

THE FUTURE OF CONFLICT PREVENTION

Preparing for a hotter,
increasingly digital and
fragmented 2030

By
Katariina Mustasilta



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The EUISS Chaillot Paper series

The *Chaillot Paper* series, launched in 1991, takes its name from the Chaillot hill in the Trocadéro area of Paris, where the Institute's first premises were located in the building occupied by the Western European Union (WEU). The hill is particularly known for the Palais de Chaillot which was the site of the signing of the UN Universal Declaration of Human Rights in 1948, and housed NATO's provisional headquarters from 1952 until 1959.

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EXECUTIVE SUMMARY

This *Chaillot Paper* analyses the need and opportunities for conflict prevention in the face of three global megatrends: climate change, digitalisation, and fragmentation of authority. All three trends will continue to evolve and change our social and natural environment for years to come. Due to their very nature as megatrends, we cannot go about eradicating these phenomena, even if we wanted to. As they evolve, the three trends will carry multiple implications for social, economic and political relations within societies and between them. Ultimately, this means that the three trends can have considerable impact also on peace and conflict dynamics.

However, while we cannot altogether stop or roll back the trends, the international community can influence the way these trends shape our political and social relations in general, and the way they shape peace and conflict dynamics within states and in the international arena, in particular. Moreover, insight and knowledge regarding the direction in which these megatrends are likely to evolve can be used to better prepare for them and to prevent conflict-inducing effects they may have in diverse contexts around the world.

To this end, this *Chaillot Paper* combines trends analysis concerning the evolution of the trends in the coming years – with 2030 as a point of reference – with state-of-the-art analysis of the relationship between each trend and conflict escalation. The aim of the analysis is to identify options and mechanisms for a conflict-preventive approach. Specifically, the volume asks how each megatrend – depending on their respective trajectory – is likely to influence conflict escalatory processes in the coming decade, and how we can break the pathways linking the megatrends to conflict escalation.

While none of the three trends automatically or directly cause conflicts, they can all have escalatory effects given vulnerable conditions and lack of preventive efforts. Climate change can increasingly endanger peace and fuel conflict particularly in fragile contexts with low coping and adaptive capacities against changing climatic conditions and render these more prone to escalation of localised inter-group tensions and dissidence against state authorities. In the long term, it also puts strain on interstate relations. Digitalisation can act as a catalyst in exacerbating social and political polarisation and providing new means and platforms of waging conflict once initial cleavages have emerged. Finally, fragmenting authority both at the level of the international order and within states themselves can have the effect of expanding and spreading conflicts in terms of the number of conflict parties and conflict layers involved. Together these pathways can form significant obstacles to peace and security as they render vulnerable areas more susceptible to the eruption of conflict and conflicts harder to resolve and manage.

Nevertheless, these escalatory effects are conditional and indirect. In other words, they are preventable pending proactive action that targets the pathways from each megatrend to conflict escalation. The combination of knowledge on how climate change, digitalisation and fragmentation of authority evolve and of the main ways in which they drive conflict provides a solid basis on which to respond to them in a preventive fashion.

While this *Chaillot Paper* sounds a warning about the potential effects of the three identified megatrends, it also strikes a cautious note of hope considering future peace and conflict dynamics. Specifically, the publication highlights the importance of strengthening local governance institutions, deploying digitalisation for peace, and investing in regional and flexible

multilateralism as ways to prevent violent escalation in the face of the three megatrends. First, local governance institutions are critically important determinants of coping and adaptive capacities amid continuing climate change and require long-term support and adequate resources. The accountability of sub-national governments and other local authorities will not improve if they remain sidelined from pivotal governance processes. Second, the benefits and opportunities afforded by digitalisation can be harnessed to serve conflict preventive efforts. What is needed for digitalisation to be mobilised as a vector for peace is multi-sectoral cooperation among practitioners, scholars, technical experts and investors. Third, regional organisations can organise multilateral responses to threatening developments even in (indeed, especially in) a polynodal world but require flexibility and multi-track coalition-building to strengthen capacities.

The three remedies can at best be mutually reinforcing and work as broader antidotes for preventing conflict escalation. Drawing on empirical evidence and examples, this *Chaillot Paper* seeks to demonstrate how investing in these preventive mechanisms can strengthen societal and international resilience and help the international community to better manage a fragmented, hotter, and increasingly digitalised world.

COPING WITH DIFFICULT TIMES

‘We are living [in] difficult times’, stated the then EU High Representative for Foreign Affairs and Security Policy and Vice-President of the European Commission (HR/VP), Federica Mogherini, only a few weeks before news began to circulate about the emergence of a new strain of the coronavirus in late 2019⁽¹⁾. We certainly do live in difficult times – and this was true even before the pandemic. According to the *Bulletin of Atomic Scientists*, the world has been precisely 100 seconds away from Doomsday since the beginning of 2020⁽²⁾. The symbolic clock that was created after World War II to warn of the threat of nuclear annihilation is now closer to midnight than ever before. While the renewed threat of nuclear armaments and a global pandemic might suffice to explain the repositioning of the hands of the metaphoric clock, there are also other challenges that increasingly influence societies across the world and can endanger peace within and between states. **Climate change** has an undeniable, growing impact on nature at large and its deleterious consequences for natural resources, food production and living conditions places increasing stress on societies and communities. **Digitalisation**, while in many aspects an equalising and empowering force in our societies, also provides new means to suppress dissent, and polarise or wage conflicts. Alongside these two, **fragmentation of authority** – both in terms of a shift in the international system

as well as diffusion of authority within states – challenges our existing models and frameworks to manage and mitigate conflicts.

These three phenomena can be regarded as megatrends, in that they are observable in our present and unfold over a long time period (their lifespan is around > 10 years), their evolution is difficult to reverse, and they have significant societal, political and economic ramifications across the globe⁽³⁾. While all three trends as such are widely recognised as affecting peace and stability, there is considerable debate about *how* they influence conflict processes and, in particular, about how to minimise their conflict-inducing effects now and in the future. At the same time, the Covid-19 pandemic has further highlighted the myriad problems related to the three trends and thus stressed the importance of better preparing for them. In order to contribute to an actionable analysis of these global challenges from a conflict-prevention perspective, this *Chaillot Paper* combines insights from strategic foresight and conflict studies to examine two questions. Given their characteristics as megatrends:

1. how will each of the three global challenges contribute to conflict escalatory processes in the next ten years; and

(1) Mogherini, F., Speech by High Representative/Vice-President Federica Mogherini at the annual conference of the European Union Institute for Security Studies (EUISS), 2019 (<https://www.pressclub.be/press-releases/speech-by-high-representation-vice-president-federica-mogherini-at-the-annual-conference-of-the-european-union-institute-for-security-studies-euiss/>).

(2) ‘Closer than ever: It is 100 seconds to midnight’, *Bulletin of Atomic Scientists*, 2020 (<https://thebulletin.org/doomsday-clock/current-time/>).

(3) Gaub, F., (ed.) *Global trends to 2030: Challenges and choices for Europe*, European Strategy and Policy Analysis System (ESPAS), 2019.

2. how can their conflict-inducing effects be mitigated?

Rather than promising an exhaustive answer to these questions, the aim here is to clarify the main pathways from each trend to conflict escalation and identify key opportunities to counter their conflict-inducing effects. Specifically, the paper aims to demonstrate how each trend is particularly influential at different stages of conflict escalation, spanning structural conflict vulnerabilities and the pre-mobilisation phase right through to the active mobilisation, intensification and proliferation of a conflict. Climate change endangers peace and fuels conflict particularly in fragile contexts with low coping and adaptive capacities, increasing the risk of localised inter-group escalation and citizen revolts against the authorities, while also aggravating interstate tensions in the long term. Digitalisation can act as a catalyst in accelerating escalation processes and providing various actors with new means and opportunities of waging conflict once conflict cleavages have emerged. Finally, increased fragmentation of authority threatens to spread and expand conflicts in terms of the number of conflict parties and conflict layers involved. Together these three trends both fuel escalatory dynamics in vulnerable areas and make existing conflicts harder to resolve and manage.

Yet, none of these effects are direct or automatic. Rather, the megatrend-conflict pathways remain conditional and second-order: each trend contributes to multicausal conflict-escalatory processes under a particular set of vulnerable circumstances. Notably, our knowledge on the unfolding of the megatrends offers us clues on how the world will evolve and can help us to anticipate the attendant risks and opportunities. In short, megatrends ‘lend a previously foggy future an increased degree of visibility’ (4). This visibility can be used to take proactive measures. Indeed, the main argument put forward in this volume is that given their nature as megatrends and their indirect conflict escalatory potential, there is an urgent need but also space

Analytical framework

CONFLICT ESCALATION PROCESS

CLIMATE CHANGE

- High-probability high-impact trend
- Gradually evolving, highly resilient long lifespan trend
- Close to 1.5 Celsius global average temperature growth by 2030 (relative to pre-industrial levels), increase of extreme weather events and conditions
- Contributes to conflict escalation particularly between natural resources-dependent local groups and by giving mobilisation potential to armed or unarmed groups against state actors; works in tandem with structural and political conflict vulnerabilities
- Local governance institutions and existing local sources of resilience vital to break the escalatory pathways

DIGITALISATION

- High-impact revolutionary trend
- A fast-moving somewhat uncertain trend
- Approaching worldwide internet and smartphone coverage; fast-growing impact of the Internet of Things, 3D-printing, AI in everyday life
- Threatens to accelerate conflict escalatory processes by galvanising mobilisation and lowering the threshold of escalation in the cyber and physical realms
- Digital diplomacy and counter-violence tactics and use of big data analytics for peace offer possibilities

FRAGMENTATION OF AUTHORITY

- High-impact uncertain trend
- Least resilient, possibly fast-moving trend
- Crumbling of multilateral institutions, emergence of nodes of power, increase of private, quasi-state security providers etc.
- Threatens further intensification and expansion of a conflict, multiplies political incompatibilities
- Regional multilateralism and multi-level coalition building preventing escalation

(4) *Global trends to 2030: Challenges and choices for Europe*, op. cit.

to adopt a *preventive approach* in response to each trend and conflict. Local governance institutions, big data and digital diplomacy as well as regional multilateralism are highlighted as building blocks that can be used to respond to the trends in a conflict preventive fashion.

The next section briefly describes such a preventive approach before outlining the structure of this *Chaillot Paper*.

THE SCOPE OF PREVENTION

Calls for and efforts in strengthening a preventive approach to conflicts are nothing new. The United Nations (UN) Agenda for Peace in 1992 had its starting point in preventive action, outlining several concrete measures of prevention both in the face of interstate conflicts and in situations concerning a ‘crisis within a country’⁽⁵⁾. The UN Secretary General António Guterres reiterated the call for such an approach in his first remarks to the Security Council: ‘We spend far more time and resources responding to crises rather than preventing them. [...] Prevention is an essential means of reducing human suffering and enabling people to reach their full potential’⁽⁶⁾. The former HR/VP echoed this sentiment when she called for thinking

‘beyond the emergencies’ and focusing on ‘how to avoid the next crisis’, as she elaborated on the recipe for managing the difficult times which the world is facing⁽⁷⁾. The EU’s *raison d’être* is closely linked to conflict prevention and peace promotion, as recognised by the Nobel committee in 2012⁽⁸⁾.

Indeed, in defining itself as a leading peace-building actor, the EU has increasingly emphasised the virtues of conflict prevention also in its external action⁽⁹⁾. The EU Global Strategy, adopted in 2016, stresses the complexity and multi-layered nature of contemporary conflicts and calls for an integrated approach to conflicts that is multi-dimensional, multilateral, multi-level, and multi-phase⁽¹⁰⁾. Prevention is seen as a cost-effective and (therefore) favourable strategy *vis-à-vis* conflicts in the contemporary world, and the connection between addressing global challenges such as climate change and preventing conflicts is recognised. Alongside this policy emphasis on acting proactively to prevent escalation of conflicts, technical capacities to implement such commitments have grown. The EU’s share and absolute contribution in terms of international support to conflict prevention, civilian peacebuilding and resolution has substantially increased. The Union has also developed several tools and instruments aimed at preserving and building peace and facilitating early response, such as its Conflict Early Warning System (see chapter 4) and the Instrument contributing to Stability and

(5) The United Nations Secretary General, *An Agenda for Peace: Preventive diplomacy, peacemaking and peace-keeping*, Report of the Secretary-General pursuant to the statement adopted by the Summit Meeting of the Security Council on 31 January 1992.

(6) Guterres, A., ‘Secretary-General’s remarks to the Security Council Open Debate on “Maintenance of International Peace and Security: Conflict Prevention and Sustaining Peace”’, 2017 (<https://www.un.org/sg/en/content/sg/statement/2017-01-10/secretary-generals-remarks-security-council-open-debate-maintenance>).

(7) Speech by High Representative/Vice-President Federica Mogherini at the annual conference of the EUISS, op. cit.

(8) The European Union, ‘The European Union receives Nobel Peace Prize 2012’ (https://europa.eu/european-union/about-eu/history/2010-2019/2012/eu-nobel_en).

(9) The foundation for the EU’s preventive action in foreign policy was laid in 2001 with the so-called Gothenburg programme, which defined conflict prevention and set it on the EU’s agenda. Prevention featured in the European Security Strategy of 2003 and the aim of preventing conflicts and preserving peace is included in the Treaties. See also European External Action Service, ‘Concept on EU Peace Mediation’, December 2020 (https://eeas.europa.eu/sites/eeas/files/eeas_20201336_working_document_on_concept_on_eu_peace_mediation.pdf); The Council of the European Union, ‘The European Union Counter-Terrorism Strategy’, November 2005 (<https://data.consilium.europa.eu/doc/document/ST%2014469%202005%20REV%204/EN/pdf>).

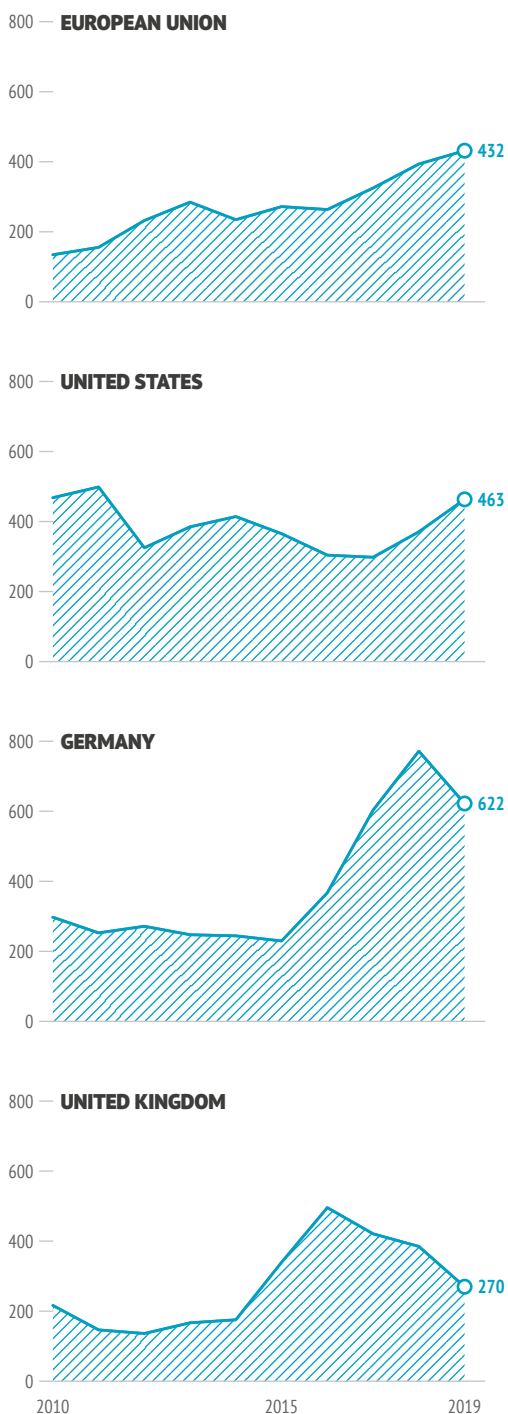
(10) European External Action Service, ‘Shared Vision, Common Action: A Stronger Europe. A Global Strategy for the European Union’s Foreign and Security Policy’, June 2016 (https://eeas.europa.eu/sites/eeas/files/eugs_review_web_0.pdf).

Peace (IcSP) ⁽¹¹⁾. Other international and regional organisations, especially in Africa, have also invested in building capacities to anticipate conflict escalation and support peaceful dispute settlement before escalation ⁽¹²⁾.

Notwithstanding these policy and capacity developments, many would argue that there is still a need for a new approach that puts more emphasis on and prescribes investment in preventive measures. The European Parliament, for example, recognises that conflict prevention and peacebuilding remain underfunded despite the commitments made in this regard ⁽¹³⁾. In general, there appears to be a dissonance between political actors' broad policy sentiments that emphasise conflict prevention as an aim and value in itself and the way in which action is taken *vis-à-vis* threats of escalation ⁽¹⁴⁾. What is clear is that international peace-promoting actors often find themselves confronted with multiple priorities and the need to carefully balance between them. Such actors need to juggle between reacting to several ongoing conflicts or crises and investing in prevention of new threats and addressing the drivers of conflict expansion. It is also necessary to prioritise between the different tools and instruments to be deployed in the face of a threat and the short-term and long-term gains achieved with these tools. For instance, recent investments in more assertive EU capabilities, particularly

Conflict prevention and resolution investments by big donors

European investments make up an increasing share of all funding, \$ million (2018), 2010–2019



Data: OECD, Creditor Reporting System, 'Civilian peacebuilding, conflict prevention and resolution (sector 15220)', 2021

- (11) See European Commission, Service for Foreign Policy Instruments, 'The Instrument contributing to Stability and Peace responds rapidly to crises, builds peace and prevents conflict around the world' (https://ec.europa.eu/fpi/what-we-do/instrument-contributing-stability-and-peace-preventing-conflict-around-world_en). For the multiannual financial framework 2021–2027, the IcSP is integrated into the new Neighbourhood, Development and International Cooperation Instrument (NDICI).
- (12) Gnanguenon, A., 'Pivoting to African conflict prevention? An analysis of continental and regional early warning systems', *Brief no. 3, Conflict Series*, EUISS, February 2021.
- (13) European Parliament, *Building EU capacity on conflict prevention and mediation*, A8-0075/2019, 12 March 2019 (https://www.europarl.europa.eu/doceo/document/TA-8-2019-0158_EN.pdf).
- (14) Debuysere, L. and Blockmans, S., 'Crisis Responders: Comparing Policy Approaches of the EU, the UN, NATO and OSCE with Experiences in the Field', *Foreign Affairs Review*, Vol.24, No 3, 2019, pp. 243–64; Davis, L., Habbida, N. and Penfrat, A., *EU-CIVCAP: The EU's capabilities for conflict prevention*, European Peacebuilding Liaison Office, 2017.

the establishment of the European Peace Facility, have faced criticism for risking to fuel rather than defuse conflict and for lacking concrete features that would facilitate conflict prevention⁽¹⁵⁾.

This *Chaillot Paper* echoes the call for more emphasis on a preventive approach. Investing in preventive action is particularly important precisely because of the cumulative challenges that the three abovementioned megatrends bring about. Given the evolving and complex conflict landscape, however, it is useful to revisit and rethink some of the premises underlying our understanding of prevention. Adopting a preventive approach does not mean that efforts should not be invested in ongoing conflict zones but rather that these need to be geared towards preventing future escalatory dynamics rather than simply managing a security crisis.

The preventive approach proposed here is not restricted to any specific phase or stage of a conflict but rather refers to any *action that sustainably lowers the local rationale for future armed mobilisation in a vulnerable context or during an ongoing conflict process*. This deviates from the conventional understanding of conflict prevention, which often restricts the term to encompass explicit preventive mediation and diplomatic efforts and tackling the underlying drivers of conflict *before* armed violence emerges⁽¹⁶⁾. While it is agreed that acting early – addressing the institutional roots of conflicts and engaging in preventive diplomatic efforts – is the most fruitful realm for prevention, the late UN Secretary General Boutros Boutros-Ghali's definition is cherished for its inclusion of contexts where armed violence has

already emerged⁽¹⁷⁾. Contemporary conflicts are multi-layered and involve a multiplicity of actors, and it has become increasingly challenging to say when a conflict starts or when it ends. In a country plagued by a civil war, some regions might be relatively little influenced by the armed violence, while themselves struggling with inter-communal tensions related to climate (in)security, for example. Furthermore, due to our third megatrend in particular (fragmentation of authority), there is a need but also space to act preventively even when armed violence is already taking place between a set of conflict actors. In such a context, adopting a preventive approach is about avoiding further escalation, expansion and diffusion of armed conflict.

There are numerous types of actions that fall under the preventive approach when defined this way. Specifically, this *Chaillot Paper* discusses a variety of operational prevention measures, meaning action that responds to an explicit threat of immediate escalation of a conflict. Furthermore, more structural preventive actions, such as support to local livelihoods and institutions in ways that alleviate inter-group tensions in the face of climate change – even when not explicitly aimed at conflict prevention – are regarded as part of the preventive approach, as long as they sustainably diminish the utility of violent mobilisation for the actors concerned. Thus, prevention covers both operational and structural dimensions⁽¹⁸⁾. On the other hand, sending troops to quell an emerging rebellion, even if done early, should – in this framework – not be regarded as preventive action as it fails to address any structural, social or political factors that reduce

(15) 'European "Peace" Facility: Causing harm or bringing peace?', Joint Civil Society Statement, November 2020 (<https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3A1d9eea54-0774-43d8-9d21-7acaaf172a8b#pageNum=1>).

(16) See for example Lund, M., 'Conflict Prevention: Theory in Pursuit of Policy and Practice', in Bercovitch, J., Zartman W. and Kremenyuk, V. (eds.), *The Sage Handbook on Conflict Resolution*, Sage Publications, London. The Gothenburg programme of the EU and the Council Conclusions on Conflict Prevention in 2011 also situate prevention in pre-violent/early stages of a conflict and in the post-conflict phase (to prevent relapse into conflict).

(17) *An Agenda for Peace: Preventive diplomacy, peacemaking and peace-keeping*, op.cit.

(18) Ackermann, A., 'The idea and practice of conflict prevention', *Journal of Peace Research*, Vol. 40, No 3, 2003, pp.339-347; Davis, L., Habbida, N. and Penfrat, A., *EU-CIVCAP: The EU's capabilities for conflict prevention*, European Peacebuilding Liaison Office, 2017.

rather than increase the local rationale for armed mobilisation⁽¹⁹⁾.

This does not mean that all initiatives can be classified as conflict preventive action. Any humanitarian, development or peacebuilding action is preventive only if it sustainably diminishes the rationale – a function of the costs, risks and expected benefits – for armed violence in a given context. A core attribute here is the sustainability of the effect on the given context. This means that the interventions need to contribute to changing something in the underlying drivers of a conflict beyond the presence of the intervention itself, thus lowering the odds for future conflict escalation. Hence, preventive action makes armed conflict in the future a much less likely prospect by reducing the motivations and opportunities to strive for it. In the context of the identified megatrends, we can further focus our discussion on those measures that prevent the escalatory effects of each trend.

STRUCTURE OF THE CHAILLOT PAPER

This *Chaillot Paper* is structured as follows. Part I analyses the dangers ahead deriving from each megatrend and their conflict escalatory effects as we move towards 2030. It is divided into three chapters focusing in turn on each of the three megatrends. While each megatrend influences and is influenced by the others, their individual characteristics and distinct impacts in conflict dynamics warrant separate analyses. This section of the paper opens with climate change (i.e. a *high-probability and high-impact megatrend*), moves to digitalisation (i.e. a *high-impact revolutionary trend*), and closes with fragmentation of authority (i.e. a *high-impact relatively uncertain trend*). Each chapter begins with a prognosis of what the world will look like in 2030 from

the perspective of the respective megatrend. These parts explore the dynamics of each trend and how they will likely change the world irrespective of their effects on conflicts. The chapters then go on to identify and analyse the main ways in which the megatrends threaten to escalate conflicts in the coming decade.

Part II addresses the second question: what can we do about this? Acknowledging that the trends themselves cannot be eradicated or changed in their entirety within the timeframe of this decade, the section focuses on identifying conflict-preventive structural and operational action that can break the path from the megatrends to conflict escalation. Importantly, this is not to say that actions taken to shape the trends themselves are unimportant or secondary. Quite the contrary. Yet, when faced with megatrends, we must equally focus on shaping the societal and political implications of the trends as they evolve. In other words, if we know that it is going to rain tomorrow and that we nevertheless need to go out, how do we make sure that we will not get a cold after being out in the rain? This section examines what action can be taken to target the conflict pathways emanating from each megatrend. Finally, the Conclusion summarises the main findings, analyses the interdependencies of the megatrends and their effects on conflicts, and discusses the way forward also in light of the pandemic crisis.

There is a lot to be said and much that is left out. For instance, the three megatrends are not the only global trends that need to be monitored in the coming decade. Demographic development and urbanisation, for example, are equally important. The choice to focus in this *Chaillot Paper* on these three specific megatrends is partially a question of feasibility, yet it also has a methodological rationale: the key conflict escalatory pathways linked to each megatrend are distinct enough to merit independent analyses. At the same time, a joint sequential analysis of them provides a quite comprehensive picture of

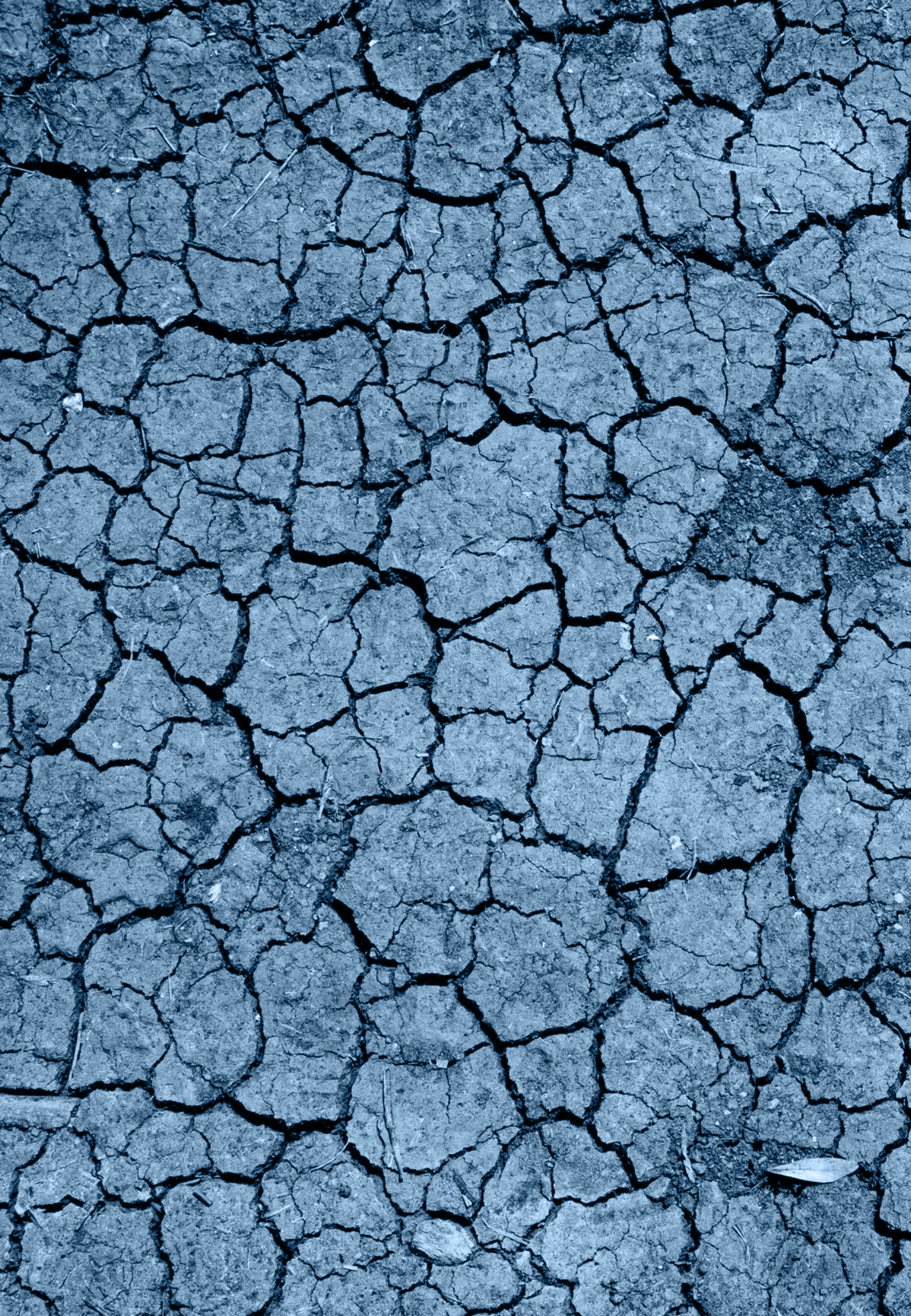
(19) Notably, such action would fall under conflict or crisis management and it could (and should) be combined with preventive action, such as facilitating political negotiations between the conflict parties over the main issues of incompatibility.

conflict-related challenges in the coming decade. Demographic development and urbanisation both connect closely to several pathways of conflict escalation that are discussed under the three megatrends (particularly climate change), and thus they are not entirely omitted from the analysis either.

