour Smith, "Climate-Related Security Risks and Peacebuilding in Mali", in *SIPRI Policy Papers*, No. 60 (April 2021), https://www.sipri.org/node/5411.

[16] Aoife McCullough, Leigh Mayhew and Sarah Opitz-Stapleton, "When Rising Temperatures Don't Lead to Rising Tempers", cit.

[17] Sanfo Abroulaye et al., "Climate Change: A Driver of Crop Farmers - Agro Pastoralists Conflicts in Burkina Faso", in *International Journal of Applied Science and Technology*, Vol. 5, No. 3 (June 2015), p. 92-104, http://www.ijastnet.com/journal/index/749.

[18] A focus on mechanisms provides a promising departure from abstract econometric models, with a more bottom-up emphasis on fine-grained empirical accuracy. By mechanisms, we do not refer here to linear regularities, but to pathways in which causality is emergent in combination with parallel processes, as argued in non-deterministic approaches to mechanism research. See for instance, Stefano Guzzini (ed.), *The Return of Geopolitics in Europe? Social Mechanisms and Foreign Policy Identity Crises*, Cambridge, Cambridge University Press, 2012.

ISSN 2610-9603 | ISBN 978-88-9368-241-1

throughout longer timespans:

1) *The Malthusian mechanism*: Worsening climatic trends (combined with other environmental stressors, such as demographic growth and/or unsustainable livelihoods) contribute to the progressive depletion of valuable natural resources, including fertile agricultural land, pasturelands and water sources. This dynamic exacerbates competition over increasingly scarce resources, in a struggle for survival. This competition can be political; or, in the most acute cases, it can escalate and lead to violent conflicts.

2) *The Greed mechanism*: Like in the Malthusian mechanism, climatic factors (possibly in combination with other factors) reduce the availability of natural resources. Yet in this case reduced supply is not seen as a survival threat, but as an economic opportunity, because the inelastic demand of basic consumption goods pushes prices upward. Conflict then results from the hoarding of resources driven by greedy (violent) entrepreneurs.

3) *The Sons-of-the-Soil mechanism*: Climate change-induced depletion of resources is not uniform, but uneven and irregular. Enhanced mobility, including migration and rural exoduses, therefore represent a valuable coping strategy, especially for traditionally mobile groups such as pastoralists and nomads. This trend is further amplified by forced displacement flows caused by "natural" disasters such as floods and droughts, whose frequency and magnitude are also increased due to climate change.[19] Yet population movements may intensify frictions and heighten tensions between indigenous/host communities and displaced/migrant groups, possibly leading to violent conflict escalation.

4) *The Political Ecology mechanism*: By prompting meteorological unpredictability, climate change critically undermines the fragile balance between natural ecosystems and productive systems that has long sustained the traditional way of life of Sahelian populations. As a result, the social organisation is upset: customary mechanisms of social integration and conflict regulation are less and less adapted to changing conditions, thereby prompting disenfranchisement and leaving grievances unaddressed, while the competition to redistribute the "goods and bads" resulting from climatic and social changes increases the risk of violent conflicts.

The analysis below will explore the plausibility of these mechanisms to explain alleged manifestations of the climate-conflict nexus in the Sahel. This does not mean that the climate-conflict nexus is assumed to exist unproblematically. On the contrary, if the analysis were to show that none of these mechanisms apply, the overall confidence in the heuristic value of the climate-conflict nexus hypothesis

[19] This is not to imply a reductionist view whereby climatic factors and events "cause" migration in a deterministic fashion. Research has demonstrated the complexity of the socio-political dynamics shaping "push" and "pull" factors of migratory flows. See: Lily Salloum Lindegaard, "What Makes a Climate Migrant?", in *DIIS Long Read*, 2 March 2021, https://www.diis.dk/en/node/24648.

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would be significantly diminished. Alternatively, the identification of one (or more) of these mechanisms at play in the Sahel would help corroborate the validity, and specifying the actual content and scope-conditions of the overall climate-conflict nexus hypothesis.

To this end, the analysis empirically investigates the mechanisms – if any – potentially linking changing climate dynamics and conflict outcomes in the two cases that most arguably illustrate the climate-conflict nexus in the Sahel: (i) the droughts and famines that hit the region in the 1970s and 1980s; (ii) the ongoing alleged desertification of central Sahel and the agro-pastoral competition for the use of natural resources. Looking at the complex interactions between environmental stressors, mobility and access to natural resources, the cross-time exploration of these cases will help address the temporal correlation bias of positivist climate-conflict research, whose implausibility has been noted above. The findings of such a research design are expected to provide policy-relevant indications on how to address conflict drivers in the Sahel and – possibly – in the broader Mediterranean space. Furthermore, given that the Sahel provides a most-likely case for the climate-conflict hypothesis to hold, as discussed above, the analysis herein delineated can provide valuable insights of more general applicability.

3. Droughts, famines and rebellions

Between the late 1960s and the late 1980s, the Sahel experienced severe precipitation decline. Rainfall levels fell by 15–25 per cent compared to the long-term average, and by 25–50 per cent compared to the extraordinarily wet period that preceded it since the 1950s. As a result, the region went through more frequent and severe droughts, which also proved exceptionally long in time and extensive in space, affecting an area of almost 5 million square kilometres across West Africa.

Early studies tended to attribute these events mostly to local anthropic factors, that is, the aggregated impact of human mismanagement of natural resources by Sahelian communities through overgrazing, deforestation and poor land management, compounded by rapid population growth. Later research however suggested that the prolonged drought was more probably among the indirect consequences of air pollution generated in Europe and North America, as global warming altered the trajectories of monsoons and tropical rains.[20]

Given its inherent environmental fragility, the impact of these dynamics on the semi-arid Sahelian band was particularly severe. Scholars have found that the Sahelian droughts of the 1970s and 1980s brought about a major loss of biodiversity and ecological degradation, with unprecedented soil exhaustion and erosion.[21] The

[20] Isaac M. Held et al., "Simulation of Sahel Drought in the 20th and 21st Centuries", in *PNAS*, Vol. 102, No. 50 (13 December 2005), p. 17891-1789, https://doi.org/10.1073/pnas.0509057102.

[21] Bruno A. Walther, "A Review of Recent Ecological Changes in the Sahel, with Particular Reference

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non-reproduction of pasturelands and the disruption of transhumance patterns also caused large-scale herd losses. Livestock depletion is hard to quantify, but was arguably massive. As a result, social groups whose livelihoods are based on pastoralism – most notably the ethnic Tuareg and Fulani – plunged into poverty.

The Sahelian droughts of the 1970s and 1980s were also accompanied by major famines, which became particularly acute in 1973 and 1985. The causal link between these two phenomena – droughts and famines in the Sahel – remains controversial however. There is little doubt that resource depletion and widespread poverty, caused by a prolonged drought, contributed to the Sahel's overall proneness to food crises. Yet one may argue that the Sahel's famines of those years could have been mitigated, if not averted, had it not been for the contribution of exogenous political factors. In the 1970s, for instance, the concomitant global oil crisis and hyperinflation rates drastically eroded the purchasing power of the vulnerable poor in oil-importing Sahelian countries. In the 1980s, the famines highlighted the failure of market-based regulatory mechanisms promoted by international financial institutions such as the World Bank and the International Monetary Fund. As it turned out, neoliberal doctrines underestimated the devastating impact of fluctuation in exchange rates and commodity prices for the cash-starved Sahelian populations.

Furthermore, discriminatory policies fostered by the region's authoritarian regimes exacerbated horizontal inequalities and unpaired access to critical food supplies and food aid for marginalised nomadic groups, as documented in the cases of northern Mali[22] and northern Nigeria.[23] These observations suggest that the mere lack of food availability was possibly less important than the lack of food accessibility and affordability in bringing about the famines that struck the Sahel in the 1970s and 1980s. One may therefore see such famines less as the result of mere food shortages than of inadequate food policies, thereby undermining the plausibility of the hypothesis posing a deterministic link between climate change–induced droughts and famines.

The environmental and food crises that struck the Sahel impacted local communities heavily. Estimates of drought-related deaths in those two decades range between 100,000 and 1 million people. Another 7–800,000 became dependent on food aid. Hundreds of thousands also left the hardest stricken areas straddling across the Sahel and the Sahara, and swelled the ranks of regional migratory flows, moving either to larger towns or to neighbouring countries. It is precisely in those years that numerous Tuaregs from northern Mali and northern Niger left their countries of origin and settled with their families in North African countries – Algeria and

to Land-Use Change, Plants, Birds and Mammals", in *African Journal of Ecology*, Vol. 54, No. 3 (September 2016), p. 268-280.

[22] Gregory Mann, *From Empires to NGOs in the West African Sahel*, cit.

[23] Michael Watts, *Silent Violence. Food, Famine and Peasantry in Northern Nigeria*, 2nd ed., Athens, University of Georgia Press, 2013.

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Libya most notably – whose hydrocarbons-based economies were then booming.[24] This circumstance by the way highlights the significant intersections of security dynamics affecting the Sahel and the broader Mediterranean region.