Due to the global nature of each trend, the paper does not have a specific geographical scope. However, the focus will be on regions and areas that are or will likely become vulnerable to conflict in the coming decade in the face of the three megatrends. While this technically covers each region of the world, some regions (sub-Saharan Africa, the Middle East and North Africa, Southeast Asia) will continue being disproportionately threatened by a combination of these megatrends (and other conflict-inducing factors). However, given the likely development of the megatrends, few regions will escape significant stress on their natural resources, means of communication and mobilisation and political and economic institutions. Therefore, while directing the analysis conceptually to contexts that suffer from the presence of multiple conflict-inducing factors, the reader is reminded that the geographical location and the parameters of these contexts may significantly evolve within the next decade.

Finally, each chapter ends with **key messages** that provide summaries of the main arguments and may provide useful short-cuts for readers with time constraints.







MEGATRENDS

MEGATREND 1

CLIMATE CHANGE AND CONFLICT

WEATHER FORECAST: WHAT WILL THE WORLD LOOK LIKE IN 2030?

In 2030, the world is heating up. The World Meteorological Organisation (WMO) will have adjusted the list of the hottest years on record multiple times during the course of the decade ⁽¹⁾. By 2030, global mean surface temperatures will have likely risen to at least 1.3°C higher than in the preindustrial era, with the 1.5°C global warming threshold looming around the corner ⁽²⁾. Amid warming seas and land terrain, the decade will have witnessed an increase in the frequency and intensity of extreme weather-related events, i.e. climate shocks, such as droughts, flooding and storms.

High-probability high-impact trend

Among the three trends, climate change represents the most resilient and least uncertain megatrend. No matter what our direct actions in response to climate change today are and irrespective of the black swans or game changers we encounter, we are relatively confident about the direction and nature of this phenomenon in the coming decade.

Across the world's continents, environmental and atmospheric changes caused by greenhouse gases emitted over the past decades will be increasingly visible by 2030 ⁽³⁾. Extreme heatwaves will be more frequent in most inhabited areas, putting public health systems around the world under stress and at times endangering economic productivity. Sea levels will continue

- (1) Lindsey R. and Dahlman, L., *Climate Change: Global Temperature*, Climate.gov, 2020 (<https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>). The five hottest years between 1880–2019 all took place after 2015, while nine of the ten warmest years took place after 2005.
- (2) Intergovernmental Panel on Climate Change (IPCC), 'Summary for Policymakers', in Masson-Delmotte, V. et al. (eds.), *Global Warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, 2018. The IPCC estimates that by 2018, the world had warmed by around 1°C and will reach the 1.5°C threshold between 2030 and 2050. Recent models based on the current trajectory in emission cuts and the Shared Socioeconomic Pathways 2–4.5 estimate that the 1.5°C mark will be reached between 2026 and 2042, with 2033 being the median. See Hausfather, Z., 'Analysis: When might the world exceed 1.5C and 2C of global warming?', *CarbonBrief*, December 2020 (<https://www.carbonbrief.org/analysis-when-might-the-world-exceed-1-5c-and-2c-of-global-warming>).
- (3) The way our climate changes in the coming decade will be largely shaped by our past emission levels rather than by the measures adopted within this timeframe. Even if robust action is taken within the coming years, we will very likely witness additional global warming of approximately 0.2°C over the course of the decade. This is not to say that swift action to mitigate global warming is hopeless. On the contrary, the actions taken during the coming decade will determine the path climate change will take beyond 2030. In the long term, these actions, including actions that prevent conflict escalatory effects of climate change, will themselves help to free resources in mitigating the impacts of climate change. See *Climate Change: Global Temperature*, op. cit.; Forum for the Future, *Climate Futures: responses to climate change in 2030*, Forum for the Future and Labshp, 2008 (<https://www.forumforthefuture.org/Handlers/Download.ashx?IDMF=19f19613-28dc-4d6f-86cf-491594947974>).

to rise by an average 9–18 cm (relative to the year 2000) amid warming oceans and accelerating melting of the world's ice sheets and glaciers⁽⁴⁾. Melting mountain glaciers threaten human security particularly in Central and South Asia as well as in South America⁽⁵⁾. Coastal metropolises and big cities (such as Bangkok, New York, Lagos and Dhaka) are increasingly threatened by accumulating challenges of growing urban populations, sea level rise, and coastal erosion and flooding, forcing city planners to seek novel solutions to respond to these pressures⁽⁶⁾. The warming of the atmosphere has also contributed to more intense and longer storms and cyclones, experienced particularly in the North Atlantic, North Pacific and South Indian Ocean basins⁽⁷⁾. The combination of more intense tropical cyclones and increased population growth in these vulnerable areas has left nearly 150 million people threatened by typhoons and hurricanes by 2030⁽⁸⁾. The melting of ice masses (the Arctic is experiencing a higher rate of temperature increase than on average and Greenland and Antarctica are losing ice sheets) and the subsequent shifts in ocean currents are influencing fisheries, with a positive impact on high latitudes fish stocks while diminishing marine productivity at lower latitudes⁽⁹⁾.

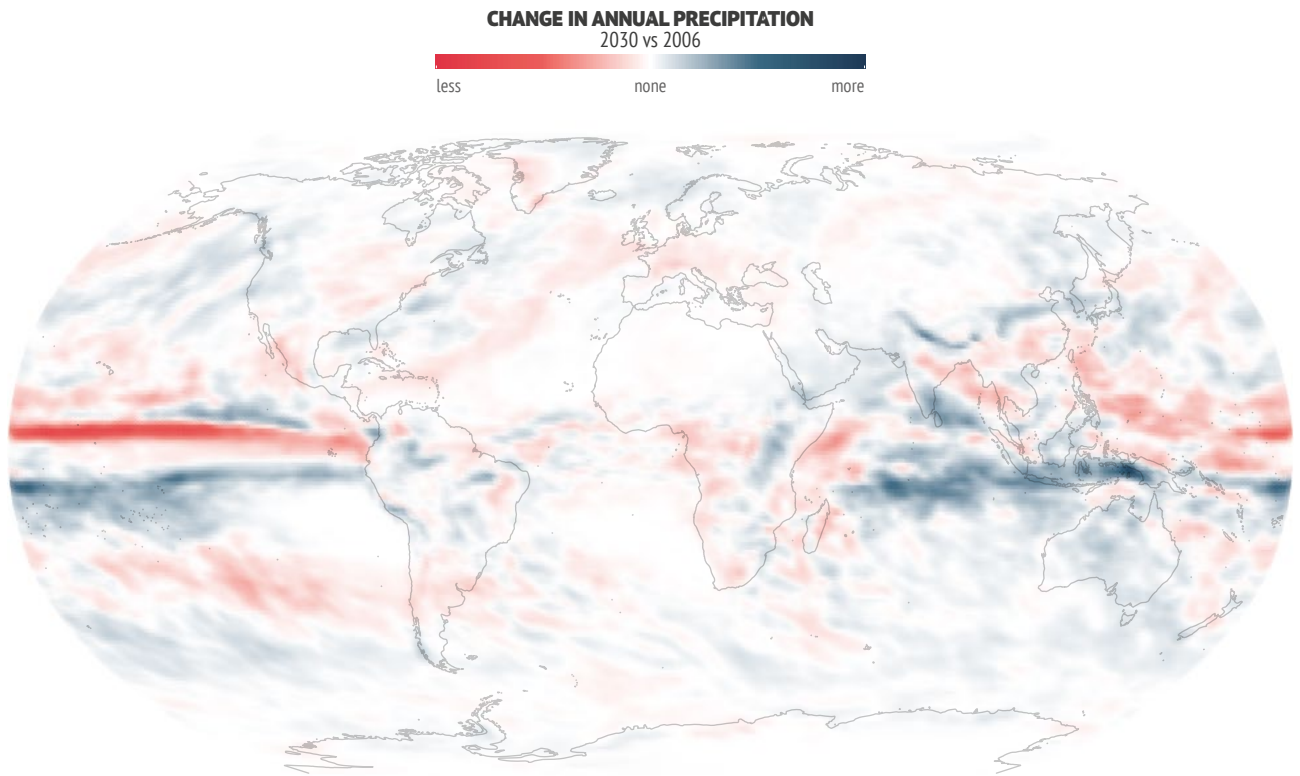
Notably, there are considerable regional differences in climate projections⁽¹⁰⁾: the Mediterranean Basin, Southern Africa, higher latitude North America as well Central Asia feel the heat of increased maximum temperatures particularly strongly. The combined effects of these higher temperatures and altered precipitation patterns make the Mediterranean Basin and Southern Africa, alongside West Africa and the Middle East, as well as northeast Brazil, increasingly vulnerable to droughts. Other regions, such as South Asia and some parts of Central and Eastern Africa and South America, on the other hand, may struggle more with increased precipitation, and be exposed to more intense flood hazards. Consequently, on a global scale up to 9–17 % more people could be vulnerable to droughts than in the decade before, while there could be an increase of up to 15% in the number of people that are threatened by river floods⁽¹¹⁾.

These changes in climatic and weather conditions will have considerable *direct* impacts on our natural environments. By 2030, ocean ecosystems will be experiencing large-scale changes, as warming waters and increasing acidification alter the natural habitat for fish and, for example, pose an existential threat to the world's tropical and warm water

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- (4) Hayhoe, K., et al., 'Our changing climate', in Reidmiller, D.R., et al. (eds.), *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment*, Vol. II, U.S. Global Change Research Program, Washington, DC, 2018, pp. 72–144.
 - (5) Guy, K. et al., 'A Security Threat Assessment of Global Climate Change: How Likely Warming Scenarios Indicate a Catastrophic Security Future', in Femia, F. and Werrell, C. (eds.), *The National Security, Military, and Intelligence Panel on Climate Change*, The Center for Climate and Security, Washington, DC, 2020.
 - (6) Climate Central, *Report: Flooded Future: Global vulnerability to sea level rise worse than previously understood*, October 2019 (<https://www.climatecentral.org/news/report-flooded-future-global-vulnerability-to-sea-level-rise-worse-than-previously-understood>); Wong, P.P. et al., 'Coastal systems and low-lying areas' in Field, C.B. et al. (eds.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, IPCC, Cambridge University Press, Cambridge, pp. 361–409.
 - (7) Fitchett, J., 'Recent emergence of CAT5 tropical cyclones in the South Indian Ocean', *South African Journal of Science*, Vol. 114, No 11/12 (<https://doi.org/10.17159/sajs.2018/4426>); James P. Kossin, 'A global slowdown of tropical-cyclone translation speed', *Nature*, No 588, 2018, pp. 104–107.
 - (8) Peduzzi, P. et al., 'Global trends in tropical cyclone risk', *Nature Climate Change*, 2012 (https://www.unisdr.org/preventionweb/files/25204_peduzzietaiglobaltrendcrisknaturec%5B1%5D.pdf).
 - (9) IPCC, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)], Geneva, 2014, p.151.
 - (10) For regional differences and projections, see: Hewitson, B., et al., '2014: Regional context', in Barros, V.R. et al. (eds.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, IPCC, Cambridge University Press, Cambridge, 2014, pp. 1133–1197; *Climate Change 2014: Synthesis Report*, op.cit., p. 151; IPCC, 'Summary for Policymakers', in Shukla, P.R. et al. (eds.), *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*, 2019; ClimateChangePost, 'Europe', Centre For Climate Adaptation, 12 February 2021 (<https://www.climatechange-post.com/europe/coastal-floods/>).
 - (11) Hallegatte, S. et al., 'Shock Waves: Managing the Impacts of Climate Change on Poverty', *Climate Change and Development Series*, World Bank, Washington DC, 2016.

Changing climate across regions: droughts and heavy rains to come

Projected difference in precipitation levels across the world between 2006 and 2030



Data: National Center for Atmospheric Research (NCAR)/University Corporation for Atmospheric Research (UCAR), 'Climate change scenarios (RCP 4.5)', 2021

coral reefs ⁽¹²⁾. On land, hotter temperatures and changing precipitation patterns increase the intensity of wildfires and adversely impact ground and freshwater resources and crop yields. The general result is decreasing crop yields (particularly in lower latitudes) while increasing exposure to different types of pest and diseases. These effects are liable to exacerbate several key development challenges, particularly water and food insecurity, by endangering access to, use and production of, as well as the quality of water and food resources ⁽¹³⁾.

Nevertheless, such *indirect or second-order effects* on our living conditions, economic development, and political relations ultimately

depend on a combination of variables, such as livelihoods, national economies, global trade flows, and disaster preparedness. For example, whether decreasing crop yields lead to worsened food insecurity depends on rural farmers' opportunities to manage and compensate the losses and on urban dwellers' purchasing power and continuing access to food sources. Similarly, whether and how water scarcity worsens in arid climates and urban environments is influenced by demands in the agriculture and energy sectors, pollution levels, development of water infrastructure, and population pressures. Indeed, demographic development and urbanisation are particularly prone to exacerbate the vulnerability of certain areas by increasing the

(12) Niang, I. et al., '2014: Africa', in *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, op.cit., pp. 1199-1265.

(13) Kumar Misra, A., 'Climate change and challenges of water and food security', *International Journal of Sustainable Built Environment*, Vol. 3, No 1, 2014, pp. 153-65.

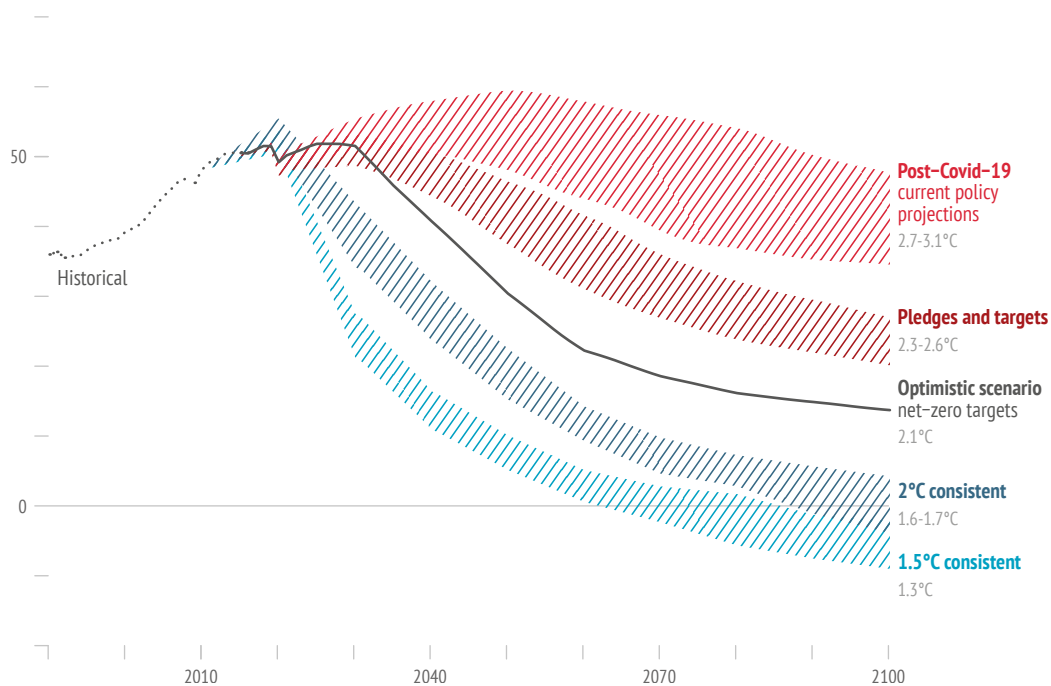
number of people exposed to such conditions, even if the frequency of climate hazards does not drastically change by 2030. Vulnerability to climate change is not solely a function of exposure to changes in climate and weather events, but a more complicated function of these changes and conditions that affect a country's or an area's capacity to cope and adapt to the changing climate.

The good news is that while climate change is a high-probability high-impact megatrend, the way this impact unfolds by 2030 will depend on how we adjust to the changes. The bad news is that many of the regions and societies that face particularly harsh climatic conditions are also confronted with other related challenges, such as agricultural dependence, population pressures and weak state capacities, thus

constraining their ability to cope with climate hazards and adapt to the changing conditions. This magnifies the risk of destructive indirect effects of climate change, for example an exacerbated humanitarian situation in the face of a disaster or worsening inequality amid soil erosion and decreasing crop yields, ultimately also influencing opportunities and motivations for both peaceful and violent political developments. This makes North Africa and the Middle East, sub-Saharan Africa and Central and South Asia particularly urgent climate change hotspots from a peace and conflict perspective⁽¹⁴⁾.

Changing climate across time

Emission pathways and expected warming over time, global greenhouse gas emissions, gigatons of carbon dioxide equivalent per year (GtCO₂e/yr)



Data: Climate Analytics and NewClimate Institute, 'Climate Action Tracker', 2021

(14) See Busby, J. and von Uexkull, N., 'Climate shocks and humanitarian crises', *Foreign Affairs*, November 2018 (<https://www.foreignaffairs.com/articles/world/2018-11-29/climate-shocks-and-humanitarian-crises>); Institute for Economics and Peace, *Ecological Threat Register 2020: Understanding ecological threats, resilience and peace*, September 2020 (https://reliefweb.int/sites/reliefweb.int/files/resources/ETR_2020_web-1.pdf); '2014: Regional context', op.cit.

Pandemic-facilitated policy trend in sight?

According to the UN, global emissions need to fall by 7.6% a year until 2030 for global warming to be contained within manageable limits during the 21st century. 2020, the year that witnessed the outbreak of Covid-19, saw a reduction in global CO₂ emissions of approximately 7% in comparison to 2019, deriving particularly from decreased transport activities⁽¹⁵⁾. In the same year the EU agreed upon new climate targets for 2030 and China committed itself to reaching carbon neutrality before 2060⁽¹⁶⁾. The global public is also increasingly concerned about the climate crisis⁽¹⁷⁾. Are we witnessing a convergence of both need (which clearly is there) and political opportunity for taking robust action in the climate crisis? If seized as an opportunity to change course and catalyse global energy transformations, the pandemic recovery may give rise to a decade of unprecedented climate change mitigation and much needed hope regarding the long-term trajectories. However, the prolonged pandemic may also further monopolise the attention of key players and justify lack of ambition in implementation of the necessary reforms. This would be another devastating consequence of the public health crisis, with detrimental consequences for future decades.

HOW CLIMATE CHANGE CONTRIBUTES TO CONFLICT RISK

Climate change is often understood as a *threat multiplier* of armed conflict⁽¹⁸⁾. The concept is useful in so far as it captures the conditional linkage between the two phenomena: changes in average temperatures or, for example, precipitation levels do not alone cause conflicts, yet their occurrence in the presence of conflict-inducing conditions can contribute to escalatory conflict spirals. While much research supports this notion of a threat multiplier, the debate continues over the weight of climate-related indicators in escalating conflict and on the conditions that make a society vulnerable to adverse effects of climate change and variability⁽¹⁹⁾. In a study bringing together leading climate-conflict scholars, climate variability was judged to have had a relatively moderate impact on conflicts thus far⁽²⁰⁾. Other factors, particularly low socioeconomic development, political exclusion and marginalisation, conflict legacies, and low state capacities were assessed as considerably more influential in causing conflict. The scholars agreed, however, that the impact of climate variables on conflict could well increase in the future as climate change accelerates and its effects become more visible.

Finding consensus within the climate change-conflict debate is complicated by the different ways of capturing climate change and

- (15) Evan, S., 'Analysis: Coronavirus set to cause largest ever annual fall in CO₂ emissions', *CarbonBrief*, 9 April 2020.
- (16) See European Commission, 2030 Climate Target Plan (https://ec.europa.eu/clima/policies/eu-climate-action/2030_ctp_en); Mallapaty, S., 'How China could be carbon-neutral by mid-century', *Nature*, 19 October 2020.
- (17) United Nations Development Programme (UNDP), *The People's Climate Voice*, 2021 (<https://www.undp.org/content/undp/en/home/librarypage/climate-and-disaster-resilience-/The-Peoples-Climate-Vote-Results.html>).
- (18) See for example European External Action Service, 'Climate Change and Defence Roadmap', EEAS(2020) 1251, 9 November 2020; 'Shared Vision, Common Action: A Stronger Europe', op.cit.
- (19) For an overview of the debate, see Koubi, V., 'Climate change and conflict', *Annual Review of Political Science*, Vol. 22, 2019, pp. 343-360; von Uexkull, N. and Buhaug, H., 'Security implications of climate change: A decade of scientific progress', *Journal of Peace Research*, Vol. 58, No 1, 2021, pp.3-17.
- (20) Mach, K. et al., 'Climate as a risk factor for armed conflict', *Nature*, No. 571, July 2019, pp. 193-197.

conflict ⁽²¹⁾. While some analyses capture changes in average temperatures (monthly, yearly) and examine whether this influences conflict risk, others focus on deviations in precipitation levels, while case studies often look at a particular incident of climate variability, such as drought or other climate-related hazard. Similarly, multiple conflict outcomes are examined, from civil wars to conflicts between subnational communities and civil unrest ⁽²²⁾. The existence of a variety of methodological approaches accumulates nuanced knowledge but can be confusing when the aim is to initiate action mitigating the negative effects of climate change.

In order to make sense of the accumulated knowledge in a fashion that facilitates preventive action, this chapter focuses on how different manifestations of climate change (e.g. the increased frequency of extreme weather events, the gradual warming of the earth's atmosphere and the rise in sea-levels) threaten peace ⁽²³⁾. It identifies two broad pathways from climate change to conflict escalation in the coming decade: first, the increasingly frequent climate shocks can contribute to *coping failures*, i.e. breakdowns of systems and their stalling recovery after a climate shock, which can trigger or further fuel violent escalation. Coping failures refer to problems with reactive

Once an active conflict emerges, climate change-related factors become increasingly difficult to address.

resilience: for example, a laptop that breaks down because it is left out in the rain is not replaced or fixed in reasonable time, leading to severe delays with the work that it was supposed to facilitate (which again lead to further problems). Second, global warming, a rise in sea levels and worsening environmental degradation can more subtly lead to *failures of adaptive capacities*, contributing to mounting risk of conflict. Adaptive capacities are the more proactive side of resilience: i.e. the steps taken to make sure that the laptop does not get wet in the first place (e.g. moving the laptop indoors/building shelter) when the storm hits ⁽²⁴⁾.

While climate-related shocks and subsequent coping failures can act as triggers of local inter-group violence in particular but also state-society civil conflicts, failure to adapt to long-term climatic changes can accumulate grievances and position political actors increasingly at odds with one another. Both pathways are conditional and second-order and particularly preventable before armed escalation. Once an active conflict emerges, climate change-related factors become increasingly difficult to address as political power competition and hard (militarised) security issues tend to take precedence. Furthermore, an active conflict and consolidation of the political economy of war not only makes it difficult

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- (21) For an overview, see Buhaug, H., 'Climate-conflict research: Some reflections on the way forward'. *Wiley Interdisciplinary Reviews: Climate Change*, Vol. 6, No 3, 2015, pp. 269–275.
- (22) Hsiang, S. M., Burke, M. and Miguel, E., 'Quantifying the influence of climate on human conflict', *Science*, Vol. 341, No 6151, 2013; Burke, M. et al., 'Warming increases the risk of civil war in Africa', *PNAS*, Vol. 106, 2009, pp. 20670–74; Buhaug, H., 'Climate not to blame for African civil wars', *PNAS*, Vol. 107, 2010, pp. 16477–82; Buhaug, H. et al., 'One effect to rule them all? A comment on quantifying the influence of climate on human conflict', *Climate Change*, Vol. 127, 2014, pp. 391–98; Detges, A., 'Close-up on renewable resources and armed conflict: The spatial logic of pastoralist violence in Northern Kenya', *Political Geography*, Vol. 42, 2014, pp. 57–65; Gleditsch N.P., et al., 'Conflicts over shared rivers: resource scarcity or fuzzy boundaries?', *Political Geography*, Vol. 25, 2006, pp. 361–82; Papaioannou, K. J., 'Climate shocks and conflict: Evidence from colonial Nigeria', *Political Geography*, Vol. 50, 2016, pp. 33–47.
- (23) On pathways from climate change to conflict escalation see Mobjörk, M., Krampe, F. and Tarif, K., 'Pathways of climate insecurity: Guidance for policymakers', *SIPRI Policy Brief*, Stockholm Peace Research Institute, November 2020; Ide, T., Brzoska, M., Donges, J. F. and Schleussner, C.-F., 'Multi-method evidence for when and how climate-related disasters contribute to armed conflict risk', *Global Environmental Change*, Vol. 62, 2020 (<https://doi.org/https://doi.org/10.1016/j.gloenvcha.2020.102063>).
- (24) On resilience, see Adger, N. et al., 'Assessment of adaptation practices, options, constraints and capacity', in Parry, M. et al (eds.), *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, pp. 717–743.

to address climate security but contributes to accelerating environmental degradation ⁽²⁵⁾. Within the timeframe of 2030, the increasing frequency of climate hazards and the way they undermine coping capacities can be regarded as the main driver of the risk of escalating conflicts related to climate change.

The shorter pathway – conflict via coping failures

As projected in the trend prognosis above, by 2030 climate change will have increased erratic and abnormal weather patterns and led to more extreme weather conditions. This means more frequent and intensifying climate hazards – droughts, floods, landslides, extreme storms and wildfires – that impose exogenous and often highly visible stress on societies, communities and ultimately households and individuals. In most cases, the occurrence of these shocks does not lead to conflict escalation, as societies' and communities' coping capacities or reactive resilience – their capacity to withstand a crisis and recover from it – prevent zero-sum dynamics and escalation. Yet, at times, resilience in the face of increasing climate shocks is *ex ante* low, due to a combination of structural vulnerabilities, deficient political institutions, and lack of or inadequate response mechanisms ⁽²⁶⁾. Particularly areas experiencing political marginalisation and

In urban settings, failures to cope with climate shocks can increase the potential of popular protest movements.

exclusion, low human development, high dependence on agriculture/natural resources and a history of conflict are identified as vulnerable to climate shocks – with negative implications for peace ⁽²⁷⁾. In these contexts, prolonged droughts, floods and extreme temperatures can trigger developments leading to outcomes such as livelihood-related inter-group hostilities and violent insurgencies. In urban settings, failures to cope with climate shocks and prevent their negative impacts on food and water insecurity can increase the potential of popular protest movements.

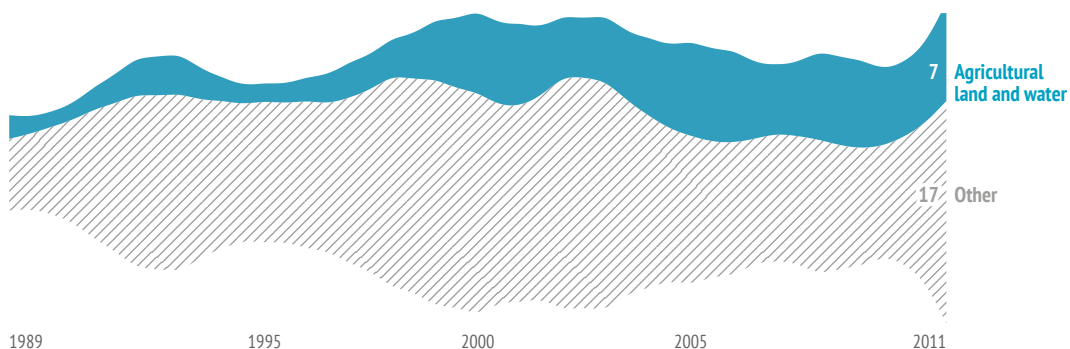
Localised inter-group violence in resource-dependent areas

Tensions and hostilities among groups that are organised along collective identities, such as livelihood or ethnicity, and that co-inhabit a certain area are in danger of becoming more frequent as climate hazards continue to increase, particularly in regions with high dependence on natural resources and when particular communities or ethnic groups are already politically marginalised ⁽²⁸⁾. Ultimately, extreme weather conditions take place in geographically constrained areas, often impacting a sub-national area or a region rather than an entire country ⁽²⁹⁾. Even in the area directly hit by such climate hazards, the degree of exposure or vulnerability varies, for example depending on the livelihood

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- (25) Committee on the Environment, Agriculture and Local and Regional Affairs, 'Armed conflict and the environment', Parliamentary Assembly, Council of Europe, October 2011 (https://reliefweb.int/sites/reliefweb.int/files/resources/Full_Report_2660.pdf).
- (26) 'Multi-method evidence for when and how climate-related disasters contribute to armed conflict risk', op.cit.; Detges, A, 'Local conditions of drought-related violence in sub-Saharan Africa: The role of road and water infrastructures', *Journal of Peace Research*, Vol. 53, No 5, 2016, pp. 696–710.
- (27) 'Climate shocks and humanitarian crises', op. cit.; 'Multi-method evidence for when and how climate-related disasters contribute to armed conflict risk', op.cit.
- (28) Fjelde, H. and von Uexkull, N., 'Climate triggers: Rainfall anomalies, vulnerability and communal conflict in Sub-Saharan Africa', *Political Geography*, Vol. 31, 2012, pp. 444–453.
- (29) 'Local conditions of drought-related violence in sub-Saharan Africa', op. cit., pp. 696–710.

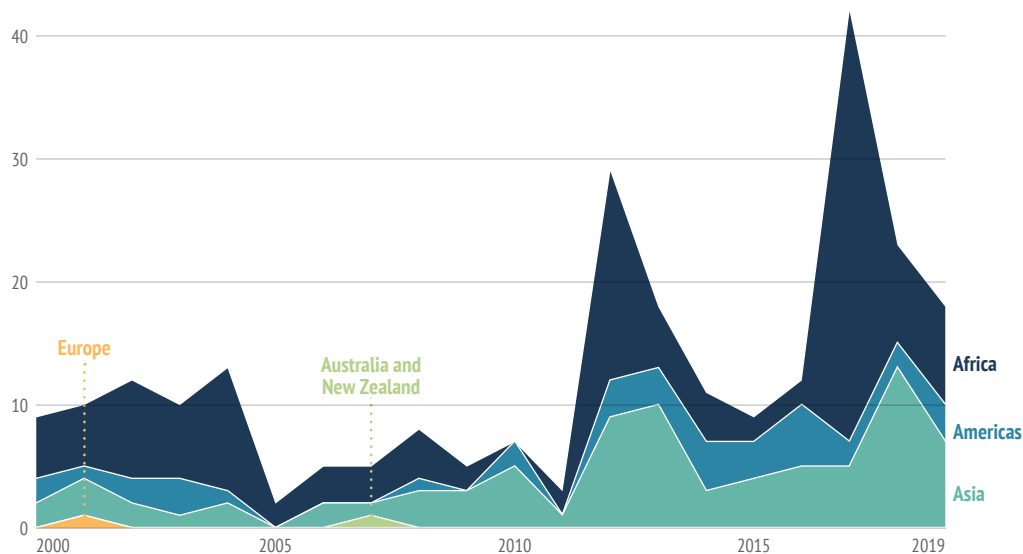
Water-related local-level conflicts: data points to an increase over time

Non-state conflicts over agricultural land and water become more frequent



Data: Uexkull, N. and Pettersson, T., 'Issues and Actors in African Nonstate Conflicts: A New Data Set', *International Interactions*, 2018

The role of water as a trigger of disputes and conflicts across regions and over time



Data: Pacific Institute, 'Water Conflict Chronology', 2021

circumstances ⁽³⁰⁾. The potential income losses, undermined livelihoods, or destroyed infrastructures vary greatly within societies, and the people most affected by the hazard likely experience grievances most acutely. Subsequently, it is the areas and societal groups that are most devastated that are often most vulnerable to climate hazard-related political violence,

without necessarily or primarily involving the central state ⁽³¹⁾.

Empirical data from sub-Saharan Africa indicates that outbreaks of non-state violence, i.e. violence that does not directly involve a government but takes place between non-state groups, concerning water and land have tended

(30) Shah, K. U., Dulal, H. B., Johnson, C. and Baptiste, A., 'Understanding livelihood vulnerability to climate change: Applying the livelihood vulnerability index in Trinidad and Tobago', *Geoforum*, Vol. 47, 2013, pp. 125–13 (<https://doi.org/https://doi.org/10.1016/j.geoforum.2013.04.004>).

(31) See 'Climate triggers: Rainfall anomalies, vulnerability and communal conflict in Sub-Saharan Africa', op.cit.

to increase from the 1990s onwards. While in the mid-1990s the share of water and agricultural land-related non-state conflicts was around 10%, in 2011 it represented nearly 30% of all non-state conflicts⁽³²⁾. More broadly, water-related violent incidents – which have globally increased in the past couple of decades – often take place at a local level between resource-dependent communities, or between protesters and authorities⁽³³⁾. While these escalations of conflicts among and between communities sharing resources are not due to changing climatic conditions solely or even primarily, the quickening pace of climate change and particularly the normalisation of extreme weather phenomena risks contributing to them. Empirical research accumulated over the last decade demonstrates that climate shocks, particularly anomalies in rainfall levels, increase the risk of communal violence in contexts of inadequate governance provisions and exclusionary institutions.⁽³⁴⁾ More context-specific studies, for example from the Lake Chad Basin, Indonesia, Yemen and Sudan, shed further light on how changing local climatic conditions can exacerbate tensions in already strained situations characterised by inadequate governance or mismanagement of resources⁽³⁵⁾.

What these findings across regions and studies show is that the link between a climate hazard and escalation of local tensions is underscored by various, often highly political challenges related to coping capacities at the local level in face of a climate hazard. The absence of

a direct causal relationship between an extreme weather event and violent mobilisation cannot be overstressed. As one study demonstrates, there is no general link between exposure to drought and willingness to engage in violence, even in a volatile area such as Northern Kivu in the Democratic Republic of Congo (DRC)⁽³⁶⁾. However, a relationship between climate hazards and local escalation can be established in situations characterised by overburdened coping capacities, which exacerbate grievances and increase motivation to engage in violent mobilisation. When a prolonged drought leads to crops failure and loss of income for small-holder farmers, joining an armed group can become more appealing if there are no feasible alternatives to recover from the losses they have suffered. Tensions between two communities relying on the same water resources are more likely to escalate into violence if existing resource management mechanisms and institutions fail to resolve the increased challenges induced by a drought. Equally, migration in the face of a climate hazard – an old coping strategy used in particular by nomadic, livestock herding (pastoral) groups – does not automatically lead to violence. Yet, as migration patterns change due to more erratic climatic conditions and *if* there is no agreement over land management and water use practices in the migratory areas between communities, escalation can result⁽³⁷⁾.

Besides the impact of climate hazards, natural resource management practices – both

(32) The author has made the calculations based on von Uexkull, N. and Pettersson, T., 'Issues and Actors in African Nonstate Conflicts: A New Data Set', *International Interactions*, 2018.

(33) See data from Waterworld, 'Water Conflict Chronology', 2020 (<http://www.worldwater.org/conflict/list/>).

(34) 'Climate triggers: Rainfall anomalies, vulnerability and communal conflict in Sub-Saharan Africa', op.cit.; 'Local conditions of drought-related violence in sub-Saharan Africa', op.cit.; Raleigh, C. and Kniveton, D., 'Come rain or shine: An analysis of conflict and climate variability in East Africa', *Journal of Peace Research*, Vol. 49, No 1, pp. 51–64.

(35) Skah, M., and Lyammouri, R., *The Climate Change- Security Nexus: Case study of the Lake Chad Basin*, Policy Center for the New South, Rabat, June 2020; Caruso R., Petrarca I. and Ricciuti R., 'Climate change, rice crops, and violence: Evidence from Indonesia', *Journal of Peace Research*, Vol. 53, No 1, 2016, pp. 66–83; Douglas, C., 'A Storm Without Rain: Yemen, water, climate change, and conflict', The Center for Climate and Security, August 2016 (<https://climateandsecurity.org/2016/08/a-storm-without-rain-yemen-water-climate-change-and-conflict/>); Tiitmamer, N., Mayai, T. and Hoth Mai, N., 'Climate change and conflicts in South Sudan', Special Report, The Sudd Institute, May 2018 (https://media.africaportal.org/documents/5af4422f2eed4_ClimateChangeAndConflictsInSouthSudan_Full.pdf).

(36) Von Uexkull, N., d'Errico, M. and Jackson J., 'Drought, Resilience, and Support for Violence: Household Survey Evidence from DR Congo', *Journal of Conflict Resolution*, Vol. 64, No 10, pp. 1994–2021.

(37) For examples, see 'Pathways of climate insecurity: Guidance for policymakers', op.cit.

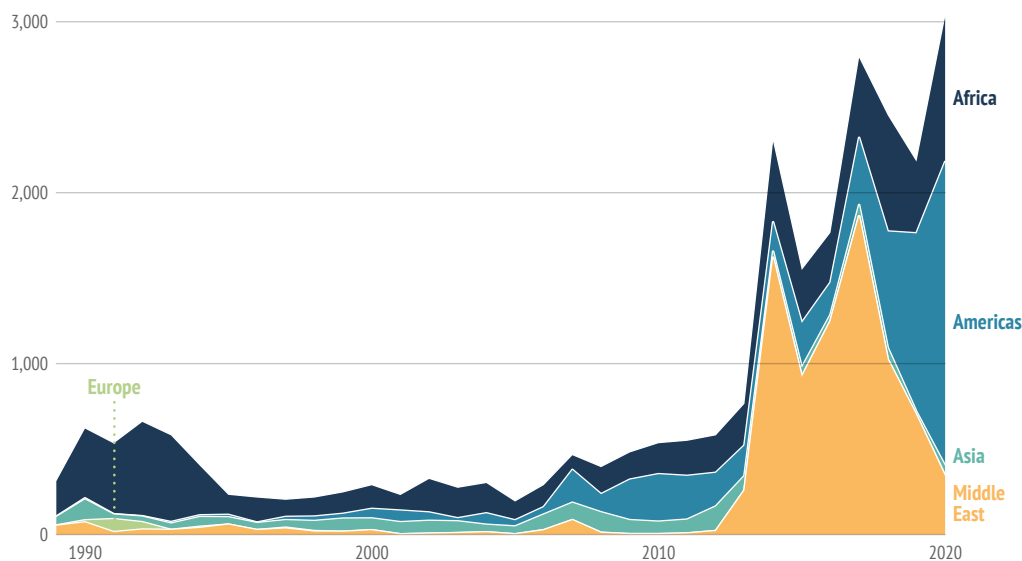
formal and informal – influence inter-group relations and can fuel localised conflicts ⁽³⁸⁾. This also applies to policies and programmes designed to mitigate adverse environmental changes or strengthen the capacities of societies to adapt to climate change and environmental degradation. In a recent EUISS Conflict Series Brief, Luca Raineri illustrates how well-meaning policies to tackle environmental degradation and climate change in Mali, Niger and Burkina Faso have led to a deterioration in the socio-economic situation of certain communities and, subsequently, increased local inter-group tensions and distrust in state-affiliated authorities ⁽³⁹⁾. For example, the heavy-handed methods used by Forest Services to impose strict conservation laws have been perceived as discriminatory and abusive by the Fulani communities in particular, and the policies – rather than climate change itself

– are argued to have given opportunities to violent extremist groups in the region ⁽⁴⁰⁾.

Albeit indirect and second-order, the threat posed by climate hazards and their (mis-)management to inter-communal peace should be taken seriously. While violence between communal groups or local militias tends to receive less public scrutiny than intrastate conflict, it can cause significant death tolls, internal displacement and refugee flows, and jeopardise national stability and security. In Nigeria, for example, the fatalities resulting from inter-communal violence between herder and farmer communities – linked to exacerbated competition over resources partially degraded by climate hazards – have at times reached higher levels than those caused by the Boko Haram insurgency ⁽⁴¹⁾. Moreover, localised violence can escalate and spill over to larger

Non-state armed violence has increased considerably in the 21st century

Non-state conflict events per region and over time



Data: UCDP Georeferenced Event Dataset (GED) Global version 20.1, 2020; UCDP Candidate Events Dataset version 21.0X (year 2020), 2021

- (38) See for example Hagmann, T. and Mulugeta, A., 'Pastoral conflicts and state-building in the Ethiopian lowlands', *Africa Spectrum*, Vol. 43, No 1, 2008, pp.19–37.
- (39) Raineri, L., 'Sahel climate wars: when (fighting) climate change fuels conflict', *Brief No 20*, Conflict Series, EUISS, November 2020.
- (40) Ibid.
- (41) International Institute for Strategic Studies (IISS), 'Nigeria (Farmer – Pastoralist)', *The Armed Conflict Survey – 2019*, May 2019, pp.317–326; Amnesty International, 'Harvest of Death: Three Years of Bloody Clashes Between Farmers and Herders in Nigeria', 2018 (<https://www.amnesty.org/download/Documents/AFR4495032018ENGLISH.PDF>).

regions and be taken advantage of by insurgent groups. In Bangladesh, there are concerns that communal tensions in areas experiencing large influxes of migrants (triggered by floods) can be tapped into by violent extremist groups⁽⁴²⁾. Within the coming decade, increasingly frequent climate hazards in vulnerable rural and politically marginalised areas, combined with the proliferation of violent extremist groups, presents a considerable security hazard with global ramifications.

Insurgency violence in vulnerable countries

Apart from undermining local peaceful relations, increasingly frequent climate hazards can also act as triggers of armed insurgencies against the state. In this case, this comes about due to a deficit in coping mechanisms on the side of the state. While harming certain population groups more directly than others, climate hazards can also seriously burden the incumbent authorities by causing considerable economic damage, destroying critical infrastructure, and necessitating the reallocation of resources (including security forces) to manage recovery from the shock. This can give opportunities to insurgent groups to launch offensives against their opponents. One study finds that in countries with large populations, political exclusion of ethnic groups and low levels of human development, almost one third of conflict onsets in 1980–2016 occurred within 7 days of a climate-related disaster⁽⁴³⁾. This estimate is a considerable figure given the multiple causes of conflict onsets. As examples, the study refers to the drought in Mali in 2009 that facilitated al-Qaeda in the Islamic Maghreb (AQIM) in expanding its armed activities from Algeria into Mali by strengthening its recruitment power

in the latter⁽⁴⁴⁾. While the armed violence in Mali – both involving the Tuareg rebellion and Islamist extremist groups – has its roots in political marginalisation and regional destabilisation (e.g. Libya), the extreme weather phenomena that have exacerbated water insecurity and that have been inadequately addressed have on their part facilitated violent mobilisation⁽⁴⁵⁾. Similarly, case studies from the Philippines show how cyclones and rainfall variation with negative impact on agricultural production have provided opportunities for non-state armed groups to shift conflict dynamics in their favour⁽⁴⁶⁾.

It may be argued that in these cases the primary motivations behind the conflict might not have much to do with the deteriorated climatic conditions. Yet the climate shock combined with the inadequacy of the state's response gives an opportunity for non-state groups to strengthen their power *vis-à-vis* the state. This type of triggering effect of climate hazards on intrastate conflicts is highly conditional: not only does it assume that the state's coping capacities in the face of a climate hazard are weak enough for an armed actor to benefit but also that there are existing conflict lines and tensions/grievances that are ready to erupt. Given these conditions, climate shock may enable armed escalation via improved opportunities to insurgent groups. While an insufficient condition in itself to precipitate an armed conflict, climate shock can form part of the necessary set of conditions that together combine to trigger armed violence.

Coping failures affecting local groups and the state's vulnerability often also co-occur and reinforce one another. The complex war in Darfur exemplifies this. The conflict emerged from an interplay of climate shocks (drought) and coping difficulties at the local level generated

(42) 'How can climate change trigger conflict in South Asia?', *Foreign Policy*, 21 November 2015.

(43) 'Multi-method evidence for when and how climate-related disasters contribute to armed conflict risk', *op.cit.*

(44) *Ibid.*

(45) See for example Larémont, R., 'Al-Qaeda in the Islamic Maghreb: Terrorism and Counterterrorism in the Sahel', *African Security*, Vol.4, No 4, 2011, pp. 242–268.

(46) Crost, B. et al., 'Climate Change, Agricultural Production and Civil Conflict: Evidence from the Philippines', IZA Discussion Papers, No 8965, Institute for the Study of Labor (IZA), Bonn, 2015; Walch, C., 'Collaboration or obstruction? Rebel group behaviour during natural disaster relief in the Philippines', *Political Geography*, Vol.43, pp.40–50.

by existing political marginalisation, high dependence on agricultural land, and weakening of customary institutions to manage scarce resources⁽⁴⁷⁾. While initially taking the form of inter-communal violence, the state's interference in the local tensions by sanctioning violence against certain groups escalated the conflict into a full-scale rebellion and an ethnic cleansing campaign. Again, while climate change may have featured among the conditions leading to the conflict, it was far from a sufficient cause to provoke it⁽⁴⁸⁾. It is also possible that climate hazards trigger national security threats via more complex chain effects. The initiation of the protests in Syria in 2011 are a contested yet often mentioned example. A drought in 2006–2009 contributed to agricultural losses, which is argued to have led to an exodus from the rural regions in the north of the country to nearby cities, which then led to an escalation of urban grievances that exploded in the wake of the Arab Spring⁽⁴⁹⁾. While a debated case, the Syrian example highlights two important aspects: the co-occurrence of climate change and urbanisation megatrends, and the problem of adaptation beyond simply coping with changing climatic conditions. While the first one of these means that urban challenges – increasingly taking the form of non-violent resistance – may become ever more frequent phenomena by 2030, the second illustrates a slower pathway from climate change to adaptation failures.

It is also possible that climate hazards trigger national security threats via more complex chain effects.

The increasing vulnerability to climate hazards amid continuing urbanisation may generate growing civil unrest and popular protest movements within the coming decade. Again, the relationship is indirect and second-order. Food insecurity and price shocks are found to trigger popular protests, and climate-change impacts can contribute to sharp price increases through destruction of crop yields⁽⁵⁰⁾. At the same time as climate shocks are projected to grow, urbanisation and population growth in much of the developing world means that the demand for food and water is increasing. Hence, even small shifts in food production and/or water availability due to climate hazards can threaten food and water security in densely populated cities, which can bring underlying grievances to a head and lead to overt social unrest⁽⁵¹⁾.

Particularly in urban contexts, such social unrest triggered by climate shocks and subsequent coping failures will likely increasingly often take the form of primarily non-violent resistance. Non-violent campaigns have become an increasingly popular form of dissident movements across the globe, and several factors suggest that this trend will continue⁽⁵²⁾. First, as with many other forms of political phenomena, non-violent campaigns appear to encourage more non-violent acts of rebellion (over time and across space)⁽⁵³⁾. Recent examples of protesters in Europe learning from or emulating the tactics of protesters in Hong Kong demonstrate how protest movements may not simply

(47) 'Civil war in Darfur, Sudan', ECC Platform, Climate Diplomacy, Adelphi, 2020 (<https://climate-diplomacy.org/case-studies/civil-war-darfur-sudan>).

(48) See de Waal, A., 'Is Climate Change the Culprit for Darfur?' *African Arguments*, June 2007; 'Pathways of climate insecurity: Guidance for policymakers', op.cit.

(49) See for example *Ecological Threat Register 2020*, op. cit.

(50) On food price shocks and the onset of non-violent resistance campaigns, see Abbs L., 'The hunger games: Food prices, ethnic cleavages and nonviolent unrest in Africa', *Journal of Peace Research*, Vol. 57, No 2, 2020, pp. 281–296.

(51) Greenwood, S., 'MENA to 2025: Climate change, food and water scarcity: challenges', in Holmquist, E. and Rydqvist, J. (eds.), *The Future of Regional Security in the Middle East: Expert Perspectives on Coming Developments*, FOI, April 2016.

(52) Fisher, M. and Taub, A., 'The global protest wave, explained', *The New York Times*, 25 October 2019. See also Chenoweth, E. and Stephan, M., *Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict*, Columbia University Press, New York, 2011.

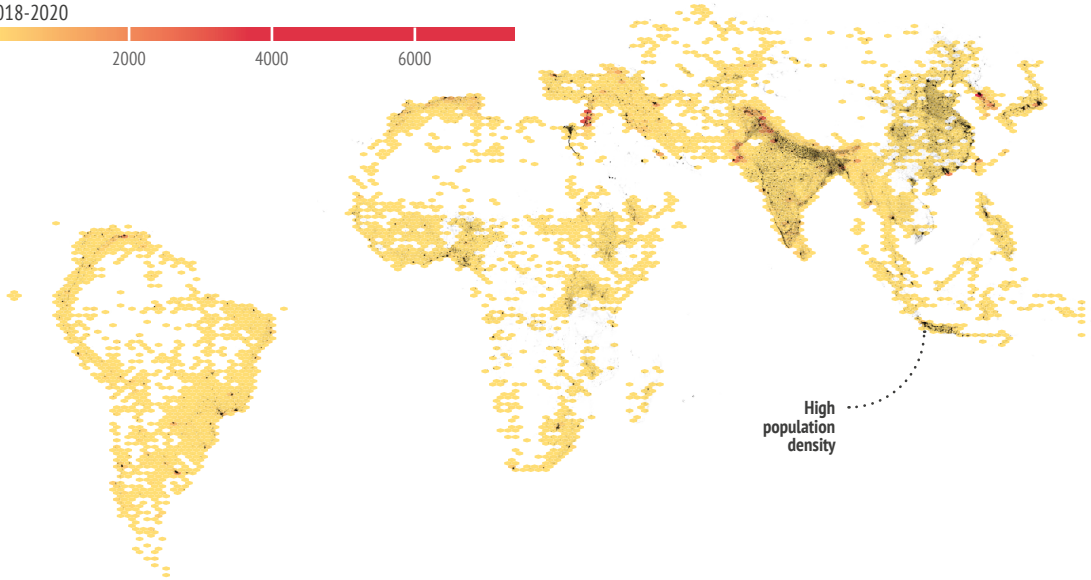
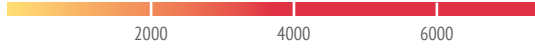
(53) Chenoweth, E. et al., 'This may be the largest wave of non-violent mass movements in world history. What comes next?', *The Washington Post*, Monkey Cage blog, 26 November 2019.

Where people live and protest

Peaceful protests cluster in densely populated areas

NUMBER OF DEMONSTRATIONS

2018-2020



Data: ACLED (peaceful protests with precise geolocations), 2021; Schiavina, M., Freire, S., and MacManus, K., 'GHS-POP R2019A – GHS population grid multitemporal (1975-1990-2000-2015)', European Commission, Joint Research Centre (JRC), 2020

inspire one another but how certain tactics can be replicated across campaigns ⁽⁵⁴⁾. Second, there is a considerably lower threshold for participation in non-violent protests, strikes, and demonstrations than for participation in armed rebellion. The key ingredient in effective protest movements is mass participation, and urbanisation makes this increasingly possible ⁽⁵⁵⁾. Third, in cities where the negative socioeconomic effects of climate shocks are reflected in increased commodity prices and worsened food and water security, civic activists will have opportunities to gain broad mobilisation support across societal groups, as grievances induced by the climate shocks and the price increases are shared widely across societal divides ⁽⁵⁶⁾.

Whether dissident groups facilitated by climate shocks and coping failures take armed or unarmed forms is a function of more than just the urban-rural divide. As discussed above, climate shocks are particularly threatening to peace in contexts with group-level inequalities in terms of access to political power and resources. Many studies associate this particularly with the exclusion of specific ethnic groups from power within a society ⁽⁵⁷⁾. It is generally challenging for broad-based non-violent movements to emerge in such contexts. While non-violent mass mobilisation is not impossible, the threat of violent outbreaks in the face of climate-related shocks should be of particular concern in such settings.

(54) Deutsche Welle, 'How Hong Kong protests are inspiring movements worldwide', 22 October 2019 (<https://www.dw.com/en/how-hong-kong-protests-are-inspiring-movements-worldwide/a-50935907>).

(55) See Chenoweth, E. and Belgioiso, M., 'The Physics of Dissent and the Effects of Movement Momentum', *Nature Human Behaviour*, 2019 (<https://socialsciences.nature.com/users/269200-erica-chenoweth/posts/51786-the-physics-of-dissent>).

(56) 'The hunger games: Food prices, ethnic cleavages and nonviolent unrest in Africa', op.cit.

(57) 'Multi-method evidence for when and how climate-related disasters contribute to armed conflict risk', op.cit.; 'Climate shocks and humanitarian crises', op.cit.

The longer pathway – conflict via adaptive failure

The gradual unfolding of climate change threatens peace also via a more subtle route, through failure in adaptation and increasing grievances as a result. As outlined above, the diverse set of climate shocks are themselves caused by the continuing slow rise (the core of the megatrend) in average surface temperatures, melting ice coverage, and rising sea levels. The relationship between these changes and conflict escalation is even harder to grasp than that between climate shocks and conflict. One should, for example, be able to estimate thresholds of warming or sea-level rise that may contribute to conflict. Relatedly, more empirical attention has been devoted to capturing the effects of climate variability and extreme weather events, i.e. climate shocks, than to measuring the effects of gradual climate change on conflict⁽⁵⁸⁾.

Given the preventive approach adopted here and the future outlook, it seems however prudent to consider the possible effects of the gradual climatic changes on conflict escalation as well. As the warming of the planet and its repercussions continue to evolve, public awareness of the issue increases as do pressures and expectations on governments (and other political players held accountable) to act upon it. Such action requires measures to mitigate the extent of the objective change, measures to cope with the increasingly frequent extreme events, and measures to adapt to the gradually changing environment. Adaptive capacities can be seen as the proactive side of resilience: rather than centring on the capacity to bounce back from a crisis, the focus is on the capacity to reduce vulnerability to such crises and their negative effects *ex ante* by adopting measures that help to manage the changing conditions. Where adaptive capacities are low, grievances over gradually worsening socio-economic conditions can contribute to a backlash

against incumbent elites. Furthermore, adaptation efforts can disproportionately harm certain groups, or pit states against each other. Of course, the two sides of resilience are closely connected, as when coping capacities are overwhelmed then it is difficult to develop better adaptation strategies.

Intra- and inter-state conflicts as a result of adaptive failures

Climate change can act as a catalyst for conflict through increased grievances arising from adaptation failures. As discussed in the introduction, the nature of climate change as a high-probability high-impact megatrend means that adaptation is highly necessary as considerable change will occur irrespective of mitigation efforts. This adaptation is the core of a preventive approach that seeks to address the link between climate change and conflict. When successful, adaptation prevents conflict escalation as it reduces societal vulnerability to the changing conditions and strengthens preparedness and resilience in the face of climate hazards.

Adaptation efforts or the lack thereof can however also increase propensity for conflict. For example, while most sub-Saharan African countries – considered particularly vulnerable to the adverse and possibly conflict-inducing effects of climate change – have embarked on a process of formulating and implementing a National Adaptation Plan (NAP) to climate change, challenges remain in addressing the specific needs of vulnerable sectors and population groups as well as including and scaling up subnational-level action (and actors)⁽⁵⁹⁾. As it is, six Sub-Saharan African countries have submitted their NAPs to the United Nations Framework Convention on Climate Change (UNFCCC)⁽⁶⁰⁾. The difficulty of closing the adaptation-financing gap contributes to many of these challenges. The amount of

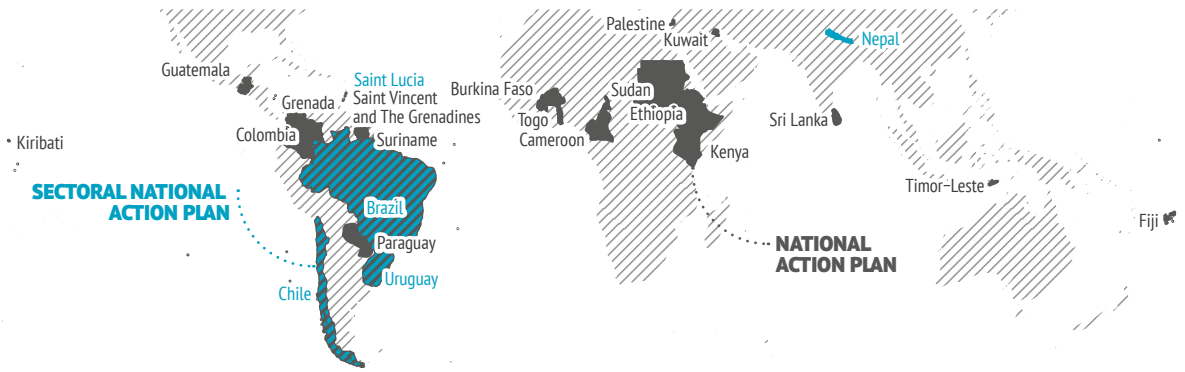
(58) 'Security implications of climate change: A decade of scientific progress', op.cit.