It is noteworthy that such crises, in spite of their huge economic, social and human impact, did not trigger any notable escalation of armed violence, at least in the short term. Paradoxically, the 1970s and 1980s represent an uncommon period of peace in Mali and Niger. The rebellious northern regions of these countries make no exception: Tuareg-led revolts broke out here in the 1960s and then in the 1990s and 2000s, but the peak years of the environmental and food crises were not accompanied by any obvious manifestation of armed violence. These observations contribute to questioning the applicability of the "Malthusian mechanism" to this case: in the face of dramatic climate changes and food shortages, armed resistance has arguably proved to local communities a less convincing option than creative adaptation. Noteworthy, mobility – including transhumance, trans-Saharan migration and rural exodus – has provided one of the most common coping strategies.

It is nevertheless possible to argue that the experience of dispossession and displacement nurtured feelings of anger and widespread grievances, especially among the Tuaregs.[25] Such feelings planted the seeds of revanchist ideals, which found a particularly fertile ground in the Libyan camps where displaced Tuaregs took refuge. Gaddafi's hospitality proved capricious and manipulative, but the large-scale recruitment in Libyan militias nevertheless exposed Sahelian Tuareg refugees to revolutionary ideologies and combat expertise. Such political and military skills empowered the Tuaregs who subsequently mounted a series of rebellions in north Mali and north Niger, starting from the 1990s. It is no coincidence that most of these rebellions were first planned in, if not supported by, Libya. In 2012, too, the Tuareg insurrection that triggered Mali's state collapse and soon enflamed the entire region was prompted by the Sahelian diaspora in Libya, who made return to northern Mali after the Gaddafi regime crumbled, bringing "home" combat experience and military hardware.

These observations may contribute to drawing a possible, although admittedly tenuous, link between the droughts and famines of the 1970s and 80s, and the insurgencies of the 1990s and 2000s in north Mali and north Niger, that is: between climate and conflict events. The lack of temporal overlap should not cause us to overlook the plausibility of a cross-temporal – and even cross-generational – linkage. At the same time, the "weight" of climatic factors in determining conflict outcomes should be viewed with caution. In light of the mismatch between the slowness of incremental climate change, and the sudden disruption through which longstanding tensions erupt into violent conflicts, a multiplicity of additional

[24] Judith Scheele, *Smugglers and Saints of the Sahara*, cit.

[25] Baz Lecocq, *Disputed Desert. Decolonization, Competing Nationalism and Tuareg Rebellions in Northern Mali*, Leiden, Brill, 2010.

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factors should be accounted for to trace the causal chain possibly connecting armed conflicts to climate and environmental crises that occurred decades earlier. Process-tracing such an alleged causal chain would be a necessary but onerous endeavour, that falls beyond the scope of the present analysis.

Here we should content ourselves with highlighting the overall poor applicability of most of the mechanisms sketched above to the case in point. The limited explanatory power of the "Malthusian mechanism" has been already noted. The "Greed mechanism", too, contrasts with the temporal mismatch between climate and conflict events, and there are no obvious indications that commodity price fluctuations may have motivated the Tuareg-led insurgencies that swept the Sahel since the 1990s up to date. Instead of greed, the predominant explanations for these insurgencies highlight the grievances – to borrow a widely influential dichotomy of civil war studies – of disenfranchised Tuaregs against authoritarian rule, marginalisation and horizontal inequalities.[26]

The explanatory capacity of the "Sons-of-the-Soil mechanism" is also limited. The massive population displacement triggered by the environmental crisis of the 1970s and 80s did not lead to violent conflict escalations between groups forced to relocate and host communities. The reliance on transnational family networks and longstanding inter-ethnic solidarities helped assuage tensions. One could argue, however, that such tensions surfaced decades later. In fact, the Tuareg-led insurrections propelled by former "climate refugees" returning from Libya in the 1990s and then after the capitulation of Gaddafi in 2011 prompted the violent reaction of other indigenous Sahelian ethnic groups, who then formed self-protection armed factions some of which explicitly hailed a "Sons-of-the-Soil" rhetoric. In this case too, however, reductionist explanations attributing such polarisation to climate-induced mobility and competition over natural resources would be misleading. Recent research has in fact demonstrated that political manoeuvring by local and national leaders played a prominent role in accelerating the fragmentation and antagonism of social and ethnic groups in northern Sahel.[27]

The "Political Ecology" approach may possibly provide a more promising explanation. There is evidence that the environmental crises of the 1970s and 80s, while disrupting the economic fabric, contributed to upsetting the social organisation and to severing inter- and intra-ethnic ties.[28] The rapid decay of

[26] Pierre Boilley, *Les Touaregs Kel Adagh. Dépendances et révoltes: du Soudan français au Mali contemporain*, Paris, Karthala, 2012; Hélène Claudot-Hawad, "La question touarègue: quels enjeux?", in Michel Galy (ed.), *La guerre au Mali. Comprendre la crise au Sahel et au Sahara: enjeux et zones d'ombre*, Paris, La Découverte, 2013, p. 125-147.