(59) See Mfitumukiza, D. et al., 'Scaling local and community-based adaptation', Background Paper, Global Commission on Adaptation, June 2020; UNDP, *Regional Briefing on National Adaptation Plans: Africa in Focus*, 2017 (<http://www ldc-climate.org/wp-content/uploads/2018/03/africa-digital1.pdf>).

(60) UNFCCC National Adaptation Plans (NAP) Central (<https://www4.unfccc.int/sites/napc/Pages/Home.aspx>).

National Adaption Plans (NAPs) of developing countries

Submissions to the UN Framework Convention on Climate Change (UNFCCC)



Data: UNFCCC, 2021; European Commission, 2021

international aid for climate change adaptation in sub-Saharan Africa and globally that has actually been disbursed remains considerably lower than the estimated costs of adaptation⁽⁶¹⁾. Indeed, as it is, nearly half of climate-related aid is allocated to mitigation programmes, while 24 % goes to adaptation⁽⁶²⁾. Moreover, out of this funding allocated to adaptation, only a ‘fraction’ goes to conflict-affected contexts⁽⁶³⁾. Regions such as sub-Saharan Africa and the Middle East face a double challenge when it comes to climate change adaptation costs: increased support and commitment is required from international donors and big emitters to mitigate the scale of climate change, as adaptation costs become unmanageable if mitigation fails. On the other hand, even if mitigation keeps global warming under the threshold of 2 degrees Celsius, significant increase in adaptation support is required to manage the adaptation costs that will still be incurred.

As already mentioned, adaptation processes can also themselves exacerbate tensions by

disproportionately harming certain livelihoods or regions or placing certain groups in a more competitive position with regard to natural resources. Adaptation can in concrete terms translate to communities having to relocate (for example from low-lying coastal areas) and changes in investments in specific crops cultivation and/or modifications in how land is managed, and it is not difficult to imagine how these measures – if conflict insensitive – might increase grievances and tensions by disproportionately hurting certain groups of people and undermining their living standards. Through these mechanisms, maladaptation or insufficient adaptation to changing climatic conditions can contribute to exacerbating existing political grievances and cripple state-society relations⁽⁶⁴⁾.

Climate change adaptation measures or their absence can also increasingly strain relations between states. As it stands, many international agreements concerning the use of transboundary natural resources that climate change affects – particularly water resources – do not explicitly

- (61) Schaeffer, M. et al., *Africa’s adaptation gap: Climate change impacts, adaptation challenges and costs for Africa*, Technical Report, UNEP, 2013.
- (62) *Ecological Threat Register 2020*, op. cit.
- (63) DanChurchAid, Norwegian Church Aid, and Act Alliance, *Winning the Peace: Peacebuilding and Climate Change in Mali and Somalia*, June 2020.
- (64) Ghani, T. and Malley, R., ‘Climate change doesn’t have to stoke conflict’, *Foreign Affairs*, September 2020.

address the issue of adaptation to changing realities due to climate change. Simultaneously, by 2030 several river basins and fisheries will be influenced by climate change-related phenomena. The realised and projected changes in shared natural resources incentivise political actors – often states – to take adaptive measures to guarantee future management of the resources ⁽⁶⁵⁾. Unilateral and uncoordinated action with regard to managing transboundary resources and adjusting the agreements concerning them can lead to considerable tensions between states, as indicated by the ongoing water-related disputes between Ethiopia, Egypt and Sudan, or India and Pakistan.

As average temperatures rise, it is possible for the two pathways to become increasingly intertwined. While failures to adapt to the inescapable effects of climate change contribute to gradual worsening of the conditions of those already in a vulnerable situation, extreme weather conditions can provide opportunities to move from covert to overt mobilisation against the incumbent powers (or other societal groups). Furthermore, countries' internal and international challenges related to climate stress will likely increasingly merge and accumulate. Unilateral adaptation efforts regarding a particular transboundary resource can strain socioeconomic conditions across or within borders and contribute to both diplomatic crises and the heightening of countries' internal tensions as well as transboundary tensions among communities ⁽⁶⁶⁾.

Key messages

- > Climate change alone does not cause conflicts, but it contributes to conflict escalation through coping and adaptation failures, accelerating existing cleavages and triggering opportunities that enable armed mobilisation.

- > The Middle East and North Africa, sub-Saharan Africa and Central and South Asia are particularly urgent climate change hotspots from a peace and conflict perspective.
- > Given the trajectory of climate change and the persistence of vulnerable conditions, (particularly governance-related) conflicts linked to exacerbated climatic conditions are likely to increase. In particular:
 1. Local non-state conflicts and violence involving natural resources-dependent communities can intensify as livelihoods are under greater stress due to climate shocks and resource management regimes
 2. Violent extremist groups may benefit from the plight of local communities in the face of the negative repercussions of climate shocks and conflict-insensitive adaptation and coping measures
 3. States' coping failures in the face of more frequent climate hazards can give opportunities to non-state armed groups
 4. Water insecurity, crop price increases and other shared stressors can lead to more non-violent resistance against authorities in urban settings
 5. The slow pace and lack of investment in the adaptive capacities of vulnerable countries risks worsening grievances that nurture conflicts
 6. Unilateral or uncoordinated adaptation measures can worsen escalatory processes and trigger interstate disputes.

⁽⁶⁵⁾ 'A Security Threat Assessment of Global Climate Change', op.cit.

⁽⁶⁶⁾ Mwenda, M., Krampe, F. and Maihack, H. (eds.), 'Climate Security in the Horn of Africa: Perspectives on addressing climate-related security risks from the Horn of Africa', Friedrich Ebert Stiftung, June 2020.

DIGITALISATION AND CONFLICT

DIGITAL FORECAST: WHAT WILL THE WORLD LOOK LIKE IN 2030?

By 2030, the (physical) world will not only be hotter but increasingly digitalised. Globally, the vast majority of people will be internet users, with many previously underserved populations in sub-Saharan Africa and South Asia having experienced major leaps forward in meaningful internet access. ⁽¹⁾ Not only will we be more globally connected to one another across physical distances in real time, but we will be ever more connected to devices and sensors that are themselves connected to each other, forming and expanding the Internet of Things (IoT). Automation of our everyday lives and production chains will have progressed and the notion of human security will have a cyber dimension,

with cyber insurance policies being available to the affluent ⁽²⁾.

High-impact revolutionary trend

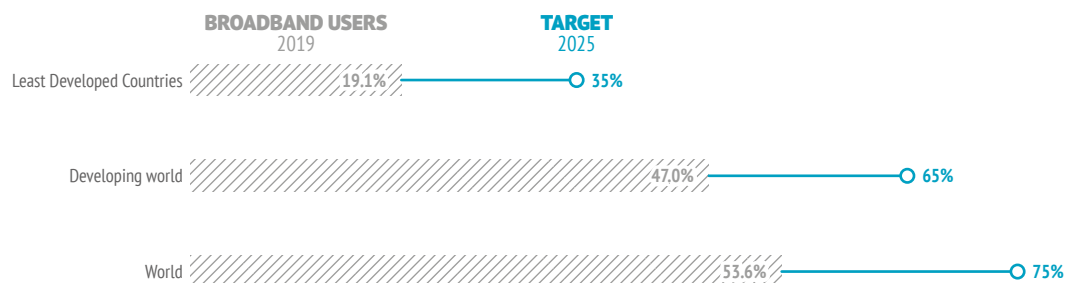
Digitalisation is here understood as the 'collective technological advances in computing power, data collection, processing and storage and networking between computer devices'. It represents a fast-evolving and high-impact but somewhat more uncertain megatrend than climate change, making it a high-impact revolutionary megatrend ⁽³⁾.

By 2030, the influence of social (media) platforms will have expanded vastly both in terms of their user numbers and their use purposes. In early 2021 the biggest social media platform had approximately 2.7 billion active users and more than 3.8 billion people were using social

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- (1) In 2019, 51% of the global population had access to the internet, with internet penetration being 45% in developing countries. The Broadband Commission aims at 75 % of global penetration by 2025, with a target of 35% for the least developed countries. See Broadband Commission for Sustainable Development, 'The state of broadband 2019: Broadband as a foundation of sustainable development', International Telecommunication Union and United Nations Educational, Scientific and Cultural Organisation, 2020.
 - (2) Vogels, E.A., Rainie, L. and Anderson, J., 'Experts predict more digital innovation by 2030 aimed at enhancing democracy', Pew Research Center, 30 June 2020 (<https://www.pewresearch.org/internet/2020/06/30/experts-predict-more-digital-innovation-by-2030-aimed-at-enhancing-democracy/>).
 - (3) Fiott, D., 'Digitalising defence: Protecting Europe in the time of quantum computing and the cloud', *Brief No 4*, EUISS, March 2020. As Fiott states, digitalisation should be distinguished from digitisation, which refers to the development of the software and systems that allow storing, transferring and sharing of information in digital form, often in lines of binary code (0s and 1s).

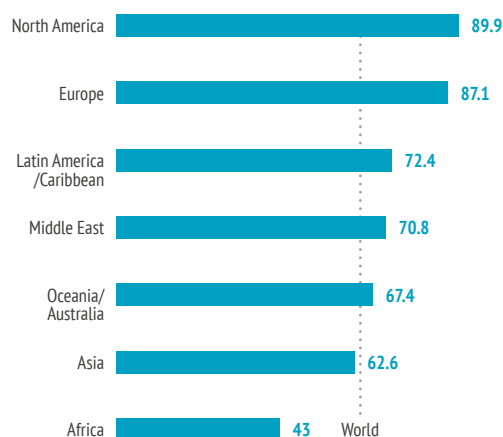
Internet use across the world

Inequalities in broadband access prevail: LDCs lagging behind the rest of the world in meaningful access to the internet



Data: International Telecommunication Union (ITU) and United Nations Educational, Scientific and Cultural Organisation (UNESCO), *State of Broadband Report 2020*, 2020

Internet penetration in different regions, % of population



Data: Internet World Stats: Usage and Population Statistics, www.internetworldstats.com, 2021

media. In 2030 these figures will have multiplied ⁽⁴⁾. With regard to the information created and shared, video and audio content will be the norm and automatised translation

(e.g. natural language processing) will allow real-time content sharing and interpreting across hundreds of languages ⁽⁵⁾. Advertising is likely to be ever more carefully targeted and end-user friendly ⁽⁶⁾. The 2020s will have witnessed global debates concerning the transformation of social media platforms, leading to the development of new legal and normative frameworks. Data privacy concerns as well as concerns related to societal polarisation due to the spread of misinformation and strengthening of echo-chambers online may have contributed to the creation of new popular platforms that are not based on advertising and emphasise social cohesion and fact-checking and privacy ⁽⁷⁾.

Accelerated digitalisation will have brought about significant changes also at the macro-economic level. In some sectors, such as construction, medical devices, electronics, clothing, and transportation and logistics, a large number of jobs may have been replaced by automation, artificial intelligence (AI),

(4) See [Internetlivestats.com](https://internetlivestats.com); Kemp, S., 'Digital trends 2020: Every single stat you need to know about the internet' *The Next Web* (TNW), January 2020 (<https://thenextweb.com/growth-quarters/2020/01/30/digital-trends-2020-every-single-stat-you-need-to-know-about-the-internet/>).

(5) See Kulkarni, C., '11 ways social media will evolve in the future', *Entrepreneur Europe*, 3 August 2017 (<https://www.entrepreneur.com/article/293454>); Stokel-Walker, C., 'Facebook AI can translate directly between any of 100 languages', *NewScientist*, 19 October 2020 (<https://www.newscientist.com/article/2257637-facebook-ai-can-translate-directly-between-any-of-100-languages/>).

(6) '11 ways social media will evolve in the future', op.cit.

(7) See Vogels, E.A., Rainie, L. and Anderson, J., 'Experts predict more digital innovation by 2030 aimed at enhancing democracy', *Pew Research Center*, 30 June 2020 (<https://www.pewresearch.org/internet/2020/06/30/experts-predict-more-digital-innovation-by-2030-aimed-at-enhancing-democracy/>).

sensors, additive manufacturing and other digital tools, resulting in a rise in unemployment⁽⁸⁾. Yet, digitalisation has also created new types of jobs and markets, with the 5G markets being worth an estimated \$700 billion dollars in 2030⁽⁹⁾. The expansion of e-commerce and social platforms-based economic models connect customers to goods and products both globally and locally in new ways, and disruptive technologies such as 3D-printing are increasingly shaping the ways products are designed and produced, distributed, and acquired. This may accelerate trends towards localisation, shifting from more centralised production hubs to local production and distribution models⁽¹⁰⁾.

There will be over 500 billion devices connected to the IoT in 2030, rendering the physical environment increasingly 'smart'⁽¹¹⁾. Governance areas such as infrastructure, public transportation, education, security and health are penetrated by sensors that collect and transmit data about their environment and users in order to function more effectively, i.e. to govern more effectively. The Covid-19 pandemic has further accelerated digitalisation of certain governance fields, such as the health sector and prevention-focused e-services⁽¹²⁾. Smart agriculture may have enabled significant reductions in methane and carbon dioxide emissions, although pressure to meet ever-growing consumer demands and continuing digital divides overshadow these benefits⁽¹³⁾.

Digital divides will continue to persist, overlapping with and exacerbating other inequality cleavages.

This wave of digitalisation will lead to exponential growth in the amount of micro-level big data. Data security presents a key privacy and security concern for law enforcers, authorities, individuals, and businesses alike⁽¹⁴⁾. The resultant cybersecurity and privacy concerns increasingly affect every aspect of life and have concrete, physical ramifications. In essence, by 2030 digitalisation will have led to a merging of cyber and physical space to the extent that the distinction between traditional notions of security and cybersecurity is becoming less pertinent, both when it comes to state security and human security⁽¹⁵⁾.

The way digitalisation manifests across states, regions and municipalities, and in the lives of individual households and people, will remain extremely heterogenous. While developing countries will have taken proportionally big steps in improving meaningful access to the internet and advancing e-commerce, the least developed countries (LDCs) will continue to lag in providing effective and equal access to digital goods and services. Indeed, digital divides will continue to persist, overlapping with and exacerbating other inequality cleavages⁽¹⁶⁾. When it comes to enjoying the benefits of digitalisation wide disparities will exist between and within countries, between different urban and rural neighbourhoods and between individuals belonging to different socioeconomic groups and genders⁽¹⁷⁾.

(8) Johnston, T., Smith, T. and Irwin, L.J., 'Additive manufacturing in 2040: powerful enabler, disruptive threat', *Perspective – Expert Insights on a Timely Policy Issue*, RAND Corporation, 2018.

(9) DNV GL, *Technology Outlook 2030*, 2019, pp.11.

(10) 'Additive manufacturing in 2040', op.cit.

(11) *Technology Outlook 2030*, op.cit., pp.11.

(12) See United Nations, *Report of the UN Economist Network for the UN 75th Anniversary: Shaping the Trends of Our Time*, September 2020, p. 105; McCarthy, J., 'Fact or fantasy: futurists predict a better world for 2030', *The Drum*, June 2020.

(13) *Technology Outlook 2030*, op. cit.

(14) *Ibid.*, p.93.

(15) 'Additive manufacturing in 2040', op.cit.

(16) Warschauer, M., 'Reconceptualising the digital divide', *First Monday*, Vol. 7, No 7, 2002.

(17) Organisation for Economic Co-operation and Development (OECD), *Bridging the Digital Gender Divide: Include, Upskill, Innovate*, 2018.

Rather than having a specific type or nature of impact on societies, digitalisation in the 2020s has catalysed transformation and continuity as an enabler of processes, or as a means of pursuing interests. Technology remains a key tool in 2030, which also makes forecasting its future even harder than forecasting that of climate change. Notably, we can expect innovations that are already in use today, such as unmanned aerial vehicles and 3D-printers, to become more affordable, better quality and easier to master, and therefore more widely used, giving opportunities to all sorts of groups and individuals⁽¹⁸⁾. How their societal impacts will play out, depends largely on what actors seize the opportunities to come.

HOW DIGITALISATION ACCELERATES CONFLICT

Given that new technological tools can influence our daily lives within a couple of years of being launched, it is likely that in a decade from now we will be using applications and platforms whose existence we cannot imagine today. This uncertainty also affects the ways in which we can prepare conflict prevention strategies. For example, while we can assume that growing digitalisation and its widening outreach will certainly have an impact on escalatory processes, new innovations might influence the extent to which this shapes the use of existing kinetic conflict tools, such as small arms, in novel ways. Nevertheless, there are a few aspects that are likely to evolve in certain directions and that we can use to think about challenges towards conflict prevention. What unites these aspects is that rather than changing the fundamental logic of conflict escalation or constituting root causes of conflicts, they represent changes in *how* conflict processes

unfold, *who* participates, and *what the means and platforms* are.

In short, digitalisation will not directly or automatically undermine peaceful societal or international relations within the coming decade (or beyond). However, it can have significant enabling and catalysing conflict escalatory effects. This chapter identifies three key channels through which digitalisation may contribute to escalation:

1. the growing power of social media and other digital information and communication technology (ICT) tools will further revolutionise communication – both among the global masses and between publics and political entrepreneurs. The unprecedented scale, speed and multi-directionality of communication bears a risk of accelerating polarisation and ever-faster contentious mobilisation, once a conflict emerges;
2. cyberattacks against different (potential) conflict parties and victims, including states, (parts of) societies, companies, and individuals will be increasingly used to expose the vulnerabilities of and directly harm different political actors. These attacks will be more and more often conducted not only by state-affiliated groups against other state actors but also by non-state actors and/or actors with primarily financial aims;
3. digital technologies will continue to transform kinetic warfare by making weaponry increasingly AI-assisted. While this can make targeting more precise and thus reduce ‘collateral damage’, it can also lower the threshold for launching an attack in the first place.

Overall, digitalisation has the effect of accelerating interactions, including those that create conflict, and adding elements of unpredictability into a conflict escalatory process. Furthermore, the digitalisation of conflict processes changes the conflict-actor landscape

(18) ‘Additive manufacturing in 2040’, op.cit.

by fragmenting and multiplying it: as conflict processes spread increasingly into the digital world, not only more people are reached but new actors can participate while incurring relatively low costs.

New communication technology and conflict escalation

The use of digital communications technology and particularly social media platforms in mobilising and campaigning for a conflict is nothing new. An often cited example is the effective use of social media by the so-called Islamic State of Iraq and Syria (ISIS) in mobilising support and undermining its opponents⁽¹⁹⁾. Particularly in 2013–2014, the group actively used the main social media platforms – such as Twitter and YouTube – to spread awareness of its goals and to galvanise mobilisation and recruit followers across the globe. While the tens of thousands of foreign fighters that the group then attracted cannot be accounted for by this social media activity solely (or even primarily), it did play a role in connecting with potential recruits around the world in a time- and cost-effective way. The #AllEyesOnISIS campaign contributed to the fall of Mosul, as the real-time footage and messages of battlefield successes that followed the actual attack created an image of an all-victorious and invincible militant group capable of crushing any opponents standing in its way. This social media campaign, which included a smartphone app that allowed the terrorist group to post on behalf of its supporters, boosted the militants'

resolve while spreading even more fear and confusion among their opponents⁽²⁰⁾.

Islamist militants are by no means the only conflict actor to have turned to the digital realm for mobilisation and communication purposes. This is and will continue to be a norm in conflict escalatory processes. In Pakistan, for example, the separatist Baloch Republican Army has actively used Twitter to mobilise existing supporters and attract new ones⁽²¹⁾. In Colombia, fears were raised about Revolutionary Armed Forces of Colombia (FARC) rebels re-taking arms after a video of a commander calling for renewed fighting was released online and quickly went viral⁽²²⁾. Increasingly, conflict parties use social media platforms to promote their own action and denigrate their opponents, i.e. wage the propaganda war in the digital sphere, with the aim of advancing their political cause on the ground⁽²³⁾. Indeed, even if not constituting the main recruitment channel, social media platforms are becoming increasingly vital spaces in which competition over the interpretation of what is going on takes place: different sides (and their supporters) create and spread content that reflects their vision of reality with the aim of convincing the relevant domestic and international audiences of the strength of that interpretation⁽²⁴⁾. For example, during the 2012 Gaza conflict both Hamas and the Israeli Defence Forces used Twitter to construct their narratives of how the conflict was evolving by actively tweeting about their moves and responding to the actions of their opponent⁽²⁵⁾. In autumn 2020, different actors involved in the escalating situation concerning the Anglophone regions of Cameroon turned to social media to spread awareness and

(19) Brooking, E. and Singer, P.W., 'War goes viral: how social media is being weaponized across the world', *The Atlantic*, October 2016 (<https://www.theatlantic.com/magazine/archive/2016/11/war-goes-viral/501125/>); Cedermann L. and Pengl, Y., 'Global conflict trends and their consequences', ETH Zürich, 2019.

(20) 'War goes viral', op.cit.

(21) Loyle, C.E. and Bestvater, S.E., '#rebel: Rebel communication strategies in the age of social media', *Conflict Management and Peace Science*, Vol. 36, No 6, 2019, pp. 570–590; Iqbal, A., 'Social mobilisation and online separatist movement in Balochistan', *Marqalla Papers*, 2011.

(22) Moreno, J., 'Renewed violence in Colombia: A visit to FARC's jungle lair', *Spiegel International*, September 2019.

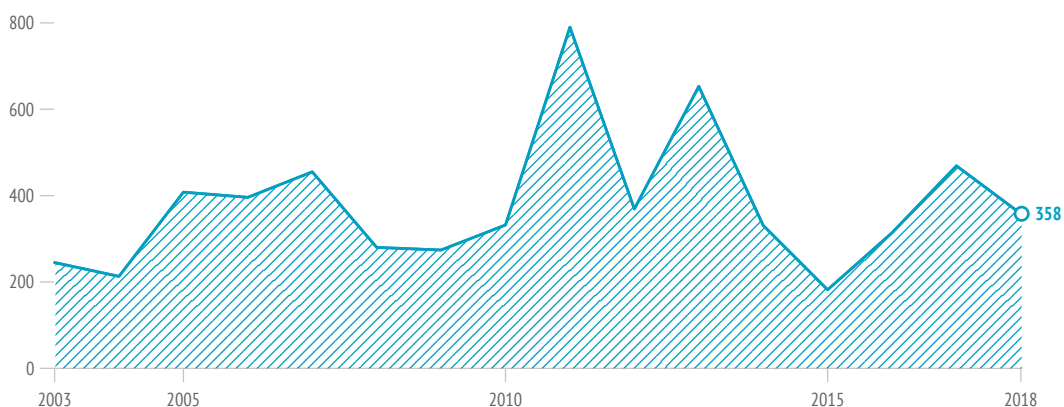
(23) Zeitzoff, T. 'How social media is changing conflict', *Journal of Conflict Resolution*, Vol. 61, No 9, 2017, pp. 1970–1991.

(24) Ibid.; '#rebel: Rebel communication strategies in the age of social media', op.cit.

(25) 'How social media is changing conflict', op.cit., p. 1979.

Mass mobilisation against authoritarian regimes over time

Anti-government peaceful protests with at least 25 participants in autocratic countries, 2003-2018



Data: Mass Mobilisation in Autocracies Database, version 3.0 [codebook by Keremoglu, E., Hellmeier, S., and Weidmann, N.], 2020

particularly bring to light the horrific violence inflicted on civilians ⁽²⁶⁾.

The way information about a conflict is spread in the digital sphere and the way this messaging resonates with the ever-growing number of social media users can have real implications for the strategic environment in which different political actors operate. By increasingly democratising and lowering barriers to communication, social media channels are particularly important for the underdogs in any conflict situation, as they enable these actors to communicate globally and present their versions of a situation even if/when their traditional public relations capacities are weak ⁽²⁷⁾. The traditional media and for example international human rights organisations pick up social media content in their coverage, thereby raising awareness of human rights violations against marginalised communities and bringing political leverage to bear on the relevant state authorities. However, the inherently democratic nature of these tools – increasingly anyone can participate in content creation – and the increasingly fierce competition between media

outlets for picking up new stories means that thorough vetting of the information may suffer, while also adding to the escalatory potential of emerged tensions: according to one estimate, it takes on average 18 minutes for a tweet to reach the zenith of its popularity, which leaves little time for preventive measures to be applied in the face of a viral tweet or a post that either deliberately incites conflict escalation or induces violent retaliatory actions ⁽²⁸⁾. At worst, conflict escalation can take place even before a post's authenticity is verified. The increasing use of social media as a propaganda tool can also challenge efforts to prevent escalation and/or resolve an escalatory situation peacefully by reducing general support for compromise resolutions, as the supporters of different conflict sides live in their own echo-chambers with different representations of reality.

A form of conflict mobilisation that is perhaps particularly strongly impacted by digital communication technologies is popular civil unrest, e.g. non-violent protest campaigns and civil disobedience, as also discussed in the previous chapter. Empirical evidence shows that protest

(26) Mudge, L., 'Horrific video shows Cameroon killing: separatists' abuse continues in South-West', Human Rights Watch, August 2020 (<https://www.hrw.org/news/2020/08/14/horrific-video-shows-cameroon-killing>).

(27) 'How social media is changing conflict', op.cit.

(28) 'War goes viral', op.cit.

movements, once initially emerged, can benefit from the availability of digital communication channels in convincing more people to join, increasing the amount of attention paid to the strife, and coordinating resistance tactics ⁽²⁹⁾. Non-violent resistance both benefits from but also relies on high numbers of active participants and supporters in pressuring its opponent to concede. The increased connectivity brought about by digitalisation helps circulate news, images and video clips of protest dynamics in real time across a community (and the globe), to which potential new dissidents can quickly react in their neighbourhood, town, or country. Even in autocratic contexts where the state exerts tighter control over communications technology, the speed with which information is spread about ongoing protests often overcomes the state's attempts at censorship and can therefore facilitate efforts to sustain and expand mobilisation ⁽³⁰⁾. Furthermore, recent mass mobilisation processes in Belarus, the United States and India have all demonstrated how digital technologies contribute to spreading almost immediate awareness of civil campaigns beyond the country or region in question, enabling simultaneous support activities and campaigns to take place internationally. While a double-edged sword for civil resistance campaigns, international attention can contribute to the backfiring of violent oppression, as third party states and international organisations are pressured (often by their own citizens who have been exposed to disturbing images of police and security force brutality on social media) to act against the victimisation of unarmed protesters ⁽³¹⁾. Through these mechanisms linked to spreading information and facilitating communication between activists and potential resisters, ICT tools can accelerate

the mass mobilisation process after initial non-violent resistance has emerged.

On the other hand, with the growing dominance of ICT comes a danger of 'slactivism', i.e. low-cost participation online in support of (or opposition to) a cause, that does not necessarily translate to offline grassroots mobilisation ⁽³²⁾. Relatedly, a relatively small group of activists can make support towards a certain cause appear considerably larger than it actually is by using ICT tools effectively. In general, as the virtual realm becomes even more crowded with different calls and counter-calls for action, and as manipulated content and so-called 'deep fakes' increase, saturation and political passivity can result, particularly among more moderate individuals who feel uncertain about what to trust and act upon. From a conflict prevention perspective this presents a challenge, as it can give more space for more radical and possibly violent actors.

Digitalisation is also creating new opportunities for state authorities wishing to monitor and possibly target opposition leaders and activists as well as pre-empt issues that may give rise to political trouble and curb these before they spread ⁽³³⁾. Cross-country evidence suggests that state-sponsored manipulation of and restrictions on social media are increasing in geographical scale and sophistication, while physical targeting of journalists and activists for their online activities is also growing ⁽³⁴⁾. To be sure, using social media to identify and monitor political opposition in order to target one's opponents outside the virtual realm is not the exclusive prerogative of state actors. Violent non-state actors have also monitored the activities and movements of individuals and groups in the digital sphere in order to target

(29) Weidmann, N.B and Rod, E.G., *The Internet and Political Protest in Autocracies*, Oxford University Press, New York, 2020; 'This may be the largest wave of nonviolent mass movements in world history. What comes next?', op.cit.

(30) *The Internet and Political Protest in Autocracies*, op.cit.

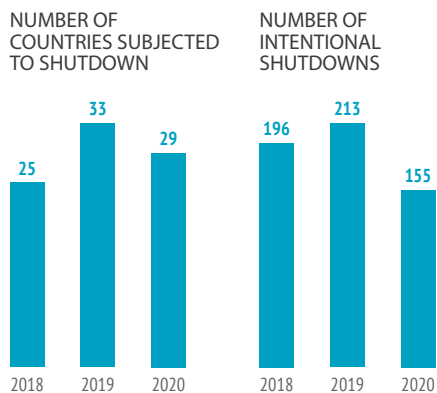
(31) *Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict*, op.cit.

(32) Seay, L., 'Does Slactivism Work?', *The Washington Post*, Monkey Cage Blog, 12 March 2014.

(33) *The Internet and Political Protest in Autocracies*, op.cit.

(34) Kelly, S. et al., *Freedom of the Net 2017: Manipulating Social Media to Undermine Democracy*, Freedom House, 2017.

Internet shutdowns in recent years



Data: Access Now: #KeepItOn Report, 2021

individual opponents⁽³⁵⁾. However, state actors often hold an advantage in terms of resources and opportunities when it comes to controlling and manipulating communication over the long term. In China, the state effectively curbs the opposition's efforts to mobilise by actively censoring content calling for collective action, while seemingly allowing criticism against the state⁽³⁶⁾. In the early days of the Syrian uprising, President al-Assad reportedly deployed an 'electronic army' of internet trolls to manipulate and exaggerate support for the regime. The Sudanese regime of al-Bashir, Russia's political leadership, and the governments of Venezuela and the Philippines are among actors known to have used similar 'opinion shaping' techniques⁽³⁷⁾. The relative weight of state leaders and political elites on social media platforms (official and unofficial accounts tend to have a high number of followers) also means that digital messaging or rhetoric can have considerable social and political consequences. This was infamously illustrated by the former US president, Donald Trump, and his heavy reliance on social media during his time in office. Thus far, the perceived informality of social media platforms and lack of legal framework

or established norms around them has largely allowed leaders and mobilisers to escape accountability when it comes to participating in the distribution of unvetted or polarising information⁽³⁸⁾. Banning former president Trump from social media on the grounds of spreading violence-inducing disinformation may constitute the beginning of a turning point in enforcing accountability on these platforms, yet as for now such measures remain *ad hoc*.

Five future escalatory challenges linked to ICT

Given the expected expansion of availability and usage of social media and other ICT tools more globally and in many conflict-prone regions, a number of aspects arise as we look ahead from a conflict prevention perspective. First, as more areas, communities and individuals find themselves communicating on digital platforms, the more often emerged tensions – even when very local – are communicated digitally and the more widely news travels about any event. In any locality, posts showing violent attacks by a neighbouring community or the authorities reach wider audiences than before, which can increase the speed of escalatory retaliation spirals. Communal violence with roots in resource management and governance issues, for example, can therefore escalate more quickly and involve more people as even sparsely populated areas become more digitalised. On the other hand, the increasingly wide geographical reach of the virtual realm allows coordination of activities irrespective of physical distance ever more easily. This will facilitate particularly relatively low-cost transnational mobilisation, such as non-violent street protests and demonstrations, across the globe.

Second, as digital surveillance tactics further improve and privacy and security concerns

(35) Kavanagh, C., 'Digital Technologies and Civil Conflicts: Insights for Peacemakers', *Brief No 4*, Conflict Series, EUISS, February 2021.

(36) *The Internet and Political Protest in Autocracies*, op.cit.

(37) *Freedom of the Net 2017: Manipulating Social Media to Undermine Democracy*, op.cit.

(38) 'How social media is changing conflict', op.cit.

grow, it is likely that anti-regime groups will switch planning, recruitment and coordination of activities increasingly to platforms and applications that are more secure, although this will not stop the cat and mouse game between these and the regimes in power⁽³⁹⁾. Meanwhile, social media platforms will increasingly become the central arenas for waging campaigns to win the hearts and minds of the general public and targeted audiences. The growing investment in and sophistication of manipulation techniques on social media means that competing images of reality will gradually infiltrate the digital sphere. This will likely polarise some while leading to increased passivity in others. There will be a growing risk of bot wars, i.e. armed escalatory cycles triggered by automated accounts or political bots spreading disinformation and malicious propaganda. Overall, with the scale, speed and variety of content in the digital sphere increasing, more uncertainty will (at least initially) follow on what type of content contributes to conflict escalation.

Third, and relatedly, the increasingly visual nature of the digital world – larger numbers of smartphones and internet connections facilitating bigger volumes of images and video-clips being circulated globally in real time – and the development of AI-based high-quality fake and manipulated moving images, i.e. deep fakes, can have conflict escalatory repercussions⁽⁴⁰⁾. Visual footage of violence by an alleged perpetrator can quickly induce reprisal attacks and visual representations of any abusive action or behaviour are bound to have a stronger psychological effect on most people than a simple textual post. In a very near future, it

As more and more aspects of our lives become digitalised, the more prominent cyberspace becomes as an arena for waging conflict.

will become impossible for mass audiences to distinguish between real and fake clips of politicians (or anyone else to that matter) giving speeches⁽⁴¹⁾. The escalatory potential of such fake messages in real time is obvious. Escalatory cycles may be hard to stop even when the catalyst is ultimately exposed to be a manipulated and/or false message, if support towards peaceful solutions has already decreased. The pandemic crisis has demonstrated the impact of conspiracy theories that are easily debunked but that still trigger real societal implications, including protests against 5G technology and the destruction of infrastructure supporting this⁽⁴²⁾. It is not hard to imagine how the dissemination of fake speeches by political leaders that appear to be genuine can equally and increasingly trigger unrest by making it ever more difficult for people to distinguish between what is real and what is not. As access to digital platforms is growing faster than critical education on assessing and evaluating the validity of the messages, this problem is growing more acute.

Fourth, as more material is shared and spread instantly on digital platforms, particularly in visual forms, and as the audiences grow, the more plausible it becomes that the content inspires action and imitations by individuals and local groups with superficial links to and little or no support from the actors that inspired them in the first place. The young Palestinian knife attackers in 2015-16 present an example of this, as the individual attackers mostly acted alone but were inspired by each other and by material they had seen online⁽⁴³⁾. The increase in so-called 'lone wolf attacks' by supporters

(39) See Alcorn, C. L., 'Here's What Tech ISIS Is Using to Spread Its Message', *Fortune*, 2016.

(40) 'War goes viral', op.cit.

(41) Polyakova, A. and Boyer, S., 'The future of political warfare: Russia, the West, and the coming age of global digital competition', *The New Geopolitics of Europe and Russia*, Brookings, 2018.

(42) Bruns, A., Harrington, S. and Hurcombe, E., 'Corona? 5G? or both? The dynamics of COVID-19/5G conspiracy theories on Facebook', *Media International Australia*, Vol. 177, No 1, November 2020, pp.12-29.

(43) Rudoren, J. 'Leaderless Palestinian Youth, Inspired by Social Media, Drive Rise in Violence in Israel', *The New York Times*, October 2015.

of ISIS in Europe and the United States over the last decade is indicative of this as well. While often proclaiming allegiance to the transnational jihadist organisation, the attackers rarely have any known connections to the organisation⁽⁴⁴⁾. Fifth, and finally, as the volume of actors and communication in the digital sphere grows, the more competition there will be both locally and globally over getting one's message heard. Thus far, the algorithms controlling what content pops up on our screens have favoured controversial and shocking messages as these get the most views/likes/comments/shares. As the competition for visibility escalates in the digital sphere, groups/individuals might opt to be more shocking and radical in order to maintain their momentum. This can have escalatory implications for inter-group and societal relations outside the digital world.

Cyberattacks as a means of waging conflict

Closely intertwined with the escalatory potential of expanding social media and other new digital information technologies is the phenomenon of offensive cyber operations or cyberattacks, defined as 'deliberate use of malicious software for exploiting or altering computer code, data or logic to cause harm'⁽⁴⁵⁾. As with the use of digital communication tools, cyberattacks present a considerable threat to conflict prevention particularly as catalysts of escalatory dynamics once conflict incompatibilities and cleavages have emerged. In the future, we are likely to see an increase in malicious cyber operations, deployed in tandem with disinformation campaigns, conducted by actors in whose interest it is to escalate a given situation. This will further complicate the

differentiation of 'real' (even if biased) and manipulated or deep fake information on these platforms and can therefore further aggravate the challenge of preventing escalatory dynamics in and outside the digital space⁽⁴⁶⁾.

Albeit closely intertwined, it makes sense to distinguish between the potential escalatory effects of ICT tools *per se* and cyberattacks. In the former category this extends beyond malicious software being deliberately deployed for harmful purposes and in the latter takes multiple forms besides targeting of social media platforms. As more and more aspects of our lives connect to the IoT and rely on digitalised systems, the more vulnerable our lives become to cyberattacks with grave societal implications and potentially a large number of civilian targets. To illustrate, thousands of national health service (NHS) appointments had to be cancelled in 2017 in the United Kingdom due to the consequences of a ransomware attack⁽⁴⁷⁾. In September 2020, UK ambulances were reported to remain vulnerable towards similar cyberattacks⁽⁴⁸⁾. Imagine the implications of similar attacks on healthcare systems in 2030 when big data and machine learning have enabled even more decisions and action in healthcare being taken by AI instead of by doctors in emergency units. As more and more aspects of our lives become digitalised across the globe, the more prominent cyberspace becomes as an arena for waging conflict, with an increasingly wide range of possible targets to hurt⁽⁴⁹⁾.

Thus far, cyberattacks have mainly featured in the minds and scholarly work of policymakers and researchers concerned about interstate conflicts and warfare. As the authors of a EUISS Brief point out, the emergence of cyberattacks as 'other means' to conduct politics (and war) has blurred the line between war and peace

(44) Archick, K. and Martin, R., 'Terrorism in Europe', Congressional Research Service, February 2021.

(45) Pawlak, P., Tikk, E. and Kerttunen, M., 'Cyber conflict uncoded: The EU and conflict prevention in cyberspace', Brief No 7, Conflict Series, EUISS, April 2020.

(46) 'The future of political warfare', op.cit.

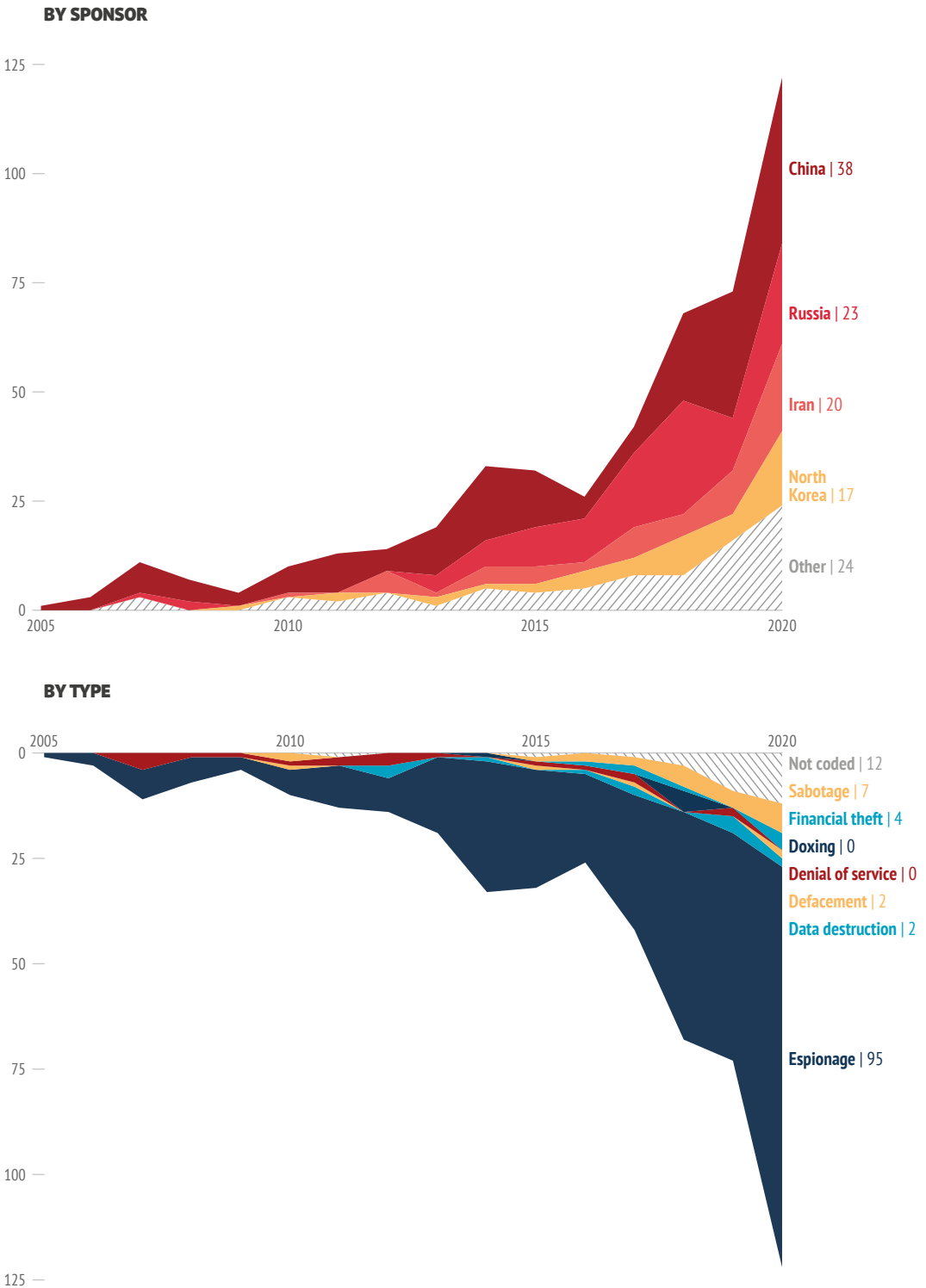
(47) BBC News, 'NHS 'could have prevented' WannaCry ransomware attack', 27 October 2017.

(48) Waterfield, P., 'Hundreds of UK ambulances rely on software vulnerable to cyberattack', *NewScientist*, 18 August 2020.

(49) Cohen, R.S. et al., *The future of warfare in 2030*, RAND Corporation, 2000.

Malicious cyber operations

Country sponsors and types of malicious cyber operations, 2005-2020



Data: Council on Foreign Relations, Cyber Operations Tracker, 2021

between states and transformed the ways in which states defend themselves against potentially hostile actors and the ways in which these states themselves pre-empt or respond to hostilities⁽⁵⁰⁾. Such is the extent of the political and economic importance attached to ‘cyber warfare’ that politicians talk about being ‘at war every day’ and analysts are concerned about the militarisation of cyberspace between states⁽⁵¹⁾. Data supports and likely further drives the increasing use of offensive cyber operations between states: while the number of operations grew considerably between 2005 and 2016, it is particularly in the last few years that there has been a sharp increase in the number of malicious operations, indicating a strong upward trend. As it is, espionage operations are the overwhelmingly biggest category of types of offensive cyber operations, but it is noteworthy that the past few years have also seen diversification of the types of cyberattacks, ranging from sabotage (using malware to disrupt a physical process) to data destruction, denial of access, and doxing (searching and publishing private information about an individual or a group)⁽⁵²⁾.

Considered in isolation, the increase in cyberattacks may not at first glance appear that worrying from a conflict prevention perspective. In fact, one might ask whether it is surely not better that states wage war – if and when they need to – in cyberspace rather than on actual battlefields. The direct casualties of a cyberattack are generally lower than that of a kinetic attack, and offensive cyber operations can alert peacemakers to act preventively before further damage is inflicted. Furthermore, the increasing sophistication of cyber-espionage can actually help states (and political actors more broadly) to estimate each other’s capacities

better, thus reducing the information dilemma, i.e. mutual deficit of information on the other’s resolve, thereby lowering the need for conflict escalation⁽⁵³⁾.

However, there are three factors that make the increase in cyberattacks bad news for peace. Firstly, excluding attacks by purely profit-seeking, independent actors outside a political contest situation, cyberattacks rarely take place in the absence of existing political tensions, a conflict escalatory process, or an active armed conflict⁽⁵⁴⁾. Thus, they should be analysed as means alongside other means to wage conflict, often adding stress in a strategic environment where more conventional conflict tools are also being used (or where there is a threat of their being used). Secondly, and relatedly, the relatively low costs of deploying offensive cyber tools lowers the threshold for different states (and other actors) to deploy them relatively nonchalantly and as a substitute for diplomatic efforts, which can escalate rather than de-escalate a high-tension situation⁽⁵⁵⁾. Third, the low direct impacts of cyberattacks may well change as the digitalisation of our lives evolves. Even if the direct impacts of cyberattacks remain less deadly than those of kinetic attacks, cyberattacks can have devastating indirect impacts on economic development, livelihoods and lives. An attack on critical sectors such as healthcare, water or energy can quickly paralyse a state and will lead to considerable human suffering if not resolved. This can lead to domestic support for a retaliation by either cyber or conventional means. The difficulty in tracing and identifying the perpetrators(s) of many cyberattacks can further lower the threshold to commit attacks, while the difficulties in foreseeing the unintended consequences and collateral damage of a cyberattack increase

(50) ‘Cyber conflict uncoded’, op.cit.

(51) Groll, E., ‘The U.S.-Iran Standoff Is Militarizing Cyberspace’, *Foreign Policy*, 27 September 2019.

(52) ‘Cyber conflict uncoded’, op.cit.

(53) On the information dilemma in conflict, see Reed, W., ‘Information, Power, and War’, in Trapp, R. (ed.), *Programming for Peace. Advances in Group Decision and Negotiation*, Vol. 2, Springer, Dordrecht, 2006 (https://doi.org/10.1007/1-4020-4390-2_13).

(54) ‘Cyber conflict uncoded’, op.cit.

(55) *The future of warfare in 2030*, op.cit.

their potency⁽⁵⁶⁾. Moreover, a cyberattack that stems from interstate conflict (or tensions) can destabilise or escalate intrastate relations within a state. Russia's cyber operations in Western countries – especially in the United States – appear to have had the aim of interfering in the country's internal affairs and therefore weakening its international standing⁽⁵⁷⁾.

This brings us to the use of offensive cyber operations in the realm of intrastate peace and conflict dynamics. Launching cyberattacks is increasingly available as a means of conducting warfare not only to powerful states with cyber armies but to any actor with the skills and/or resources to hire capable actors to carry out such activities. The relatively low cost of cyberattacks can indeed make them attractive options for non-state actors in an asymmetric conflict situation. Moreover, particularly in countries with weak bureaucratic and administrative capacities to protect key institutions and infrastructure from offensive cyber operations, increasing digitalisation presents growing opportunities to both non-state and (foreign) state actors.

The Ukraine conflict and the use of cyberattacks against all sides involved in the confrontation provides an example. While the largely non-violent anti-regime movement in Ukraine was gaining momentum on the streets and later as Russia annexed the Crimean Peninsula after the fall of the pro-Russian regime in Kyiv, Distributed Denials of Service (DDoS) were spiking in the digital world.⁽⁵⁸⁾ These attacks, which shut down a website or impede users' access to digital services, are notoriously cheap to launch. An attack can cost as little as \$10 per hour, while severely harming the victim's

operations online and putting a significant financial burden on the victim to resolve the situation⁽⁵⁹⁾. This presents a lucrative opportunity to actors – even without any political gains or interests in a conflict – to partake in attacking different actors involved and then blackmailing these with the promise to halt the attack in return for the payment of a ransom⁽⁶⁰⁾. This arguably adds opportunistic behaviour as an ingredient in a conflict situation, which can have major consequences for the political actors' capacities and willingness to escalate versus de-escalate a situation.

For now the bulk of the cyberattacks taking place in the context of a country's internal conflict (or escalatory process) target different conflict parties' or their affiliates' information and communication channels. A government, for example, might choose to apply DDoS or even block access to the internet to undermine mobilisation efforts. Similarly, non-state groups might hack government-owned platforms to disrupt their operations and/or hijack them for intelligence or propaganda purposes. Such cyberattacks were present already in the Kosovo conflict in the late 1990s when anti-war and anti-occupation hactivists used tactics including defacing their opponents' websites and threats to conduct cyberattacks against their opponents⁽⁶¹⁾. Notably, while disruptive of efforts to build trust between conflict parties, there is still little evidence (or empirical research into) whether offensive cyber operations occurring in the context of conventional armed conflict actually systematically affect the conflict intensity levels outside the cyber realm. Empirical evidence from both Ukraine and Syria suggests that cyber operations tend to take place as a reaction and/or alongside

(56) Johan Sigholm, 'Non-state actors in cyberspace operations', *Journal of Military Studies*, Vol. 4, No 1, 2016.

(57) Marovic, J., 'Wars of Ideas: Hybrid Warfare, Political Interference, and Disinformation', *New Perspectives on shared security: NATO's next 70 years*, Carnegie Europe, 2019.

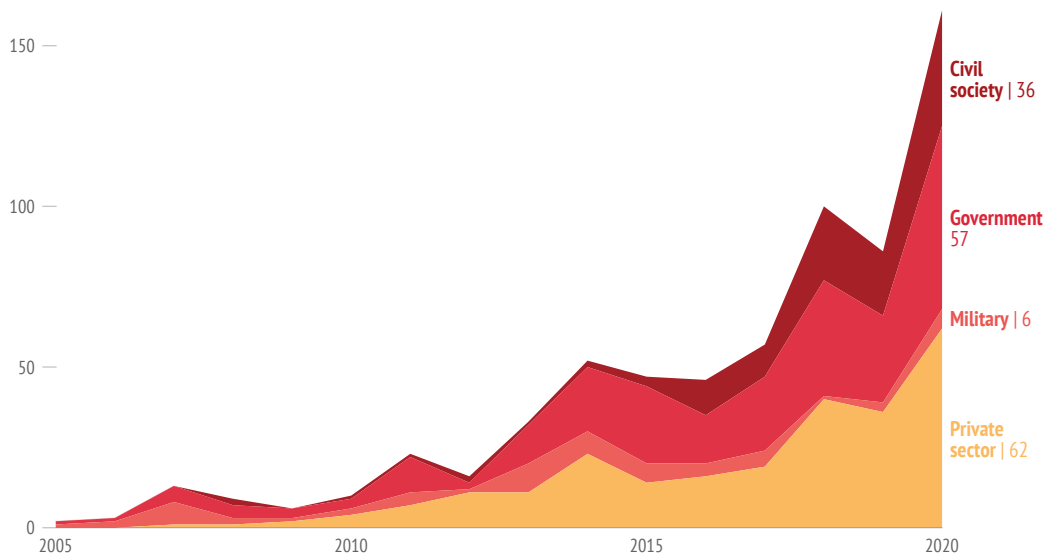
(58) Kenner, D., 'The invisible digital war', *Foreign Policy*, 15 July 2015 (<https://foreignpolicy.com/2015/07/09/the-invisible-digital-war-cyberattacks-ddox-google-project-shield/>).

(59) 'The Dark Web: DDos Attacks Sell for as Low as \$10 per hour: Cyber economy continues to surge', *Mission Critical*, August 2020.

(60) Kenner, D., 'The invisible digital war', op.cit.

(61) Gazula, M., 'Cyber Warfare Conflict Analysis and Case Studies', Working Paper, CISL, 2017.

Expanding range of victims of malicious cyber operations



Data: Council on Foreign Relations, Cyber Operations Tracker, 2021

kinetic operations and do not significantly intensify violence levels on their own ⁽⁶²⁾. However, as cyberattacks become more extensive with regard to the number of victims affected, methods used and actors involved, their impact on armed conflict intensification can also increase. This applies both to state-affiliated actors and non-state groups or hacker groups affiliated with non-state actors.

Expanding range of victims and perpetrators

Indeed, two interrelated trends will challenge conflict prevention in both intrastate and interstate contexts in the coming decade. First, the potential number of victims of cyberattacks will expand as more people and organisations become connected to the digital sphere. This means that conflict parties and/or their affiliates can hurt their opponents and/or their supporters on a wider scale.

By 2030, the overwhelming majority of people in conflict-affected or fragile areas will be connected to the internet and some key aspects of their economic and everyday needs and activities will be digitalised. Both kinetic warfare and the civilian infrastructure of states, non-state groups, and civil society organisations will be increasingly dependent on the digital world ⁽⁶³⁾. Therefore, rather than targeting attacks solely against communication channels and social media platforms or the opponents' key military or industrial infrastructures, offensive cyber operations can be launched against any aspect of the opponents' or targeted victims' life. Cyberattacks on public transport, or food and water systems, can quickly paralyse societies and cause considerable economic and human losses. Increasingly, such attacks will be available to non-state affiliated groups as well, particularly resource-rich rebel organisations or transnational violent organisations and/or criminal networks ⁽⁶⁴⁾. In addition to the growing possibilities to conduct large-scale and societally

(62) Kostyuk, N. and Zhukov Y.M., 'Invisible Digital Front: Can Cyber Attacks Shape Battlefield Events?', *Journal of Conflict Resolution*, Vol. 63, No 2, 2019, pp.317-347.

(63) See Allenby, B., 'What Is "Military Artificial Intelligence"?' *Slate*, 2 December 2016; 'How social media is changing conflict', op.cit.

(64) 'Non-state actors in cyberspace operations', op.cit.

paralysing attacks, there will be more opportunities for small-scale and low-cost attacks that target individuals and/or heighten general distrust or insecurity in a society. Cyberattacks against political leaders, journalists or activists can in the future present more frequent and serious threats to these individuals both in terms of their privacy but also increasingly in terms of their health and their personal security. Overall, as more people, businesses, and institutions become digitalised, the more damage – both intended and collateral – cyberattacks can wreak.

As the range of potential victims of cyberattacks grows and launching relatively low-cost cyberattacks becomes more accessible to a wider array of actors, uncertainty over conflict processes in the digital realm increases. This presents considerable challenges for conflict preventors and peacebuilders who will have more possible targets and victims to consider when assessing the next possible escalatory steps. Furthermore, there will be more noise in the cyber realm during a vulnerable situation, making it more difficult to determine what actually constitutes or will provoke significant conflict escalation.

More and new actors will also be able to take part in conflict processes thanks to the proliferation of the digital sphere as a platform and means of waging conflict ⁽⁶⁵⁾. Taking part in a conflict in the cyber realm requires a considerably different skillset and resources than taking part in on-the-ground operations or street power movements. Groups and individuals with skills to launch cyberattacks will be of increasing value to conflict parties but also increasingly available to participate in conflict processes independently or without strong connections to the main conflict parties. Some hackers and cyber teams might become comparable to pro-government militias or rebel-affiliated self-defence groups that are deployed by the main conflict parties but

also retain independent capacity to act. Others might take part independently but in support of one or several of the conflict parties or even be among the main conflict parties but wage the conflict solely in the digital sphere. Still others might launch cyberattacks during a situation that is liable to escalate into a conflict for financial gain ⁽⁶⁶⁾. Opportunism is bound to grow as the number of possible actors involved in the potentially escalating conflict increases.

Moreover, the geographical dimension of space in conflicts will further fragment, as actors can be located anywhere on the planet while contributing to extremely localised conflict processes on the other side of the world in the digital sphere. Governments can hire the best cyber-militias irrespective of their geographical location or receive support from an external power in the form of cyberattack expertise or cyber-weaponry (malware, hacktivists) – and so can their opponents (although resource imbalance will remain a significant component in this context).