[27] Luca Raineri and Francesco Strazzari, "Drug Smuggling and the Stability of Fragile States. The Diverging Trajectories of Mali and Niger", in *Journal of Intervention and Statebuilding*, 17 May 2021, DOI: 10.1080/17502977.2021.1896207.

[28] Georg Klute, "From Friends to Enemies: Negotiating Nationalism, Tribal Identities, and Kinship in the Fratricidal War of the Malian Tuareg", in *L'Année du Maghreb*, Vol. 7 (2011), p. 163-175, https://doi.org/10.4000/anneemaghreb.1191.

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customary institutions that followed diminished the threshold for violence seen as a legitimate means of conflict regulation. The outbreaks of armed violence in the Sahel over the last decades can be partly attributed to this long-term trend, originating since the 1970s at the intersection of environmental, economic, social and political crises. When Tuareg refugees came back from Libya in 2011–12 carrying their weapons, the capacity of local mechanisms for inter-ethnic conflict management was so eroded that, in the face of competing entitlement claims, nothing was left to prevent a violent escalation.

4. Desertification, regreening and competition for land use

Policy and media discourses have insistently claimed that the Sahel is going through a process of rapid desertification.[29] Such claims are arguably based on the inherent environmental fragility of the Sahelian band, its proximity to the Sahara Desert and the expected impact of diminishing precipitation combined with unsustainable logging to meet the increasing demand for wood by a rapidly growing population. The concern about the alleged desertification of the Sahel has fuelled fears that the exhaustion of natural resources would lead to heightened competition for access and exploitation, with the risk to prompt violent escalations and climate-induced migration. The discourse securitising the alleged desertification of the Sahel has gained traction in policy circles, also because of the support granted by international institutions such as the UN Environment Programme (UNEP) and the UN Convention to Combat Desertification (UNCCD). Even today's UN Secretary General António Guterres, speaking before the Security Council in 2012, argued that in the Sahel "poverty and underdevelopment, exacerbated by desertification and the effects of climate change, are being exploited by ideologies that are either based on ethnicity or religious extremism".[30]

In spite of such claims, there is now a growing scholarly consensus that the alleged desertification of the Sahel, if it ever occurred, has halted. The southward push of the Sahara Desert is receding, and the Sahelian belt features much higher degrees of green cover and water availability now than it used to be the case in the late 20th century.[31]

[29] See We Are Water Foundation, *The Sahel, Desertification beyond Drought*, 17 June 2019, https://www.wearewater.org/en/the-sahel-desertification-beyond-drought_318262. For a more explicit reference to the linkage between desertification, conflicts and security, see Jérôme Piodi, "La désertification : une bombe à retardement au cœur du Sahel", in *Revue Défense Nationale*, No. 783 (2015), p. 28-32, https://doi.org/10.3917/rdna.783.0028.

[30] UNHCR, *Statement by António Guterres, United Nations High Commissioner for Refugees, to the United Nations Security Council*, New York, 10 December 2012, http://www.unhcr.org/50c7346e9.html.

[31] Roy H. Behnke and Michael Mortimore (eds), *The End of Desertification? Disputing Environmental Change in the Drylands*, Berlin/Heidelberg, Springer, 2016, https://doi.org/10.1007/978-3-642-16014-1; Martin Brandt et al., "Changes in Rainfall Distribution Promote Woody Foliage Production in the Sahel", in *Communications Biology*, Vol. 2 (2019), Article 133, https://doi.org/10.1038/s42003-019-0383-9.

ISSN 2610-9603 | ISBN 978-88-9368-241-1

Several explanations have been put forward to account for this unexpected trend reversal. Some highlight natural dynamics, such as the spontaneously changing cycles of pluviometry that underpin the Sahel's inherent rainfall variability. Others instead underline the positive impact of policies deliberately devised since the 1970s drought in order to increase local ecosystems' resilience and mitigate the impact of environmental degradation, including large-scale reforestation programmes, logging bans and the expansion of agricultural production to meet the population's food needs. The fear of desertification in the Sahel has in fact prompted international donors – including Western countries and international organisations – to relaunch late-colonial projects to stop the southward advance of the Sahara by raising a "great green wall" at the edge of the desert.[32] At the same time, Sahelian governments have enforced strict regulations against informal wood collection and for the overall conservation of natural resources. Moreover, international donors and Sahelian governments have supported ambitious programmes to strengthen food security by enhancing domestic agricultural output. Building on the "green revolution" blueprint, the production of cereals and staples in Sahelian countries has drastically increased in the last few decades, while malnutrition rates have conversely declined.[33]

These observations call into question the applicability of the "Malthusian mechanism" in this case. It is true that sporadic clashes for access to and control of water (re)sources have been observed in the Sahel over the last few years. Yet, contrarily to Malthusian expectations, conflict escalations have paradoxically taken place as rainfall and overall water and food availability were rising. If access to vital resources was at stake, it was arguably less due to climate-induced reduction of natural resource stocks than to social inequality and general demographic growth trends. The "Greed mechanism" is equally questioned. The substantial overlap – both temporal and spatial – between escalating conflict events and increasing food availability and affordability is in fact in contradiction with this hypothesis.