These developments present practical challenges to conflict prevention efforts. First, the number of potential spoilers of preventive diplomacy and negotiated settlements is growing. Peace spoilers will not only include rebel factions and international allies that continue to arm in the midst of efforts to negotiate, but also cyber-mercenaries and cyber-militias, hacktivists, and cyber-patriots, who either independently or in cooperation with more conventional conflict parties continue to deploy offensive tactics that undermine peace. With the IoT connecting more devices, people and systems, once launched cyberattacks can get out of hand in terms of their consequences, thus triggering negative political repercussions for de-escalation efforts. ⁽⁶⁷⁾ Cyber-espionage and doxing operations are also likely to increasingly pose practical challenges to political negotiations and attempts to maintain or build peace, as they can reveal sensitive information

(65) 'Digital Technologies and Civil Conflicts: Insights for Peacemakers', op.cit.

(66) See 'The invisible digital war', op.cit.; 'Non-state actors in cyberspace operations', op.cit.

(67) 'Non-state actors in cyberspace operations', op.cit.

and/or confidential aspects of the negotiations, thereby undermining negotiation processes. Second, with cyberattacks, efforts to conceal the identity of the attacker are considerably more feasible than with kinetic warfare⁽⁶⁸⁾. This lowers the threshold for spoiling behavior and can erode trust between conflict parties, as it is notoriously difficult to attribute responsibility for specific cyberattacks. The participation of more actors (in the cyber realm), with varying motivations and relations to the main conflict parties also presents concrete challenges to conflict-prevention efforts with regard to who should be involved and how in specific stages of conflict prevention or peacebuilding processes.

As both state and non-state actors increasingly resort to cyberattacks to wage conflict, and as such operations vary in intensity and severity, ranging from seemingly harmless and low-impact attacks on a personal website to large-scale attacks on critical infrastructure that clearly constitute cyber warfare, the question of when and how preventive action should aim at preventing the cyber-attacks themselves and/or their potential escalation into more conventional political violence becomes ever more important⁽⁶⁹⁾. Low-scale cyberattacks, as argued here, can be indicative of a broader escalatory trend and contribute to this by exacerbating distrust between conflict parties and possibly leading to an escalatory cycle of retaliatory attacks. They should therefore be of concern to prevention actors and be integrated into early warning frameworks. However, as cyberattacks become deadlier, investments are needed to prevent cyberattacks from taking place in the first place.

Digitalisation of the physical and kinetic realms

While cyberspace acquires more prominence as an arena for waging conflict, kinetic warfare will not disappear or lose its significance by 2030. However, it will become increasingly penetrated by digitalisation and merged with the cyber realm, with implications for who controls and participates in armed conflict, what methods and weaponry are available to which actors, and the speed, precision and threshold for launching attacks.

In parallel to the increasing frequency of offensive cyber operations, the technological development of kinetic warfare and particularly the automatisisation of weapon systems is transforming the outlook for defensive and offensive tools in the international arena⁽⁷⁰⁾. Indeed, the simultaneous inter-governmental discussions on the regulation of lethal autonomous weapons systems (LAWS) and the continuing investments of great powers in such technology and capacities both manifests and further drives the resurgence of great power competition. While we are yet to see whether and to what extent an arms race over LAWS will take place, the rhetoric employed by the great powers highlights the importance of AI in imposing and deploying international power in the future. Both the US and China are investing in AI and automatisisation in defence, while Russia is investing particularly in the potential of AI in hybrid warfare⁽⁷¹⁾. As the European Commission's Ethics Guidelines for Trustworthy AI also underline⁽⁷²⁾, the EU and its member states generally promote preventive regulation and prioritise the maintenance of human control over weapon systems using AI, while simultaneously recognising

(68) Ibid.

(69) 'Cyber conflict uncoded', op.cit.

(70) 'What Is "Military Artificial Intelligence"?', op.cit.

(71) Laird, B., 'The Risks of Autonomous Weapons Systems for Crisis Stability and Conflict Escalation in Future U.S.-Russia Confrontations', Commentary, RAND Corporation, June 2020; Polyakova, A. and Boyer, S.P., 'The future of political warfare: Russia, the West, and the coming age of global digital competition', Brookings, March 2018.

(72) European Commission, High Level Expert Group on Artificial Intelligence, *Ethics Guidelines for Trustworthy AI*, 2019.

the importance of mastering the digitalisation of defence ⁽⁷³⁾.

Artificial Intelligence

The European Commission defines Artificial Intelligence (AI) as: ‘systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals’. Core elements of AI systems include ability to receive and perceive input (involving some type of sensors), reasoning and interpreting the input (deploying reasoning and machine learning techniques), and ability to take rational decisions and action on this basis ⁽⁷⁴⁾.

There are different views on the implications of the automatisisation of weaponry for international stability, peace and deterrence. A potential advantage is that increasing autonomy of weapon systems could help to save lives, as soldiers are removed from the battlefields and smart weapons hit their carefully chosen targets without collateral damage ⁽⁷⁵⁾. In theory, this could help defuse the potentially volatile repercussions of armed clashes or confrontations. Some recent examples of interstate encounters where a drone belonging to a state has been shot down by another state party suggest that states do not feel pressured to retaliate as strongly in the case of an AI device being destroyed as they do in the case of a crewed plane

being shot down ⁽⁷⁶⁾. One could also argue that the development of autonomous defence systems can strengthen deterrence as states (and other actors) are aware of each other’s red lines, and thus the threat of automatic and swift retaliation is more credible ⁽⁷⁷⁾. Relatedly, the precision and effectiveness of autonomous systems is expected to be high, and thus launching an attack against a party with more advanced LAWS could be considered counter-productive and dangerous. Finally, some foresight exercises suggest that with LAWS the inherent possibility of blaming a malfunctioning system can help to de-escalate a high-tension situation in the wake of an initial offensive step ⁽⁷⁸⁾.

Yet, there are convincing counter-arguments implying increased destabilisation and faster escalatory dynamics that spin more easily out of control due to increased autonomy. Precisely because the risk for one’s own soldiers and human resources diminishes, the threshold for engaging in offensive punitive action and/or limited strikes is lowered. It follows that conducting an AWS-based attack can become a state’s way of sending signals and advancing its position in burdensome and time-costly negotiations. However, even when limited and/or precisely targeted, such attacks and interactions of autonomous or semi-autonomous weapons can lead to escalatory dynamics and undermining of diplomatic engagement. In short, if intervention can be achieved without a high estimated risk for one’s own side, an actor might opt for this course of action earlier than otherwise ⁽⁷⁹⁾. The adversary’s knowledge of this, at the same time, can induce pre-emptive strikes, and thus the risk of first strikes being launched earlier increases. While

(73) European Parliament, Resolution of 12 September 2018 on autonomous weapon systems, 2019/C 433/10; Dahlman, A. and Dickow, M., ‘Preventive regulation of autonomous weapon systems: need for action by Germany at various levels’, German Institute for International and Security Affairs, March 2019; ‘Digitalising Defence: Protecting Europe in the age of quantum computer and the cloud’, op.cit..

(74) High-Level Expert Group on Artificial Intelligence, *A Definition of AI: Main Capabilities and Disciplines*, European Commission, 2019.

(75) Leys, N., ‘Autonomous Weapon Systems and International Crisis’, *Strategic Studies Quarterly*, Vol. 12, No 1, 2019, pp.48-73.

(76) Ibid.

(77) Horowitz, M., ‘When speed kills: lethal autonomous weapon systems, deterrence and stability’, *Journal of Strategic Studies*, Vol. 42, No 6, August 2019, pp.764-788.

(78) ‘Autonomous Weapon Systems and International Crisis’, op.cit.

(79) Ibid.

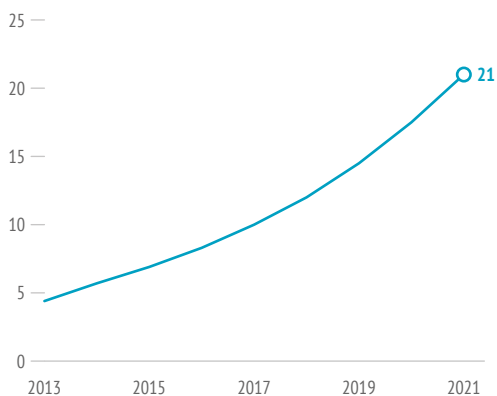
such strikes do not necessarily lead to escalatory cycles (particularly if they are limited in their scale, which they might not be if the danger of a decisive first attack is high), their escalatory impact is worth considering especially in combination with two other aspects.

First, as is widely known, the more complicated a system is the more vulnerable it is to errors. The implications of this range from cyberattacks on weapons systems to the inability of AI to correctly distinguish between civilians and combatants or between de-escalatory signals and tactical weaknesses of the opponent in a crisis situation. Such incidents can lead to escalatory processes even if they boil down to system malfunctioning. This threat is exacerbated with the increased speed of tactical and operational decision-making and therefore swifter reactions and counter-reactions due to AI being increasingly involved in decision-making⁽⁸⁰⁾. Machine-time decision-making itself drives automatised warfare as trying to keep humans in the loop of operational decisions risks too slow reactions and decision-making in the face of one's enemy. Yet, this acceleration of decision-making based on AI and machine learning also means faster escalatory processes. From a conflict prevention point of view, this has the consequence of narrowing the time window for operational prevention in the face of an immediate crisis. Secondly, the argument of increased deterrence through more reliable signalling rests on the assumption that the conflict parties know and trust each other enough regarding their autonomous defence systems. In a high-tension situation trust tends to be low and it can become hard for the parties to credibly communicate their automated red lines⁽⁸¹⁾.

Commentators believe that these aspects – particularly the vulnerabilities to errors and the risk of escalatory processes spiralling out of control (or at least out of human control)

Growing 3D printing markets

Forecast of 3D printing markets worldwide, 2013-2021 (in billion US dollars)



Data: CBRE, UPS, Consumer Technology Association, Citi Research, 2017

– will ultimately lead to restraint and caution among states in developing and using LAWS⁽⁸²⁾. Therefore, we may very well not witness autonomous weapon systems in active use by the end of the decade. However, fully autonomous weapons and killer robots aside, digitalisation of the physical world and kinetic tools will further shape conflict dynamics. For example, the threshold for active conflict engagements decreases even when the weaponry involves humans making decisions, as these humans are increasingly removed from the battlefield. Moreover, technological developments such as additive manufacturing, commonly known as 3D-printing, and facial recognition as well as gait analysis can have considerable implications for both international security and countries' internal conflict dynamics.

It is feared that 3D-printing will give further opportunities especially to non-state malicious actors, ranging from armed groups to so-called lone-wolf attackers or terrorist networks, who can use additive manufacturing to get access to devices used as weaponry without leaving

(80) See 'When speed kills: lethal, autonomous weapon systems, deterrence, and stability', op.cit.

(81) Ibid.

(82) Ibid.

as many traces as when buying these⁽⁸³⁾. While small arms (e.g. guns) are readily available and rather easy to obtain without 3D-printing, there are certain contexts in which it is hard for a non-state actor to acquire the means it needs to launch attacks⁽⁸⁴⁾. Additive manufacturing, particularly if evolving into duplicating the printers themselves, will significantly disrupt authorities' efforts to track down and thwart the plans of malicious groups, as the latter can produce the necessary devices on their own given a printer, electricity, and digital designs⁽⁸⁵⁾. In the future this technology can enable more lone-wolf attacks in new environments and the targeting of an even wider geographical area, as perpetrators without enabling networks and support can – simply put – print their weapons even on the spot. Overall, ethical concerns related to the potentially detrimental consequences of these new types of weaponry and the risk of collateral damage and rapid escalation will likely restrain violent extremist organisations or authoritarian regimes less than they do others, with implications for peace and security⁽⁸⁶⁾.

The merging of cyber and physical attacks manifests itself particularly clearly in the sabotage of 3D-printers and other additive manufacturing tools, which can lead to devastating catastrophes in the physical world. As more and more goods are produced through 3D-printing, the more vulnerable the manufacturing processes become to cyber sabotage of the digital designs that make the products. In short, an attack may be carried out by covertly manipulating the code determining the printing process of a core part in a plane, car, building, etc., rather than launching an attack against these⁽⁸⁷⁾. Similarly, the development of facial

recognition technology or for instance gait analysis blurs the lines between cyber surveillance and using AI to identify and target objects (that can be individuals or groups of people)⁽⁸⁸⁾. Such tools will be dangerous for instance in the hands of authoritarian regimes trying to suppress dissent, as they provide means to identify and target people in the physical world in addition to the fast-expanding digital realm.

From a conflict perspective, all the above developments present dangers particularly due to their potential to speed up conflict-escalatory processes and facilitate violent attacks by both state and non-state actors alike. Moreover, the increasing usage of technologies such as 3D-printing can further undermine states' monopoly over the use of force, as different types of non-state actors can more easily attain devices used as weaponry. It is important to reiterate that these effects are conditional and indirect; the developing digital tools do not need to be used for conflict-escalatory processes, but they will give opportunities to malicious actors who wish to do so. Moreover, the transformation of our societies and economic relations due to digitalisation can also have more long-term conflict-inducing repercussions through the transformative effects that technological advancements, such as 3D-printing and the increasing integration of AI in our lives, have on production chains and workforce needs⁽⁸⁹⁾. The risk of growing unemployment in certain fields, as a direct result of technological advancements, can exacerbate political grievances and societal segregation. In the international arena, 3D-printing may in the future significantly disrupt global economic ties as states can manufacture the goods they need at home with reduced labour costs.

(83) 'Additive manufacturing in 2040', op.cit.

(84) Haberl, F. and Huemel, F., 'The terrorist/jihadist use of 3D technologies: Operational realities, technical capabilities, intentions and the risk of psychological operations', 14th ICCWS 2019 International Conference on Cyberwarfare and Security, 2019.

(85) 'Additive manufacturing in 2040', op.cit.

(86) See *The future of warfare in 2030*, op.cit.

(87) 'Additive manufacturing in 2040', op.cit.

(88) Adam, D., 'The way you walk may soon be used by authorities to identify you', *NewScientist*, 16 September 2020.

(89) Schwab, K., 'The fourth industrial revolution: what it means, how to respond', World Economic Forum, January 2016 (<https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>).

This also means that the effectiveness of tools such as sanctions and export controls may begin to wane as regimes can curtail their impacts through additive manufacturing⁽⁹⁰⁾.

Key messages

- > Evolving digitalisation enables faster conflict escalatory processes and expands the range of both potential victims and perpetrators of malicious attacks.
- > Social (media) platforms will become increasingly prominent as battlefields for making sense of conflict situations and waging power competitions; deep fakes may instigate escalation and spoil peace processes even when quickly debunked; exposure to radical online content will have a polarising effect, while saturation of the online space with political messaging may induce disengagement among more moderate users.
- > Cyberattacks will have increasingly severe and direct human security consequences; cyberattacks committed by insurgent groups and other non-state actors are likely to grow in frequency and severity; unintended and growing societal implications of cyberattacks can catalyse conflict escalation.
- > Automatisation may lower the threshold for first attacks; additive manufacturing can give malicious groups access to new means of conducting conflicts; civilians may become more vulnerable to surveillance and repression as both state and non-state actors increasingly resort to the use of AI surveillance technology.

(90) 'Additive manufacturing in 2040', op.cit.

FRAGMENTATION OF AUTHORITY AND CONFLICT

POWER FORECAST: WHAT WILL THE WORLD LOOK LIKE IN 2030?

In the world of 2030, the power structures and authorities that drive digitalisation and shape the way global challenges, such as climate change, are tackled, will look different than in the decade before. Both at the level of the international order as well as within states power and authority will have further fragmented.

High-impact uncertain trend

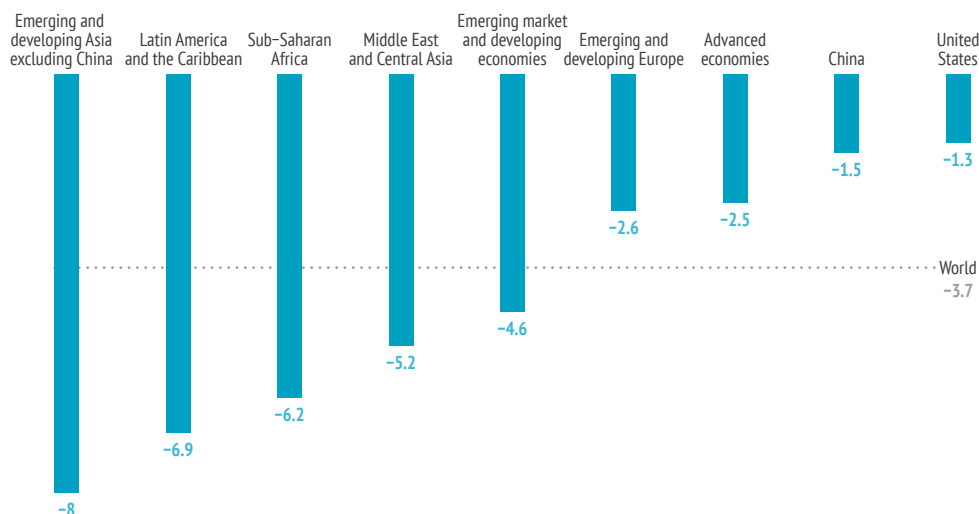
In comparison to both climate change and digital technologies, fragmentation of authority is a trend that involves more uncertainty in terms of its materialisation and is more dependent on other factors and phenomena. It is therefore described here as a high-impact uncertain trend.

The international order will have moved further away from a hegemony-based system towards a more fragmented system, adjusting to multiple power hubs. Systemic-level rules, norms and values will be increasingly consensus-based and characterised by particularism and regionalism rather than universalism ⁽¹⁾. Global power competition has accelerated between the United States and China, with the latter having caught up with the former hegemon on different measurements of relative power ⁽²⁾. Overall, economic power competition favours the Asian powers and no European states will rank in the top four of the biggest national economies ⁽³⁾. The extent to which the relations between the United States and China are cooperative rather than competitive depends – among other things – on the internal stability and cohesion of the two powers, as this influences the partnerships and relations they have with other global and regional actors ⁽⁴⁾. Indeed, while the increased parity between these two global powers has a profound influence on the global environment and significant repercussions for the other geopolitical players in the international arena, the resulting order is not a clearly bipolar one. The EU and key European states strive to project global power as does Russia, with other states such as

- (1) Butler, S., 'Visions of world order: multipolarity and the global "constitutional" framework', Conference Paper Series, No 1, European Society of International Law, 2018; Burke-White, W., 'Power shifts in international law: structural realignment and substantive pluralism', *Harvard International Law Journal*, 2015, Vol. 56, No 1, 2015.
- (2) Brannen, S., 'Four Scenarios for Geopolitical Order in 2025–2030: What Will Great Power Competition Look Like?', Commentary, Center for Strategic and International Studies, 16 September 2020 (<https://www.csis.org/analysis/four-scenarios-geopolitical-order-2025-2030-what-will-great-power-competition-look>.)
- (3) National Intelligence Council, *Global Trends 2030: Alternative Worlds*, 2012.
- (4) 'Four Scenarios for Geopolitical Order in 2025–2030', op.cit.

How will the world recover from the pandemic?

World Economic Outlook (WEO) forecast of GDP losses by regions in 2022 relative to pre-pandemic time, %



Data: International Monetary Fund, *World Economic Outlook*, 2021

India, Turkey, Brazil, and South Africa project significant power as well ⁽⁵⁾.

Fragmentation is not confined to the interstate level, as authority and governance have further fragmented within countries as the nature of power has continued to transform. Thanks to increased connectivity and the democratisation of communication and production, power lies less and less exclusively in the hands of sovereign states and more within the scope of any actor capable of connecting other local and global actors and influencing people's behaviour. In essence, power lies increasingly within (digital) networks and nodes connecting/sustaining them ⁽⁶⁾. Transnational non-state actors and movements will exercise growing power as will private sector actors involved in the everyday governance of digitalised societies. Relatedly, the combination of urbanisation

and connectivity has increased the role of cities, particularly but not exclusively megacities, which have a major influence in global affairs beyond their geographic and national context ⁽⁷⁾. Overall, power has decentralised within and between states, with networks of state- and non-state actors projecting various forms of power with implications for local and global governance. The world has become *polynodal* ⁽⁸⁾.

Within this polynodal world, global cooperation will likely be even more issue-based. The larger number of actors adds complexity to the system, with universal solutions being harder to find. Instead, coalition-building and consensus-seeking among like-minded actors will be essential for cooperation on global issues, and regional processes will become ever more important ⁽⁹⁾. Regions, however, are to become less constrained by geography. While

(5) *Global Trends 2030: Alternative Worlds*, op.cit.

(6) *Global trends to 2030: Challenges and choices for Europe*, op.cit.; *Global Trends 2030: Alternative Worlds*, op.cit.

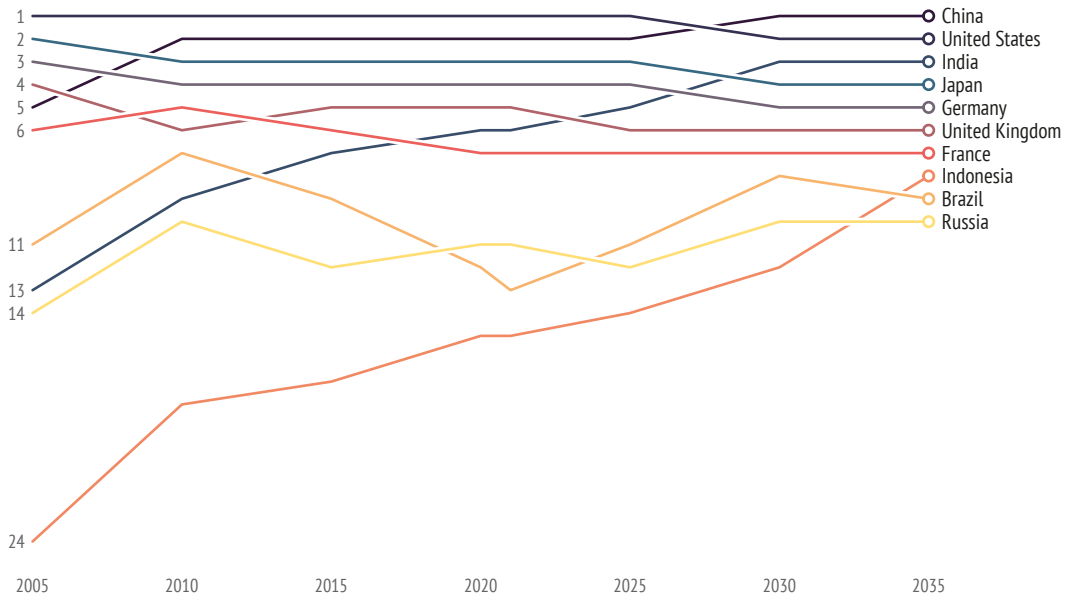
(7) OECD/European Commission, *Cities in the World: A New Perspective on Urbanisation*, OECD Urban Studies, OECD Publishing, Paris, 2020.

(8) ESPAS, *Citizens in an interconnected and polycentric world: Global trends 2030*, EUISS, Paris, 2012; *Global trends to 2030: Challenges and choices for Europe*, op.cit.

(9) 'Visions of world order: multipolarity and the global "constitutional" framework', op.cit.; Cont, S., 'Geopolitical shifts and the post-COVID world: Europe and the multipolar system', Istituto Affari Internazionali, June 2020.

China to overtake the United States as the biggest economy

World Economic League Table's projections of biggest economies in 2035



Data: Center for Economics and Business Research, World Economic League Table (WELT) 2035, 2020.

multilateralism is challenged by the absence of a clear hegemon and intensified competition between global powers, multilateral forums are increasingly needed to discuss and agree upon global issues, precisely because of the increased number and type of relevant actors⁽¹⁰⁾. The usefulness and relevance of multilateral forums depend on how they manage to adapt to the changed international order and its plural nature. The Covid-19 pandemic and the gradual recovery from it in the early 2020s has been illustrative in this regard: the absence of a clear global leader facilitated and further highlighted nationalist competition for vaccine development, which undermined human security at the expense of geopolitical competition. On the other hand, global forums were not irrelevant, and the crisis underlined the importance of multilateral cooperation⁽¹¹⁾.

The association of a multipolar world with greater instability and particularly the expectation of increased geopolitical competition within and between regional hubs are easily connected to rising fears of interstate tensions and even war⁽¹²⁾. Certainly, moving from a hegemonic order to one characterised by multiple hubs of power eager to project global influence, and with different interests and priorities, makes agreement and cooperation more complex endeavours. Lack of clarity over the relative power of different state- and non-state actors can also increase the threat of miscalculations and escalatory tit-for-tat processes.

However, it would be wrong to assume – yet again – that this megatrend automatically or directly causes conflict or contributes to such processes. A polynodal world does not necessarily mean more instability – indeed some of

(10) *Global trends to 2030: Challenges and choices for Europe*, op.cit.

(11) Milne R., and Crow, D., 'Why vaccine "nationalism" could slow coronavirus fight', *Financial Times*, 14 May 2020 (<https://www.ft.com/content/6d542894-6483-446c-87b0-96c65e89bb2c>).

(12) 'Four Scenarios for Geopolitical Order in 2025–2030', op.cit.; *Global Trends 2030: Alternative Worlds*, op.cit.

the classical theorists would argue the contrary ⁽¹³⁾. The polynodal system of 2030 will not be a repetition of the multipolar world of the early 20th century but a novel system in which the power of people to connect across space in real-time will be unprecedented. This is something that the main geopolitical players and state actors in general will also have to consider.

Finally, the way this trend evolves is particularly dependent on other trends as well as on so-called gamechangers. For example, a sudden dramatic change in the relative strength of the United States or China – through the unlikely but conceivable onset of internal instability and major escalatory dynamics – would not stop the trend or change its direction but could accelerate it or otherwise shape it. Conversely, a reconsolidation of the United States' more pro-multilateral strategy could considerably enhance the relevance of liberal multilateralism even in a polynodal world. This is to say that the scale and acceleration of the trend and its first-order effects on bilateral partnerships, alliances, and multilateral institutions depend on many other key trends and the strategic decisions of the main players. This adds uncertainty regarding forecasts but also gives peace-promoting actors the possibility to not only prepare for the upcoming trend but also influence how it manifests itself and affects the key norms and institutions safeguarding peace.

HOW FRAGMENTATION ADDS COMPLEXITY TO CONFLICTS

There are two primary ways in which fragmentation of authority challenges peace and can contribute to conflict escalation within the coming decade. First, the diffusion of power risks further increasing the number of veto players and spoilers in armed conflicts ⁽¹⁴⁾. Rather than necessarily being a decisive force behind conflict escalation in the first place, the threat here is the prolongation, expansion and proliferation of an existing conflict and making it difficult to sustainably resolve it. Second, and relatedly, fragmentation of authority at the international level can contribute to further internationalisation of initially restricted local conflicts. At worst, this can lead to escalatory dynamics that ultimately end up in confrontation between regional or even global powers.

Both effects are particularly visible once a conflict – often initially a country's internal conflict – has emerged and the political and strategic *status quo* of a particular context has changed. The impact of the third megatrend is thus especially pertinent in a later stage of a conflict where prevention efforts are needed to impede further intensification, expansion and spillovers. The outbreak of an intrastate conflict or major political instability gives both opportunities and possible motivation for state and non-state actors to interfere in a situation even if it does not initially involve them. Increased intervention by new supportive actors or new conflict parties makes the conflict system more complex and increases the odds of the conflict expanding to involve even further actors and interests. All this takes place in an international

(13) *Global trends to 2030: Challenges and choices for Europe*, op.cit.

(14) On spoilers, see Stedman, S.J., 'Spoiler problems in peace processes', *International Security*, Vol. 22, No 2, 1997, pp. 5–53; Nilsson, D. and Söderberg Kovacs, M., 'Revisiting an elusive concept: A review of the debate on spoilers in peace processes', *International Studies Review*, Vol. 13, No. 4, 2011, pp. 6060–626; Steinert, C., Steinert, J., and Carey, S., 'Spoilers of peace: Pro-government militias as risk factors for conflict recurrence', *Journal of Peace Research*, Vol. 56, No 2, 2019, pp. 249–263.

system where the multilateral coordination and cooperation necessary to support peace-building and prevention efforts risk becoming more complicated endeavours. At worst, the situation becomes one as described by William Zartman in his analysis of the implications of the fragmenting international order for peace and conflict: 'Fires are breaking out and the fire department is playing cards and doing rifle practice' ⁽¹⁵⁾.