A more promising pathway possibly linking resource competition and conflict trends consists in shifting the analytical focus away from food availability and affordability per se, to the factors of food production, first and foremost the land. The retreat of the desert and the increase in food production, in fact, have been achieved through the exploitation of almost all the land suitable for agricultural purposes. Shrinking land availability, combined with growing demand as a result of population growth, has pushed land prices considerably upwards across the entire Sahel.[34] While the "Malthusian mechanism" still does not apply here, because land ownership per se is not a survival need, the "Greed mechanism" becomes more

[32] See Green Great Wall website: https://www.greatgreenwall.org/about-great-green-wall.

[33] International Crisis Group (ICG), "The Central Sahel: Scene of New Climate Wars?", in *Crisis Group Africa Briefings*, No. 154 (24 April 2020), https://www.crisisgroup.org/node/13812.

[34] Ruth Hall, Ian Scoones and Dzodzi Tsikata (eds), *Africa's Land Rush: Rural Livelihoods and Agrarian Change*, Woodbridge, James Currey, 2015.

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persuasive when applied to land shortages.

The large-scale land privatisation schemes (the phenomenon dubbed land-grabbing) are seen as profitable by domestic and international investors, but they have aggravated the competition for the acquisition of land – a resource customarily experienced and managed as a common good. Amidst uncertain legal frameworks and management schemes, land competition is arguably one of the main drivers of the current conflict dynamics in central Sahel.[35] The linkage with climate change is however paradoxical in this case: it is not so much climate change per se that fuelled conflict escalation in the Sahel; instead, the ill-conceived environmental protection programmes to fight desertification and prevent food crises – mentioned above – have ended up contributing to the exacerbation of conflict drivers, by alienating natural resource management and use to local communities for productive and protective purposes.

The applicability of "Sons-of-the-Soil mechanism" to this case appears to follow the same logic. The processes of desertification and regreening of the Sahel have arguably prompted flows of population displacement, driven respectively by humanitarian needs and livelihood opportunities. Conflict data however suggest that communal clashes over access to natural resources have been more frequent and acute during the last couple of decades, thereby correlating more with food and water abundance, and land scarcity. Indeed, many of the ongoing conflicts in the Sahel are linked to competing claims of autochthony and priority rights over the access to land and use of the natural resources localised therein.[36] The clashes escalating between the Dogon and the Fulani in central Mali, or between Fulani, Tuaregs and Zerma at the Mali–Niger border illustrate this trend: they articulate with increasing violence the longstanding competition over land use between sedentary farmers and transhuman pastoralists, which violent extremist groups skilfully manipulate to gain local rooting.

Too narrow a focus on mobility, population displacement and claims of indigeneity, however, runs the risk of reifying abstract categories (such as host-migrant), and overlooking deeper political dynamics, which the "Political Ecology" framework appears more suited to capturing. As political ecologists have pointed out,[37] all environmental transformation – including instances linked to climate change – generate winners and losers, depending on the capacity of social groups to reap the benefits of environmental change and externalise costs onto other groups. This capacity is shaped by the political and economic power of such groups, and the case of the desertification and regreening of the Sahel makes no exception.

[35] Tor A. Benjaminsen and Boubacar Ba, "Why Do Pastoralists in Mali Join Jihadist Groups? A Political Ecological Explanation", in *The Journal of Peasant Studies*, Vol. 46, No. 1 (2019), p. 1-20.

[36] Tor A. Benjaminsen and Boubacar Ba, "Fulani-Dogon Killings in Mali: Farmer-Herder Conflicts as Insurgency and Counterinsurgency", in *African Security*, Vol. 14, No. 1 (2021), p. 4-26, https://doi.org/10.1080/19392206.2021.1925035.

[37] Susan Paulson, Lisa L. Gezon and Michael Watts, "Locating the Political in Political Ecology: An Introduction", in *Human Organization*, Vol. 62, No. 3 (Fall 2003), p. 205-217.

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The environmental protection programmes to fight desertification – mentioned above – have unequally impacted sedentary farmers and transhumant pastoralists. Reforestation initiatives, for instance, have largely encroached upon grazing lands. At the same time, the harsh and uneven implementation of the logging bans across the Sahel has been perceived as discriminating against pastoralists, and especially the most vulnerable among them. Furthermore, the enhancement of food production has largely been achieved through the expansion of agriculture to the detriment of pastoralism. Grazing areas have been turned to cultivation, and the shrinking of pasturelands and transhumance routes has considerably increased the chances for friction and the potential for conflict.

These outcomes are not merely the result of technical choices but reflect the power balance shaping Sahelian polities. Large-scale agricultural development, in fact, underpins narratives of modernisation, sedentarisation and capital accumulation long connected to state-building. From this perspective, the underprivileged status of pastoralism in Sahelian environmental protection policies reflects not only the perceived greater food output of agriculture, but also, and importantly, the greater alignment of the latter with the political and economic interests of ruling elites in Sahelian capital cities.[38]

Looking at the processes of desertification and regreening in the Sahel, one could therefore conclude that climate changed–induced environmental change (rainfall variability and desertification) in combination with context-insensitive environmental protection policies (regreening via green "walls" and green "revolutions") have contributed to unsettling the customary organisation of production rooted in local ecosystems. The disruption of the fragile ecological balance between agricultural and pastoralist activities, based on rotating land use, has exacerbated inequalities and grievances, while undermining the cogency of traditional dispute settlement mechanisms and authorities. These dynamics have, on the one hand, increased the frequency and gravity of conflicts related to land allocation and use while, on the other, fuelled the disenfranchisement of vulnerable communities, and their resentment vis-à-vis the state. Indeed, available evidence suggests that the growing frustration and (unfulfilled) demand for protection by animal farmers are among the main drivers of violent escalation and terrorist mobilisation across the Sahel.[39]

From this point of view, then, in the case of the desertification and regreening of the Sahel the mechanism labelled "Political Ecology" appears to provide the most convincing pathway connecting climatic and environmental dynamics, on the

[38] Gregory Mann, *From Empires to NGOs in the West African Sahel*, cit.; Luca Raineri, "Sahel Climate Conflicts? When (Fighting) Climate Change Fuels Terrorism", in *EUISS Policy Briefs*, No. 20 (November 2020), https://www.iss.europa.eu/node/2495.

[39] Marc-Antoine Pérouse de Montclos, *L'Afrique, nouvelle frontière du djihad?*, Paris, La Découverte, 2018; Luca Raineri, *If Victims Become Perpetrators. Factors Contributing to Vulnerability and Resilience to Violent Extremism in the Central Sahel*, London, International Alert, 2018, https://www.international-alert.org/?p=2624.

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one hand, and conflict outcomes, on the other.

5. Re-politicising the climate-conflict nexus

The Sahel is subject to a seemingly intractable, multifaceted crisis, illustrated by soaring levels of instability and violence across the region. What are the causes of this unprecedented conflict escalation? While the contributing factors are arguably complex and manifold, this analysis has investigated the applicability of some mechanisms which may help trace a plausible connection between conflict outcomes in the Sahel and climatic factors. The analysis has focused in particular on two micro-cases in which the exceptional prominence of the independent variable (climate events) makes the climate-conflict nexus hypothesis more likely: on the one hand, droughts (and famines), and their possible link to Tuareg irredentism; and on the other hand, desertification (and regreening), allegedly connected to inter-ethnic polarisation and the rise of violent extremism. Both cases span across decades, from the early manifestations of environmental stress in the 1970s to the ongoing security crisis in the region.

Among the four mechanisms analysed – dubbed "Malthusian", "Greed", "Sons-of-the-Soil", and "Political Ecology" – only the "Political Ecology" appears to retain some degree of applicability to the cases analysed. The pathway of "Political Ecology" has in fact proved the most plausible linkage between climatic and conflict events in both cases, while the three other mechanisms turn out to provide ill-suited explanations for the dynamics observed in each case. These findings have two important theoretical implications: first, that the hypothesis of a possible nexus between climate and conflicts dynamics retains some validity in some cases; second, that the "Political Ecology" mechanism provides the most convincing explanation of this nexus. This means that climatic change may indeed fuel violent conflicts, mostly because they contribute to upsetting fragile socio-economic systems and the relative mechanisms of conflict regulation.

At the same time, demonstration of the heuristic value of the "Political Ecology", alongside lack of substantiation of the other three mechanisms hypothesised, indicates that climate dynamics per se are neither sufficient nor necessary to trigger violent conflicts, and that additional exogenous factors need to be considered in order to provide an exhaustive causal explanation of conflict outcomes.

The key "Political Ecology" features – that is, the resilience of existing modes of production, and the legitimacy of the rules regulating them – are first and foremost political issues, which changing climatic conditions can influence, but not determine. This observation thus places emphasis on the crucial "weight" of governance schemes (including customary norms, domestic institutions and international laws) in making emerging tensions over natural resources veer towards either conflict escalation, or peaceful management.