Aside these effects, analysts are concerned about a third, more direct escalatory pathway of intensified tensions between some of the regional powers with aspirations to expand their influence and even between the global powers ⁽¹⁶⁾. Indeed, if the trend evolves in this direction – with the US remaining sceptical in its commitment to multilateral institutions – there will clearly be a growing risk of more direct confrontations between the great powers. As discussed in the previous chapter, rival power players will likely use hybrid means and cyber capabilities in the conduct of such hostilities. However, within the timeframe of the coming decade a far more probable risk continues to be the proliferation of proxy wars with both state and non-state interference in initially domestic crises via multiple means. The following sections will clarify the expected conflict escalatory effects.

Fragmentation of conflict (parties)

Armed conflicts in the second decade of the 21st century have already been characterised by the increasing multiplicity of actors involved. This trend of an increasing number of conflict parties and resultant heightened complexity of conflict systems will likely continue in the coming decade. In particular, non-state armed

groups and conflicts among them – that is, conflicts between two groups neither of which is a state actor – are proliferating. As observed in the *Armed Conflict Survey*, 'more non-state armed groups have emerged in the last eight years than in the previous eight decades' ⁽¹⁷⁾. Indeed, while in 2010 there were altogether 28 active non-state conflict dyads fought in 10 countries, in 2019 those numbers were 67 and 19 respectively. This translates to a growth from 2.8 non-state conflict dyads to 3.5 pairs per conflict-affected country in 9 years ⁽¹⁸⁾. Combined with the increase in the number of intra-state conflicts as well as their complexity with regard to the number of dyads involved, a messy picture appears. Indeed, in almost half of the states fighting state-based armed conflicts there are also ongoing non-state conflicts.

This proliferation of armed groups, particularly non-state groups, reflects the broader trend of fragmentation and diffusion of power. Beyond merely growing in numbers, armed groups' organisation and relations have evolved towards more horizontal and network-based models, away from centralised command structures and hierarchical organisations. This growth of horizontally organised, or indeed fragmented, insurgent groups, has been enabled by the changing nature of power and diffusion of authority. As power within states has diffused more to subnational levels and actors, local strongmen and chiefs have benefited from increased opportunities to mobilise and exercise power. This process has been facilitated by increased connectivity and possibilities for local protagonists to forge links with other local actors and transnational networks. Again, while fragmentation of authority is not in itself necessarily negative (indeed, decentralisation of power can improve governance efficiency and accountability), in fragile and contested countries it easily contributes to the fragmentation of security provision and increased

⁽¹⁵⁾ Zartman, W., 'Fragmented Conflict: Handling the Current World Disorder', *Global Policy*, Vol. 10, No 2, 2019.

⁽¹⁶⁾ Varisco, A.E., 'Towards a multi-polar international system: which prospects for global peace?', 3 June 2013; 'Four Scenarios for Geopolitical Order in 2025-2030', op.cit.

⁽¹⁷⁾ McQuinn, B., 'Armed-group proliferation: Origins and Consequences', *The Armed Conflict Survey – 2020*, International Institute for Security Studies, May 2020.

⁽¹⁸⁾ Data and calculations based on the Uppsala Conflict Data Programme, non-state conflict data.

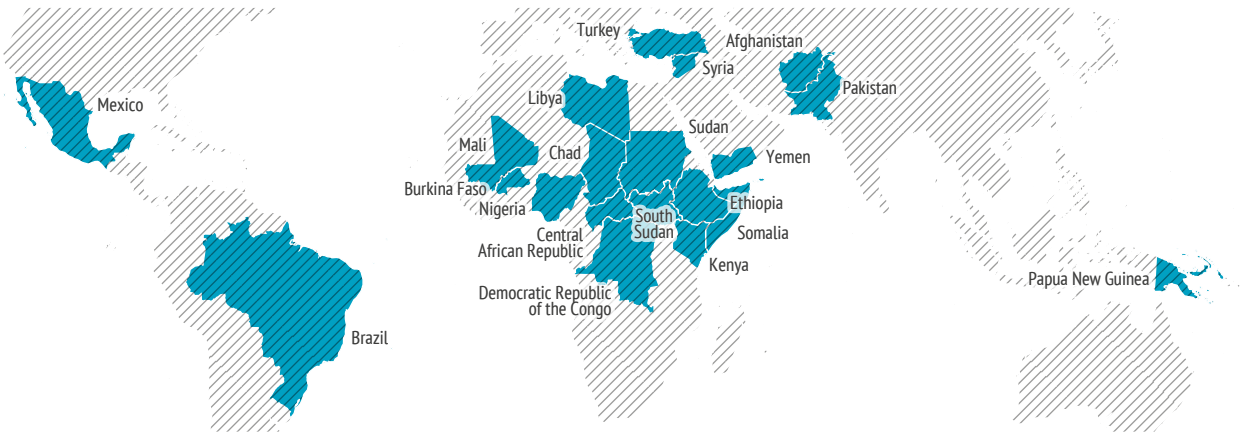
Non-state conflicts proliferate across time and space

Countries directly influenced by non-state conflicts in 2010 and 2019

2010



2019



Data: UCDP, Non-State Conflict Dataset version 20.1, 2020

competition between multiple local and national political and armed elites. Subsequently, conflict-affected contexts witness an increasing number of ‘start-up’ autonomous groups that are born out of necessity and the opportunities emanating from a conflict context and form fluid alliances with other insurgent groups and transnational networks of economic and political support⁽¹⁹⁾.

The changing nature of (non-state) armed groups has large-scale implications for conflict dynamics and efforts to prevent the escalation and expansion of conflicts. In general, horizontalisation of armed groups appears to make them more resilient *vis-à-vis* their opponents and particularly counter-insurgency tactics of state actors. Out of the main armed conflicts active in 2019, over 60 % had started ten years or more, implying considerable longevity

(19) ‘Armed-group proliferation: Origins and Consequences’, op.cit.

of contemporary armed struggles⁽²⁰⁾. As armed movements do not have clear, hierarchical leadership structures but rely more on alliances of smaller local groups and their commanders, ‘decapitating’ the leadership becomes more difficult (as there are more heads to remove). Moreover, transnational ties and networks can enable continuation of mobilisation and connection between local cells even if and when heavy losses are experienced in main battlefields. This has been the case for example with ISIS in the post-caliphate period. While facing defeat in the main territorial arenas of Iraq and Syria, the organisation has been able to benefit from its existing transnational networks to move fighters to new areas of influence (in Southeast Asia and Africa)⁽²¹⁾.

While making armed groups resilient and adaptable to changed circumstances, fragmentation may complicate peace-making processes. Libya offers a case in point. While effective in accomplishing their common goal of overthrowing Gaddafi’s dictatorship in 2011, the numerous local armed groups and their somewhat autonomous commanders proved harder to get in line after the fall of the regime. The refusal of these various local strongmen to give up their autonomy and the continuation of weapons procurement, mobilisation and fund-raising by various sub-commanders ultimately contributed to the country descending into renewed civil conflict. The Libyan National Army (LNA) of General Haftar, the rise of which was facilitated by considerable international support, is itself a collection of armed groups rather than a unified army in the conventional sense of the concept. Indeed, even as the country now faces an opportunity of moving towards conflict

Cities will become increasingly fertile ground for armed actors in the coming decade.

resolution on the basis of a fragile yet still holding ceasefire between the LNA and the Government of National Accord (GNA), a complex task lies ahead to forge compromise and commitment among the various armed groups on the ground⁽²²⁾. Similarly, conflict management efforts in the Sahel region face complex and fast-changing circumstances with Islamist insurgents taking advantage of local inter-group conflicts and incompatibilities and allying with marginalised local groups⁽²³⁾.

The horizontalisation of conflict actors does not simply make them more resilient and therefore prolongs conflicts, but also expands and diffuses armed conflicts. As groups splinter and new factions and alliances emerge, new

sets of political goals, priorities, and conflict positions result that have to be taken into account in responding to the conflict. The proliferation of horizontally organised non-state armed groups makes resolving conflicts ever more complicated as there are more potential spoilers to any agreement. The increasing number of armed groups involved

can both expand the conflict-affected territory and intensify the political, armed and economic dynamics. The splintering of an insurgent group does not necessarily translate to weakened armed groups as local sub-commanders might simply shift their alliance to the insurgent group that appears to be faring the best (or affords better access to resources) in a given moment⁽²⁴⁾. These shifting and fluid alliances and coalitions of armed and political actors further complicate peace-making efforts as the commitment to any deals reached depends on the stability of the coalitions that concluded those frameworks. In sum, the fragmentation

(20) Ibid.

(21) Milan, F., ‘ISIS foreign fighters after the fall of the caliphate’, *The Armed Conflict Survey – 2020*, The International Institute for Strategic Studies, 2020.

(22) Lacher, W., ‘The great carve-up: Libya’s internationalised conflicts after Tripoli’, SWP Comment 25/2020, Stiftung Wissenschaft und Politik, Berlin, 2020 (<https://doi.org/10.18449/2020C25>).

(23) Rupesinghe, N. and Bøås, M., ‘Local drivers of violent extremism in Central Mali’, UNDP Policy Brief, United Nations Development Programme, 2019.

(24) ‘Armed-group proliferation: Origins and Consequences’, op.cit.

of armed actors and their transformation into social networks with complex relations to political and economic actors, at local and global levels, risks prolonging conflicts, complicating their resolution, and endangering reached agreements.

Key future challenges

The continuing fragmentation of authority will likely further fuel these conflict trends over the coming decade, with an increasing number of actors (and types of actor) involved in a conflict system and its growing complexity as a result. Specifically, there is a risk that the coming decade will witness the prolongation and expansion of conflicts due to

1. armed non-state actors becoming even more entangled in (security) governance in urban contexts; and
2. intensifying competition between subnational and national public authorities.

Cities will become increasingly fertile ground for armed actors in the coming decade. While urban environments present considerable potential in terms of sustainable economic growth and improvements in the quality of life and human security, cities are also hotspots for various challenges, including public health, housing, security provision, and political violence. This is because the projected rapid urbanisation presents unprecedented governance challenges in numerous countries that already struggle to provide public goods and services and implement policies to the benefit of their growing urban population. This threatens to create motivations and opportunities for (non-state) armed actors. Grievances may intensify among the growing populace living in the margins of cities, in dense and crowded slums and informal settlements, that are excluded from many of the benefits of a 'smart' city. These grievances can undermine the

legitimacy of the local and national public authorities and lead to an increase of support to radical alternatives to them. Moreover, the absence of state-sponsored governance provides opportunities for non-state groups to exploit the governance deficit and increase their influence over economic and political power in cities.

As a recent study by the International Institute for Security Studies demonstrates, such developments are already under way in several conflict-affected big cities, such as Nairobi, Mogadishu, Kabul and Karachi⁽²⁵⁾. While these cities have always been platforms and arenas for the wider conflicts, they have more recently become drivers as well as theatres for political violence themselves. Urbanisation combined with growing social and spatial cleavages and weak governance gives various non-state actors, such as violent extremist organisations, militias and criminal gangs, opportunities to undermine their opponents and extract resources. In Nairobi, gangs accumulate wealth by managing water and sanitation services in areas where the state fails to do so, while also becoming entangled in political competition and violence particularly during contentious periods (e.g. elections). In Kabul, former warlords use their private security forces to confiscate land. In many contexts, precarious security is provided by a hybrid system of state-affiliated and non-state groups. To be sure, such hybrid governance in conflict-affected countries is nothing new: insurgent groups, including violent extremists, often engage in some level of governance beyond imposing order through violence. However, the fact that this type of 'war-time' governance is increasingly extending to big cities and even capitals – spaces that have traditionally enjoyed more salient presence and primacy of the state as governance provider – further complicates peacebuilding processes and threatens to escalate urban political violence and create urban war economies.

A related challenge that the coming decade and fragmentation of authority may bring relates

(25) Sampaio, A., 'Urban drivers of political violence: declining state authority and armed groups in Mogadishu, Nairobi, Kabul and Karachi', International Institute for Security Studies, May 2020.

to the relationship between the central state authorities and various subnational authorities, particularly those in the growing cities. Indeed, just as non-state armed groups have become more horizontally organised and networked because of the changing nature of power, so have states. Decentralisation of political and economic power will continue whether the central state authorities support it (through deliberate decentralisation policies) or not. The role of mayors and other leaders of big cities will become more prominent as their economic influence, demographic power and global responsibility for shared resources and international security grows. The challenge from a conflict prevention perspective is twofold: on one hand, the relative power of subnational authorities (e.g. mayors), particularly in the context of megacities, can create tensions between national and subnational authorities and contribute to further fragmentation of states. In Somalia, for example, the status of Mogadishu and its influence within the national political institutions has become an issue in the wider statebuilding process ⁽²⁶⁾. On the other hand, failure of subnational authorities to accumulate the resources and capacities needed to govern effectively can strain relations between the national and subnational governance actors.

These challenges will further blur the lines between war and peace. A political agreement reached between some armed parties may not change the reality on the ground where local militias, criminal networks and other actors benefiting from a political economy of war continue to operate. On the other hand, diffusion of power from (hierarchical and centralised) national to (horizontal) subnational and transnational actors also means that particular frameworks among local actors, including private sector, political and armed groups, can produce functioning governance and

peace even amidst an armed conflict at the national level ⁽²⁷⁾.

Expanding internationalisation of conflicts

Another conflict-escalating effect of the fragmentation of authority arises from the growing internationalisation of intrastate conflicts. In 2019, 42 % of all intrastate conflicts were internationalised to the extent that they received military support from an external state. This is the highest level of internationalisation of intrastate conflicts since World War II. Over the last decade, the number of internationalised intrastate conflicts has almost tripled from 8 in 2010 to 22 in 2019. If this trend continues, by 2030 a clear majority of intrastate conflicts will be internationalised ⁽²⁸⁾.

Notably, not only has intrastate conflict become more frequently influenced by an external force, but the number of external states getting involved in intrastate conflicts is increasing. The United States continues to be the external power that is most heavily involved in conflicts around the world. However, in 2019, reflecting the effects of the changing international order, almost half of internationalised intrastate conflicts involved more than one external force supporting one of the parties (usually the government side) ⁽²⁹⁾. Regional powers such as Russia, Turkey, Nigeria, Iran and Saudi Arabia, old colonial powers such as France and the United Kingdom, and states neighbouring countries experiencing ongoing conflicts are among the states that provide direct support to a party in intrastate conflicts. Beyond military support, external state and non-state actors alike influence conflict contexts by providing economic and political support to various conflict parties.

(26) Ibid.

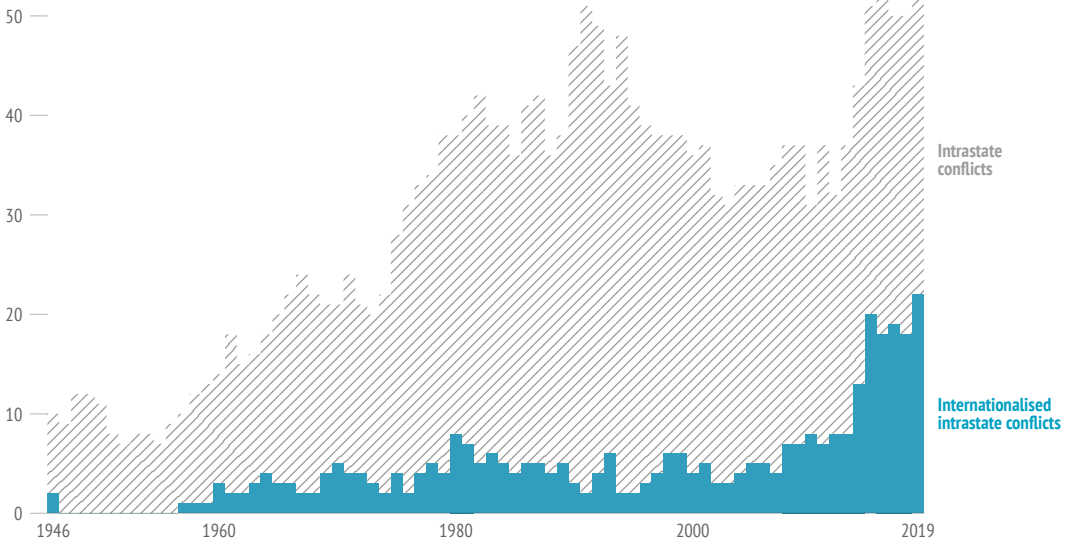
(27) On general challenges related to subnational level governance and conflict dynamics, see Wolff, S., Ross, S. and Wee, A., 'Subnational governance and conflict: the merits of subnational governance as catalyst for peace', World Bank Group, 2020.

(28) Pettersson, T. and Öberg, M., 'Organized violence, 1989–2019', *Journal of Peace Research*, Vol. 57, No 4, 2020.

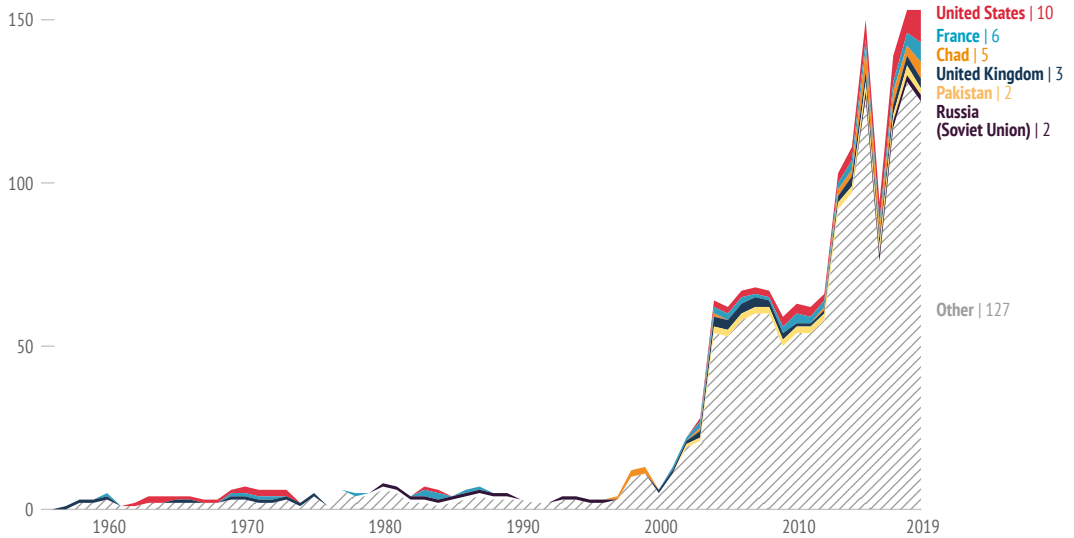
(29) UCDP armed violence data.

Increasingly internationalised intrastate conflicts

The number of intrastate conflicts and internationalised intrastate conflicts over time



The US is the primary external supporter



Data: UCDP/PRIO Armed Conflict Dataset version 20.1, 2020

The increasingly polynodal nature of the international system will likely further drive this trend for two reasons. First, the growing interconnectivity between different levels of power – local, national, regional and

global – will motivate external actors to intervene in emerged conflicts in order to avoid harmful spillover effects of a conflict (or its consequences). As Tobler’s law states, all things are connected, but closer things are

more connected ⁽³⁰⁾. The coming decade will transform the ways in which societies, localities, and political units are closely connected. Regional security complexes (RSCs) such as the Horn of Africa, the Sahel, but also for example the EU, refer to regions where national security dynamics are so intertwined that their security challenges cannot be resolved ‘apart from one another’ ⁽³¹⁾. The significance of RSCs in framing national security will further grow. Yet, as connectivity is combined with the diffusion of power, the coming decade will likely see the transformation of RSCs to be dependent not only on geographical proximity but increasingly on social and political networks connecting different political actors.

Second, internal conflicts will continue to offer lucrative opportunities to assertive state and non-state actors to expand their influence and relative power. This concerns particularly those civil conflicts taking place in resource-rich and/or strategically and geopolitically important regions. Internal conflicts give external powers opportunities to meddle in the affairs of another country, as they monopolise the resources and attention of the incumbent state and almost by definition weaken its relative power *vis-à-vis* that of external states and powers. For external states, transnational non-state actors, and even private companies an internal conflict may present an attractive opportunity to extract political and/or economic allegiance in exchange for support in the conflict efforts. In a system where hubs of international power aspire to become greater global powers, interfering in countries’ internal conflicts becomes a way to expand one’s international influence.

The past decade has demonstrated the likely trajectory of future conflicts. Armed escalations and the duration of conflicts particularly

in North Africa and the Middle East – e.g. Libya, Syria and Yemen – have been decisively influenced by the participation of multiple external states. Indeed, these conflicts are primary examples of the complexity of contemporary conflicts with multiple local, regional and international actors involved in opportunistic alliances, coalitions, and networks of support. The (proxy) conflicts of the 2020s will be ever more complex: multiple state-affiliated actors will become involved in conflicts to advance their own interests and/or respond to the actions of their regional or global competitors, in a system where their relative powers may be increasingly equal. These state-affiliated actors will also be less unitary and homogeneous, consisting of not only formal troops or direct central state-led support, but private sector actors and/or subnational authorities and/or diplomatic actors acting more proactively. This reflects the ways in which the rising global and regional powers are themselves undergoing transformation: the decentralisation of foreign policy affects the ways in which they become engaged in conflicts ⁽³²⁾. The Russian private military security company Wagner provides an example of the increasingly salient role of state-affiliated yet private actors in influencing foreign policy ⁽³³⁾.

Moreover, state-affiliated actors will not be the only international actors interfering in civil conflicts. Transnational non-state movements, including violent extremist movements, are known to forge ties with local conflict parties to expand their influence. The United States’ shift in foreign policy priorities towards increasing concern with great power competition and the Asia-Pacific, at the expense of emphasis on counter-terrorism, can give these groups (and regional state actors) more space to expand their territorial influence in de-prioritised

(30) In 1970 Waldo Tobler stated ‘everything is related to everything else, but near things are more related than distant things’. This became Tobler’s first law of geography that has since guided spatial analysis.

(31) Mabera, F., ‘Northeast Africa and interregional power dynamics: The Nile–Red Sea–Persian Gulf Nexus’, in Kornegay, F. Jnr. and Mthembu, P. (eds.), *African and the World: Navigating shifting geopolitics*, Mistra, Johannesburg, 2020, p.228.

(32) Hameiri, S., Jones, L. and Heathershaw, J., ‘Reframing the rising powers debate: state transformation and foreign policy’, *Third World Quarterly*, 2019.

(33) See International Institute for Strategic Studies, ‘Russia’s use of its private military companies’, *Strategic Comments*, IISS, December 2020.

regions. Such developments have already taken place in the Horn of Africa, where the Gulf States vie for influence in the power vacuum left by the United States' diminishing engagement⁽³⁴⁾.

International intervention in a country's internal conflict does not automatically make things worse, or make the conflict more protracted or more intense. However, the current transformation in the international order tends to draw in *multiple* external and internal actors, in a pattern of strategic moves and counter-moves. For an armed conflict to end, one party needs to either achieve key strategic wins that are too costly for the other conflict parties to overcome or conflict parties need to arrive at a mutually hurting stalemate, in which continuation of fighting simply becomes too costly and risky in comparison to laying down weapons. Multi-actor internationalisation of conflicts makes both outcomes harder to achieve. As different parties receive various forms of support from competing regional and/or global power hubs, it becomes difficult for any actor to win decisively. Even if a party gains significant victories on the ground, the losing side might be able to continue their struggle if it has reasonable expectations of obtaining external assistance in the face of its misfortunes. Simultaneously, achieving mutually hurting stalemates can be delayed and/or prevented altogether if external parties continue to arm or otherwise support the conflict efforts⁽³⁵⁾. In this way internationalisation can lengthen conflicts as the involvement of external actors manipulates the resolve of the conflict parties and enables their efforts even when these have become considerably costly (and for example locally unpopular).

Libya: internationalisation of countries' internal conflicts

The way in which the conflict in Libya has evolved in recent years demonstrates the influence of internationalisation. The rise of the Libyan National Army (LNA) and its offensive on Tripoli in April 2019 was itself facilitated by heavy external support, especially from the United Arab Emirates, Russia and Egypt but also politically from the United States and for example France. On the other hand, the shifting power dynamics between the LNA and the Tripoli-based Government of National Accord (GNA) over the course of 2020 were at least partially due to the changes in the extent of external support received by the different parties. In particular, the increased participation of Turkey in support of the GNA contributed to turning the tide in the conflict. Turkey re-strengthened its commitment to support the GNA after it signed an agreement with Ankara on maritime boundaries in November 2019⁽³⁶⁾.

A related challenge derives from the difficulties in ensuring the commitment of the conflict parties to maintaining a settlement once one has been achieved. Internationalisation of a conflict increases the number of potential spoilers and introduces important yet challenging questions about who should be involved in peace negotiations and who the main conflict parties are. Particularly ceasefire agreements and other early steps in a process towards conflict mitigation and resolution become endangered if the external parties enabling conflict processes fail to change their behaviour/tactics *vis-à-vis* the local conflict parties.

(34) 'Northeast Africa and interregional power dynamics: The Nile-Red Sea-Persian Gulf Nexus', op.cit., pp.228.

(35) Malley, R., '10 conflicts to watch in 2020', International Crisis Group, December 2019 (<https://www.crisisgroup.org/global/10-conflicts-watch-2020>).

(36) 'The great carve-up: Libya's internationalised conflicts after Tripoli', op.cit.

These trends are taking place in a context where coordination of peacebuilding efforts has become potentially ever more difficult. While the number of intrastate conflicts has risen to record levels, the number of peace settlements has remained low in comparison to the situation in the 1990s⁽³⁷⁾. The difficulties in forging successful peace agreements have multiple causes, but it is clear that the growing complexity and internationalisation of conflicts has not made things easier. In a scenario where great power competition evolves towards tensions that consume the foreign and security policy agendas of the main multilateral and international peacebuilding actors, preventing the escalation of proxy conflicts becomes even more difficult. Naturally, it is also in this context that tensions between states – even between great powers – become increasingly threatening to international peace and security.

Escalation of interstate tensions

There is a plausible risk that escalated tensions and armed conflict at the interstate level and even between global powers may result from the fragmentation of authority in the coming decade. The threat derives largely from the increased uncertainty brought by a changing international order, yet it can also be influenced by internal cleavages and dynamics within countries that push regimes to pursue an assertive foreign policy to ensure domestic cohesion. This threat carries potentially severe implications, as an increase in interstate conflicts would also further complicate and exacerbate intrastate escalation processes. Yet, this effect is uncertain and dependent on how the polynodal international order evolves. In particular, the commitment of the United States in international rule-based order and multilateral

organisations will influence the way many interstate relations develop in the 2020s.

The uncertainty created by the changing international order, particularly the retreat of the United States from its role as ‘the world’s policeman’ and the rise of more assertive regional powers, is already reflected in the re-emergence of old and the emergence of new interstate tensions across regions. While interstate wars remain rare – only two out of 54 state-based armed conflicts in 2019 were primarily between states⁽³⁸⁾ – tensions have escalated and/or flared up again in several contexts. The evolution of International Crisis Group’s annual ‘Conflicts to Watch’ list reflects this⁽³⁹⁾. In 2015–2017, there was only one primarily interstate conflict included in the top ten to watch (the South China Sea in 2016). However, for both 2018 and 2019, two interstate conflict threats made it to the watchlist – namely North Korea–US tensions (2018), Iran–US–Israel–Gulf states tensions (2018, 2019), and US–China relations (2019). For 2020, three out of ten conflicts to watch were of an interstate nature (in addition to those in 2019 the list included the Kashmir conflict between India and Pakistan). The escalatory potential in these contexts has much to do with the increasingly strained relations between the US as the former hegemon and its strengthened global and regional adversaries (e.g. China and Iran). US–Iran relations deteriorated to a new low in 2018–2019, with the US withdrawing from the Joint Comprehensive Plan of Action (JCPOA) agreement and escalatory steps taken by both parties in early 2020. Sino–US relations have continued to deteriorate in a tit-for-that fashion, with the Covid-19 pandemic further contributing to the systemic rivalry that has regional (Indo-Pacific) and global peace and security implications. While the change of administration in the United States may restore an element of predictability to US foreign policy and revitalise multilateral forums, it does not herald a return

(37) Pettersson, T., Högladh, S. and Öberg, M., ‘Organized violence, 1989–2018 and peace agreements’, *Journal of Peace Research*, Vol. 56, No. 4, 2019, pp. 589–603.