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This conclusion is not trivial, because it further contributes to ruling out the simplistic yet still influential Malthusian assumptions about the climate-conflict nexus. But it is not surprising either, as it corroborates the findings of a long tradition of positivist climate-conflict research. Interestingly, the "Political Ecology" framework, by focusing on cross-temporal causal paths, complements these findings by noting that, while it is true that climate-induced conflict outcomes depend primarily on governance mechanisms, it is also true that in the long run governance mechanisms themselves can be affected, modified or disrupted by changing climatic conditions.

Furthermore, the analysis of both cases highlights that mobility is another crucial factor mediating between climatic stressors and possible conflict outcomes in the Sahel. Rooted in customary practices, mobility is arguably the most widespread coping strategy put in place by Sahelians in the face of both incremental climatic changes and sudden climate disasters. The perceptions and practices of local populations, therefore, tend to see mobility much more as a source of resilience than as a threat. At the same time, the cases of Sahelian drought and desertification processes show that climate dynamics – as well as ill-suited climate change mitigation projects – can drastically affect customary mobility patterns. Forced displacement and spatial dispossession, in turn, often fuel resentment and plant the seeds of revenge, which in the long run can contribute to violent conflict escalation. While mobility thus seems to offer an immediate response to the challenges of climate change, the spatial and temporal dispersion brought about by forced mobility can ultimately lead to unravelling the social fabric and loosening the political bond. By eroding the social organisation, these dynamics crate a fertile ground to trigger the "Political Ecology" mechanism and transform climatic stressors into conflict drivers.

Lastly, one needs to observe that, in both cases analysed above, the social disruption inherent to the "Political Ecology" framework would arguably be insufficient to translate widespread grievances about unequal access to natural resources into violent conflicts, unless two additional conditions are met: the unimpeded accessibility of weapons to prospective insurgents, and the supply of political narratives and ideologies legitimising the resort to violence by non-state actors. Both conditions are verified in the Sahel, largely owing to the weakness and poor professionalism of local states' security apparatuses. Weapons diverted from local state arsenals are widely available across the Sahel's black market. And extremist ideologies – whether irredentism, ethno-nationalism or jihadism – have been frequently mobilised by the Sahel's violent entrepreneurs to reframe small-scale conflicts for access to natural resources into large-scale armed conflicts.[40]

[40] Morten Bøås, Abdoul Wahab Cissé and Laouali Mahamane, "Explaining Violence in Tillabéri: Insurgent Appropriation of Local Grievances?", in *The International Spectator*, Vol. 55, No. 4 (December 2020), p. 118-132, https://doi.org/10.1080/03932729.2020.1833567.

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From this perspective, it may be useful to borrow concepts and methods from the study of social movements of political contention in order to investigate conflicts seemingly influenced by climatic and environmental factors. In order to make sense of the conflicts over natural resources, one needs to look at the broader spectrum of material and immaterial resources that contribute to violent mobilisations: that is, not only more or less legitimate grievances linked to changing natural resource availability, affordability and accessibility, but also weapons, ideologies, material incentives and mobility opportunities, amongst others. Within this framework, climate factors contribute to changing the structure of political opportunity – either progressively or suddenly – by undermining existing modes of production and related social hierarchies.

In conclusion, this analysis has highlighted the relevance of political ecology and social movement studies lenses to make sense of how climate and conflict dynamics interact in the Sahel. The approach sketched herein therefore stresses the key importance of re-politicising (the analysis of) the climate-conflict nexus. As can be expected, in fact, the securitisation of climate change has paved the way to the progressive de-politicisation of conflicts over natural resources in the Sahel. Sahelian governments have deliberately encouraged the narrative linking conflict escalation in the region and climate change, as a way to attract financial assistance by connecting two issues that mobilise international donors. The recent efforts by the government of Niger to foster a climate security narrative – and, most importantly, a resolution – within the UN Security Council provides an illustration of this.[41] However, laying blame on a "natural" phenomenon – one for which foreign, formerly colonial countries could be reproached – can also be seen as helping Sahelian rulers divert attention from their own responsibilities for growing insecurity and social unrest.[42]

Similarly, the belief that violent conflicts and climate change are somehow connected has offered international donors the opportunity to address jointly what are arguably the most pressing issues facing the international community, thereby overcoming political divides.[43] The European Union, in particular, has eagerly embraced this narrative, which seems to provide a coherent framework to reconcile its diverse (divergent?) ambitions: fighting climate change, stabilising the (extended) neighbourhood, fostering green development and undercutting irregular migration. The Commission's emphasis on Africa has made of the Sahel a laboratory to devise and test new foreign policy approaches combining the security-development nexus with the climate-conflict nexus in the name of climate security and green development.

[41] ICG, *Time for the UN Security Council to Act on Climate Security*, 7 December 2021, https://www.crisisgroup.org/node/18545.

[42] ICG, "The Central Sahel", cit.

[43] Luca Raineri, "Sahel Climate Conflicts?", cit.

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These rather simplistic assumptions and deterministic rhetoric actually run the risk of obfuscating the root causes of the violent disruptions currently undermining the Sahel's stability, in which political and social factors are predominant. They could therefore jeopardise the adoption of appropriate responses to prevent, pre-empt and manage conflicts over the access to natural resources in the region, both locally and internationally. From this perspective, re-politicising the climate-conflict nexus amounts not only to a matter of theoretical consistency, but also of political expediency in order to devise relevant strategies of risk reduction and conflict management.

Recommendations

Building on the above, it is possible to draw some recommendations on how to address the climate-conflict nexus in the Sahel in a more cogent, evidence-based fashion.

Firstly, research suggests that, in the Sahel, climate change depends more on macro drivers, while conflicts are more often the result of micro-dynamics. The articulation of these two levels is non-linear, and leads to complex, hardly predictable outcomes. This highlights the need for a holistic and nuanced understanding of the climate-conflict nexus, one that rules out simple mechanistic correlations and puts instead political struggles at the core of the analysis and policy-making. From this perspective, the current securitisation of climate change at the macro level (such as the proposed UN-resolution on climate security, or the UNCCD strategy) is as misleading as the blaming of micro-level environmental practices, no matter how predatory, for large-scale climate changes, which was in vogue in the 1980s and 1990s. This approach should therefore be equally dropped, replaced by strategies that recognise the politicisation of climate change and environmental struggles.

Secondly, portrayed as the quintessential illustration of environmental and political fragility, the Sahel has become the target of a plethora of programmes and projects to foster environmental protection. Such initiatives may have a positive impact and help reduce the overall security volatility of the region, provided that foreign interveners realise they do not operate in a vacuum. Past experiences demonstrate that large-scale projects of green- "revolutions", "walls", and "development" in the Sahel can do more harm than good if they are administered in a top-down fashion by authoritarian or technocratic elites without local buy-in. By overlooking local customs and governance mechanisms, such projects often tend to exacerbate tensions and grievances, paving the way to conflict escalation. In the domain of environmental protection, too, conflict sensitivity is therefore paramount. The recent turn to community-based conservation has led to the development of approaches and tools which could provide valuable guidelines to this end.[44]

[44] Mikkel Funder and Marie Ladekjær Gravesen, "Biodiversity and Development: The Evolution of

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Thirdly, while the actual contribution of environmental and climate factors to conflict drivers remains uncertain, there is little doubt that conflicts over natural resources, irrespective of their cause, would hardly escalate to large-scale violence were it not for the widespread availability and accessibility of weapons. Therefore, while fighting climate change remains a worthwhile objective per se, combating arms trafficking appears to be a more effective and immediate means of reducing the lethality of conflicts and the overall regional instability. Sahel states' partners should invest in better monitoring arms transfers, securing arms stockpiles, disciplining arms users and combating organised crime.

Fourthly, the simplistic belief whereby security relevant phenomena as disparate as conflicts for natural resources, terrorist mobilisation and long-range migration can be traced back to the common root cause of climatic changes is flawed, and it is a recipe for policy failure. In particular, the specific characteristics of the Sahel's social-economic fabric make of mobility less a manifestation of vulnerability than of resilience in the face of climatic changes, whether incremental or sudden, while the evidence for climate change-induced migration remains contested. This prompts the observation that climate change and conflict mitigation strategies in the Sahel may be in contradiction with the EU-sponsored securitisation and interdiction of cross-border mobility to fight irregular migration. Foreign interveners – first and foremost the EU and its member states – should then carefully balance their priorities in the Sahel to avoid wasting resources or producing contradicting outcomes. Enhancing, rather than fighting, regional and trans-Saharan circulation schemes has the potential to help mitigate the drivers of conflict escalation and terrorist mobilisation.

Lastly, the strength and legitimacy of governance makes a crucial difference in making potential conflicts over natural resources veer over either violent escalation or peaceful management. With its emphasis on governance, the EU's recently adopted Integrated Strategy in the Sahel[45] represents a step in the right direction. In the implementation of the Strategy, the EU and its member states should devote a special attention to the multi-level and multi-actor governance of natural resources. In particular, there is a need to better integrate customary rules, equitable legal frameworks and international norms, and to promote a less technocratic and more socially inclusive approach to land governance reforms in Sahelian countries.

Updated 16 March 2022

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IAI PAPERS 22 | 04 - MARCH 2022
ISSN 2610-9603 | ISBN 978-88-9368-241-1

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ISSN 2610-9603 | ISBN 978-88-9368-241-1

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