(38) ‘Organized violence, 1989–2019’, op.cit.

(39) See Malley, R., ‘10 Conflicts to Watch in 2021’, International Crisis Group, December 2020 (<https://www.crisisgroup.org/global/10-conflicts-watch>).

to the old, more hegemonic order. Systemic change from a multipolar to a polynodal world will continue even if the US demonstrates renewed commitment to lead the liberal international order.

From a conflict perspective, the risk translates into increased interstate tensions and even armed escalation both in contexts that fall outside the global superpowers' priorities (and where local and regional actors have more space to compete in the absence of a hegemonic superpower) and in contexts where global powers compete over influence. The recent flare-up of interstate conflict between Armenia and Azerbaijan over the disputed enclave of Nagorno-Karabakh belongs to the former category. Turkey's increasing assertiveness as a regional power and its support to Azerbaijan at a time when the global community was distracted by the pandemic and lacking a hegemonic power contributed to Azerbaijan's bellicosity⁽⁴⁰⁾. Similarly, it can be argued that the escalated interstate relations in the Eastern Mediterranean between Turkey and Greece and Cyprus (and other EU member states) reflect transformations in small power relations amid decreasing pressures from and involvement of the global superpower⁽⁴¹⁾. Interstate relations in many contexts are becoming more dependent on the clarity (or lack thereof) of regional power relations.

Issue areas and regional contexts where the priorities and conflicting interests of the global powers collide present another, to many even more worrying, threat of inter-state escalation. The Asia-Pacific (Western Pacific and

East Asia) is the most likely arena where tensions between the two most prominent global powers, the United States and China, might escalate. The United States will be increasingly focused on this region, with the aim of containing the growing economic, military and technological might of China, which it views as its main challenger and a revisionist power. China is also prioritising this neighbourhood region in its efforts to strengthen and consolidate its regional dominance and counter America's hegemony in world affairs⁽⁴²⁾. While both powers will likely continue to present themselves in a defensive posture – China building on its narrative of restoring its status as a leading power and respected state on the global

stage and the US presenting itself as a defender of the rights and freedoms of the nations in the region – the changing power dynamics may further exacerbate the security dilemma between the two. As Chinese power grows, the US will be quick to interpret any assertive steps by Beijing as confrontational, which may lead it to respond by strengthening support towards its regional allies (and competitors of China). This, in turn, will incur a negative reaction from China, which would view any such moves as offensive. Specifically, the situation of Taiwan, and/or other areas with a special status/relationship to mainland China, is fraught with considerable escalatory potential. Fears of growing Chinese assertiveness indicating future offensive action will spur appeals for counter-coalition building and support from the United States and other allies against Beijing⁽⁴³⁾. Signals of increasing support and interference are equally viewed as offensive from the Chinese perspective. Such regional security paradoxes could escalate into

The situation of Taiwan, and other areas with a special status/relationship to mainland China, is fraught with considerable escalatory potential.

(40) International Crisis Group, *De-escalating the new Nagorno-Karabakh war*, ICG Statement, 2 October 2020 (<https://www.crisisgroup.org/europe-central-asia/caucasus/nagorno-karabakh-conflict/containing-violence-south-caucasus>).

(41) Erlanger, S., 'Rising tensions between Turkey and Greece divide EU leaders', *The New York Times*, 27 August 2020 (<https://www.nytimes.com/2020/08/27/world/europe/greece-turkey-eu.html>); Güney, A., 'The USA's Role in Mediating the Cyprus Conflict: A Story of Success or Failure?', *Security Dialogue*, Vol. 35, No 1, 2004, pp-27-42.

(42) Rudolf, P., 'The Sino-American world conflict', SWP Research Paper, No 3, Stiftung Wissenschaft und Politik, 2020.

(43) Davidson, H., 'Taiwan calls for global coalition against China's aggression as US official flies in', *The Guardian*, 17 October 2020.

armed confrontations between Chinese troops and forces supported by the United States. Such a proxy conflict between the two global powers would carry a considerable risk of escalating – particularly in the sea – and expanding to involve other global and regional players. A factor that makes this region more unstable than Europe during the Cold War is the rather blurred boundaries of spheres of influence between the great powers. Both China and the United States maintain significant ties with most of the countries in the region.

While armed interstate escalation involving global powers is a distinct risk in the coming decade, a more likely scenario is one characterised by increasing competition in the domain of trade and technology as well as confrontation in the context of (cyber)space⁽⁴⁴⁾. (Digital) technology will play an ever more intriguing role in interstate rivalries and great power competition, as this is the sphere where the former hegemon is no longer light years ahead of its competitors, and China in particular has caught up with it. The importance of technological innovations both for trade and for military status make this issue area a potentially explosive one in a hostile geopolitical environment. Similarly, in Washington it is feared that China will use its growing economic power to establish regional supremacy and de-couple the United States from its allies in the Asia-Pacific and beyond. In this regard, Africa has already emerged as a ‘new front’ in the great power competition between China and the United States. Given all these dimensions, both cyberspace and outer space will increasingly acquire prominence as arenas of power projection and competition between different power hubs.

There are some key variables that continue to lower the prospects of escalated great power confrontation and interstate conflict more broadly. First of all, all major powers – including, but not only, the US and China – are more connected than ever, which makes a bipolar military confrontation more costly. Complex

trade interdependencies will not quickly disappear even in an atmosphere of strategic distrust and there are major global challenges that require and induce collaboration. Relatedly, the role of state actors in the world has changed compared to what it was during the Cold War or the last multipolar period. Expensive confrontational tit-for-tat moves in the realm of trade or security will inevitably spark a huge outcry from private sector players across states, civil society actors, and other non-state or quasi-state actors that are increasingly influential (in mobilising power). As discussed, even the emerging global and regional powers are not – albeit often seen as such – unambiguously unitary sovereign actors. While they are clearly not transforming into the liberal democracies that the Western world would have wanted them to become, they do participate in and benefit from the neoliberal economic world order, and are influenced by it also in terms of diffusion of internal power⁽⁴⁵⁾. A drastic upheaval in the international order would impose great risks on them. Hence, even if the interstate relations among the major powers take a sour turn, there are both structural and internal constraints on the state actors, amplified particularly by expanding connectivity. Here the internal stability of the major powers comes into play, as it influences both their foreign policy strategies and their vulnerability towards external interference.

Nevertheless, even without a major confrontation between the global powers or more frequent armed escalation of inter-state affairs, fragmentation of authority and the transformation of the international order may significantly complicate conflict prevention efforts in the long term. This is because multilateral action and coordination of peace-promoting initiatives may be undermined as a result of these processes. Here, the commitment of the United States in maintaining and strengthening the capacities of global multilateral organisations and institutions remains vital for an international order that shares norms beyond the

(44) Harrison, T., ‘World order after Covid-19’, *Commentary*, Center for Strategic and International Studies, 28 May 2020.

(45) ‘Reframing the rising powers debate: state transformation and foreign policy’, op.cit.

shared principle of sovereignty. Under a United States that is willing to engage multilaterally and acts cooperatively *vis-à-vis* its partners, the transformation of the (liberal-values based) international order will be less radical than if the US focuses its foreign policy on bilateral relations with other great powers and bolstering deterrence to counter their challenge ⁽⁴⁶⁾.

Key messages

- > The transformation of the international order into a polynodal order does not automatically lead to more (interstate) conflicts, but it complicates the task of the existing multilateral institutions that seek to prevent and resolve crises.
- > Fragmentation of authority can contribute to conflict escalation particularly by driving the expansion, prolongation and internationalisation of ongoing armed conflicts.
- > The power of non-state armed groups in security governance in urban settings may grow as cities are faced with increased governance challenges and power fragments within states.
- > By 2030, a majority of intrastate conflicts will be internationalised if the current trend continues, with internationalised intrastate conflicts having increased from around 26% in 2010 to 42% in 2019.
- > Considerable restraints remain in the face of direct armed confrontations between global powers, e.g. the US and China. Proxy conflicts and cyber(space) confrontations are more likely.
- > In areas outside the global powers' agenda of priorities, assertive rising powers will have more space to compete and expand their influence, which can escalate conflicts that were initially limited in terms of scale and the number of parties involved.

(46) 'Four Scenarios for Geopolitical Order in 2025-2030', op.cit.





REMEDIES

REMEDY 1

LOCAL GOVERNANCE AND CLIMATE RESILIENCE

Part I discussed two main pathways from climate change-related phenomena to conflict escalation, emphasising the role of coping and adaptive failures in contributing to localised conflict processes in particular. This chapter discusses how we can go about breaking these multi-step pathways whereby changing climatic conditions lead to conflict. In other words, how can we strengthen coping and adaptive capacities in the face of climate change in a conflict-preventive manner?

Mapping climate insecurity hotspots

Combining growing knowledge on the evolution of climate change and the conditions making countries or areas vulnerable to climate-related security threats can help in identifying significant hotspots from a climate security perspective. The map on page 69 is an example of such an approach, identifying a list of 20 countries that exhibit worrying combinations of considerable political exclusion, high dependence on agriculture, and history of conflict, categorised according to their estimated water insecurity. The framework comes from Busby and von Uexkull, who cross-referenced countries

with these structural and political vulnerabilities with data from IScience on water insecurity⁽¹⁾. The Ecological Threat Register is another example of such a project that identifies countries that are most liable to experience severe ecological catastrophes⁽²⁾.

A first thing to note is that as the effects of climate change take place in a specific social and political context and affect some groups of people more than others, accordingly the preventive approach needs to be tailored to a specific set of socioeconomic and political circumstances. This is not to say that national or international-level action will not be necessary. Yet, for such conflict preventive measures to work effectively in the face of climate change, their adoption needs to be adjusted to the needs of the groups of people whose lives and livelihoods are concretely affected by the manifested changes. Moreover, in response to the need to both adapt to a gradual change and cope with sudden shocks, the preventive approach can be divided into measures that make climate adaptation conflict-proof on the one hand and measures that are more active climate crisis responses and that lower the rationale for violent escalation, on the other hand. These tools broadly reflect division into structural and operational prevention, respectively⁽³⁾.

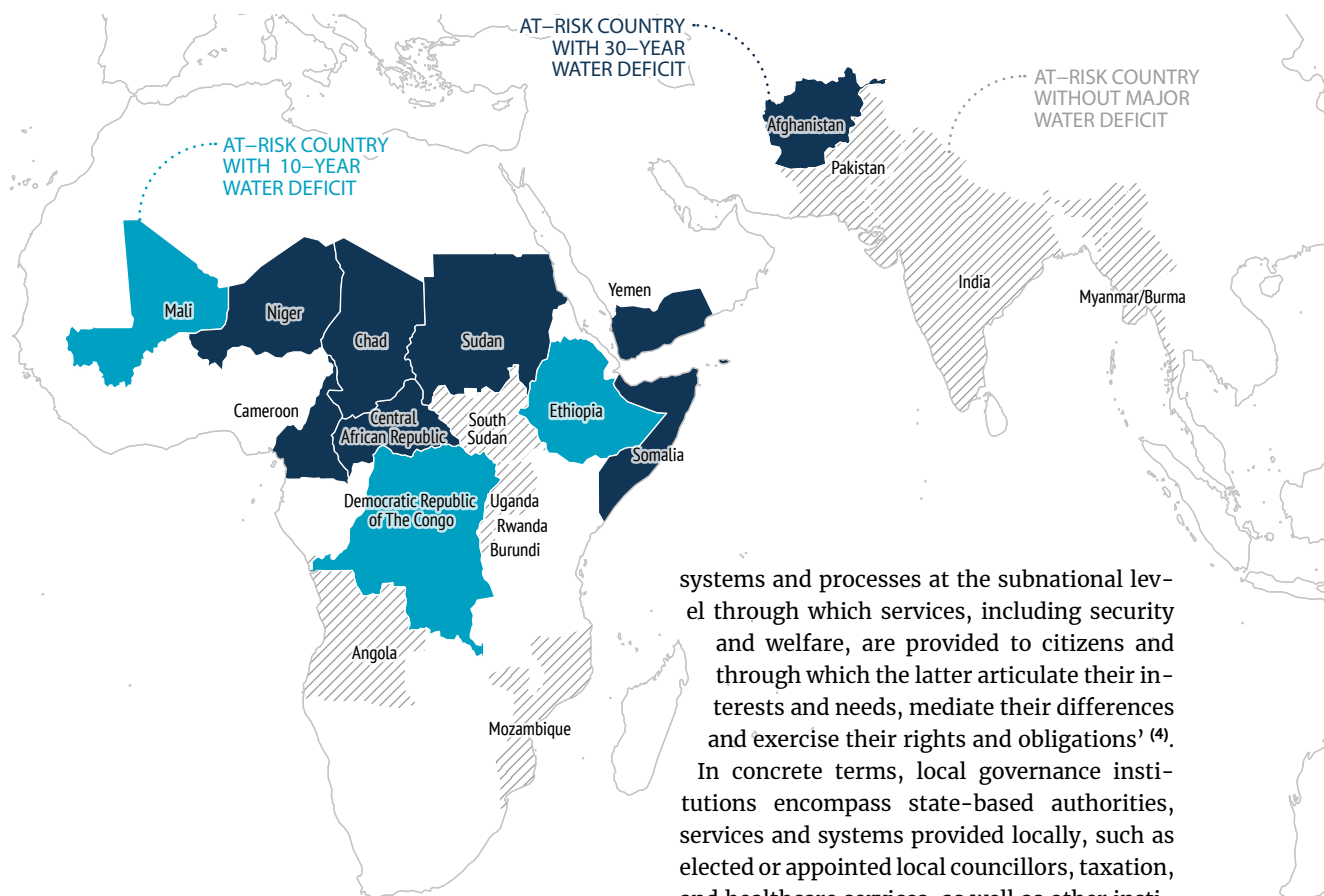
(1) 'Climate shocks and humanitarian crises', op.cit.

(2) *Ecological Threat Register 2020*, op.cit.

(3) This also can be understood to follow the nexus of development and humanitarian needs (and aid): while development support addresses adaptive capacities, humanitarian response is required in the face of sudden shocks.

Identifying climate-insecure countries

In an article published in *Foreign Affairs*, Joshua Busby and Nina von Uexkull identify 20 countries at risk of climate-driven instability given vulnerable structural, political and climate-related conditions. The authors combine data on agricultural dependence, conflict legacies, political exclusion of ethnic groups and data on water deficiencies to identify and analyse the risk-group countries. Their method of using cumulated knowledge on conflict drivers that are particularly threatening in combination with climate variability is a good example of identifying at-risk contexts and directing preventive measures with regard to conflict-inducing effects of changing climatic conditions.



Data: Busby, J. and von Uexkull, N., 'Climate shocks and humanitarian crises', *Foreign Affairs*, 2018

In this context, the local level is the crucial sphere for the execution of prevention efforts and local governance institutions play a key role. Broadly defined, local governance institutions refer to a 'combined set of institutions,

systems and processes at the subnational level through which services, including security and welfare, are provided to citizens and through which the latter articulate their interests and needs, mediate their differences and exercise their rights and obligations' (4).

In concrete terms, local governance institutions encompass state-based authorities, services and systems provided locally, such as elected or appointed local councillors, taxation, and healthcare services, as well as other institutionalised ways of organising governance – such as traditional governance structures or initiatives led by the private sector and civil society – at a subnational level (5).

Local governance institutions are increasingly recognised as pivotal parts of the puzzle of preserving and building peace, as indicated by the references to their importance in various recent

(4) United Nations Development Programme (UNDP), *Local governance in fragile and conflict-affected settings: Building a resilient foundation for peace and development*, 2016.

(5) See Mustasilta K., 'Including chiefs, maintaining peace? Examining the effects of state-traditional governance interaction on civil peace in sub-Saharan Africa', *Journal of Peace Research*, Vol. 56, No 2, pp.203-219.

peace agreements ⁽⁶⁾. Conversely, the weakness of local institutions, particularly the absence of effective state presence in subnational areas, is often cited as a major source of conflict and violence ⁽⁷⁾. While problems with governance provision at a local level can certainly increase motivations and opportunities to mobilise violently, local governance institutions also often entail considerable sources of resilience in the face of exogenous shocks, particularly climate-related ones, even in the absence of an effective state ⁽⁸⁾. In any case, as both coping with and adapting to climate change and mobilising for conflict are ultimately local processes, the nature of local governance institutions matters greatly. Hence, albeit not the only level for a preventive approach in the face of climate change, local governance institutions can play a particularly important role in this regard.

While the nature of local governance institutions differs considerably across and within countries, some common functions can be identified: these are the provision of basic services (healthcare, education, water and sanitation services), infrastructure maintenance, land and other natural resource management, rule of law and security (including conflict resolution and judicial services), and political participation ⁽⁹⁾. All these functions, and the relations between local institutions and between these and national-level structures, shape how communities cope with any sudden emergency, including climate-related crises, and adapt to gradually changing conditions. ⁽¹⁰⁾ The following sections discuss in more detail how investing in local governance can strengthen resilience to the adverse effects of climate change both in terms of proactive adaptation and in the face of sudden shocks.

STRUCTURAL PREVENTION: CONFLICT-SENSITIVE CLIMATE ADAPTATION

It is logical to start from structural prevention, since there would be little need for operational prevention if the socio-economic and political structures could be made ‘conflict-proof’. Here, local governance institutions – and the way they interact with national and international actors – constitute the backbone (or the Achilles heel) for conflict-sensitive climate adaptation efforts.

Structural prevention and SDGs

Broadly speaking, structural prevention in this context refers to measures that improve people’s ability to adapt to changing climate conditions through strengthening local governance institutions’ capacity to enable socio-economic and human development in a conflict-sensitive manner. In this way, successful climate change adaptation goes hand in hand with the Sustainable Development Goals (SDGs). This chapter places an additional focus on conflict-sensitivity or conflict-proofing of such actions.

- ⁽⁶⁾ Such as in the case of Kenya, Kosovo, Libya and the Philippines. See *Local governance in fragile and conflict-affected settings*, op.cit.
- ⁽⁷⁾ Wig, T. and Tollefsen, A.F., ‘Local institutional quality and conflict violence in Africa’, *Political Geography*, Vol. 53, 2016, pp. 30–42 (<https://doi.org/10.1016/j.polgeo.2016.01.003>).
- ⁽⁸⁾ ‘Scaling local and community-based adaptation’, op.cit.; Brown, H. C. P. and Sonwa, D. J., ‘Rural local institutions and climate change adaptation in forest communities in Cameroon’, *Ecology and Society*, Vol. 20, No 2, 2015 (<https://doi.org/10.5751/ES-07327-200206>).
- ⁽⁹⁾ Mdee, A., Tshomba, P. and Mushi, A., ‘Designing a local governance performance index (LGPI): a problem-solving approach in Tanzania’, Working Paper 4, Mzumbe University, 2017.
- ⁽¹⁰⁾ Local governance in conflict prevention and peacebuilding workshop, EUISS, December 2019.

In its simplest form, structural prevention in the face of climate change translates to improving human development in areas vulnerable to conflict and climate change. This means improving access to healthcare, water and sanitation, and education as well as improving the income opportunities of young people in particular in vulnerable areas. However, given the projected conflict risks and the central role of livelihoods and resource management in ameliorating the situation of people who are more vulnerable than others, there is also a need for more focused conflict-proof climate adaptation measures. These should tackle the access of vulnerable and marginalised groups to natural resources and sustainable livelihoods in particular. For example, livelihood programmes that increase the prospects of sustainable income sources in the future have been shown to lower the motivations of individuals to join armed groups⁽¹¹⁾.

Two aspects in particular form the core of structural prevention at the level of local governance institutions in the face of climate change: building successful adaptation requires genuine decision-making power at the local level, including over financial decisions, amid cooperation between national and local governance actors. In other words, there needs to be some level of devolution in policy design and implementation concerning climate adaptation⁽¹²⁾. Second, local institutions will almost certainly be hybrid in nature and adaptation also needs to be based on interactive governance that is genuinely inclusive of the experience and insights of the citizens⁽¹³⁾.

Regarding the first aspect, as previously indicated policies tackling local resource management can have unintended negative consequences if they fail to consider

inter-group power dynamics at the local level. Land reforms and other resource management policies will always have winners and losers, but genuine local ownership and participation can mitigate worst-case outcomes. Adaptive measures designed by well-meaning national or international actors can similarly end up causing more harm than good if they disregard local inter-group dynamics and vulnerabilities of particular groups within the society. For example, in Nigeria, the World Bank's agricultural development projects aimed at bringing overlooked areas under cultivation have worsened the situation for the herders in the region, as their possibilities to access water and grass have further diminished⁽¹⁴⁾.

While national oversight over climate adaptation is important, the varying needs across localities within a state means that it is imperative to have genuinely devolved powers when it comes to structural prevention. There are ample examples of promising policies and initiatives that have built upon decentralised climate adaptation. One of these is the Decentralising Climate Funds (DCF) programmes in Kenya, Tanzania, Senegal and Mali, which aim at promoting and fostering decision-making – including over design and budgeting – concerning climate adaptation at the subnational level. The initiative gives local governments a key role in managing devolved climate funds (that come from national, international, or private sources)⁽¹⁵⁾. Decisions over investments are taken through a participatory process involving local communities and technical experts. Case study evidence from Kenya shows that devolving powers to local government institutions to manage climate adaptation funding can channel funds in a context-specific manner more effectively to local communities

(11) Blattman, C. and Annan, J., 'Can Employment Reduce Lawlessness and Rebellion? A Field Experiment with High-risk Men in a Fragile State', *American Political Science Review*, Vol.110, No 1, 2016, pp. 1–17.

(12) 'Winning the Peace: Peacebuilding and climate change in Mali and Somalia', op.cit.

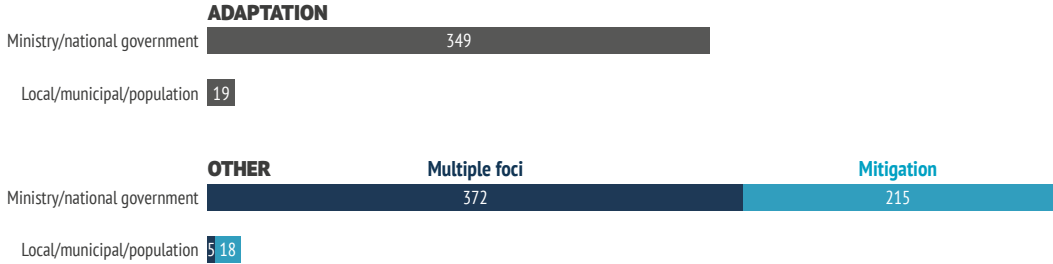
(13) Mees, H. and Driessen, P., 'A framework for assessing the accountability of local governance arrangements for adaptation to climate change', *Journal of Environmental Planning and Management*, Vol. 62, No 4, 2019, pp. 671–691.

(14) *Armed Conflict Survey – 2020*, op.cit., p.342.

(15) Crick, F., 'Local climate finance mechanism helping to fund community-prioritised adaptation', International Institute for Environment and Development (IIED) (<https://www.iied.org/local-climate-finance-mechanism-helping-fund-community-prioritised-adaptation>).

Who receives multilateral climate funds for adaptation?

Climate Fund Update tracks multilaterally governed climate change funds and allows examination of mitigation and adaptation funds pledged and approved through multilateral initiatives. Investigating the recipients of multilaterally governed funds does not capture bilateral flows or give a comprehensive picture of all climate change funding and its targeting, yet it is indicative of the main funding pathways used by the growing number of multilateral funds.



Data: Climate Funds Update, 2021, see <https://climatefundsupdate.org/data-dashboard/>

and to the areas that are most vulnerable and most in need ⁽¹⁶⁾.

Delegating authority to local governments – that is, the local state actors – in designing and managing climate adaptation can in the best case scenario contribute to strengthening public trust in the state at the local level, as vulnerable communities see their needs and priorities taken into account. This will not only enhance conflict-proof climate adaptation but can overall make a region less vulnerable to grievances and deprivations that lead to conflicts. Given the upward trend of non-state conflicts in regions such as sub-Saharan Africa and South America, improving the public’s trust in local authorities should be a priority for governments and international donors and supporters wishing to prevent escalatory dynamics. Indeed, empirical research shows that increasing investments in provision of public services (other than security) in conflict-affected areas leads to a reduction in armed violence ⁽¹⁷⁾.

A common challenge that makes international donors often legitimately concerned about devolving power to local governments is the

latter’s perceived inefficiency and high levels of corruption. Yet, the challenge with overlooking local governments (and bypassing them when partnering with local civil society or local communities) is that the local government structures are unlikely to grow any stronger (or more accountable) if they are never given real responsibility. A related challenge has to do with the scale and sustainability of projects supporting local climate adaptation. As noted in one study, the project-based nature of initiatives supporting community resilience commonly lacks sufficient scale and institutionalisation to have sustainable effects ⁽¹⁸⁾. Initiatives such as the DCF that empower local governments but have both bottom-up participation and top-down oversight present a sensible approach in this regard.

This brings us to the second point. For devolved climate adaptation to be conflict-sensitive, it needs to engage with local actors and institutions beyond the state. Particularly in rural areas, indigenous governance structures, traditional or tribal authorities, and other informal institutions mediate access to land and other natural resources and often offer the

(16) Barret, S., ‘Subnational Adaptation Finance Allocation: Comparing Decentralized and Devolved Political Institutions in Kenya’, *Global Environmental Politics*, Vol. 15, No 3, pp. 118–139.

(17) Justino, P., ‘Governance Interventions in Conflict-Affected Countries’, *The Journal of Development Studies*, Vol. 55, No 7, 2019, pp. 1364–1378 (<https://doi.org/10.1080/00220388.2018.1487053>).

(18) ‘Scaling local and community-based adaptation’, op.cit.

first layer of dispute resolution. In urban contexts, the informal economy, which provides income for approximately 60 % of the world's population, also influences access to basic services and resources ⁽¹⁹⁾. Adaptation efforts that do not take these institutions into account are likely to be ineffective (and can backfire) for the simple reason that these informal institutions wield significant power in shaping individuals' behaviour. Efforts to get rid of informal institutions or simply formalise them can produce unintended negative consequences of lost legitimacy or criminalising sources of resilience. Conversely, engaging more pragmatically with informal authorities in designing adaptation strategies can help to identify local priorities regarding adaptation and improve local buy-in of the measures taken.

Beyond local authorities of different kinds, broad inclusivity – empowering particularly marginalised groups, such as women, youth and refugees or internally displaced people – in adaptation is important. Engaging citizens in planning and deciding over climate adaptation is not only ethically and democratically valuable but carries multiple strategic benefits. First, citizen control helps to hold local authorities accountable and can work as a confidence-building measure in state-society relations. ⁽²⁰⁾ Second, communities and households deemed vulnerable to climate change are often also experts when it comes to climate adaptation and coping strategies. Increased climate variability has forced people who rely on rain-fed agriculture or other natural resources directly for their livelihoods to seek creative responses to the changing climatic conditions already for years (and even decades). The localised adaptation mechanisms of vulnerable households and individuals can provide invaluable clues on how to strengthen institutional adaptation capacities at a local level. In this

regard, it appears wise to invest in baseline consultations concerning the priorities and adaptive strategies of local communities before support to localised adaptation measures is given ⁽²¹⁾.

Third, participation of citizens in the planning of adaptation measures can also increase the effectiveness of the implementation of these measures. Analysing irrigation communities in South India, one study found that farmers were more likely to follow the rules in place when they had had an opportunity to participate in agreeing upon those rules ⁽²²⁾. More broadly with regard to strengthening local governance institutions – concerning infrastructure development, healthcare services, water and sanitation, land rights, etc – democratic decision-making will likely lead to more conforming behaviour by the individuals upon who the changes are imposed. While voting in (local) elections constitutes one form of democratic participation, other strategies to ensure participation, such as support to local civil society networks and their access to decision-making processes, are needed particularly in contexts where behavioural changes are imposed through projects and programmes initiated by external actors.

To sum up, local governments and local institutions more broadly play an increasing role in shaping local adaptive capacities in the face of climate change. Due to their relative closeness to households and individuals and their role as implementers and managers of natural resource policies, it makes sense to devolve climate change adaptation to their level. Relatedly, decentralisation processes ongoing in much of the developing world translate to more powers at the local level overall. A key challenge here is ensuring that also decision-making power and finances are devolved to the local level and that

(19) International Labour Organisation, 'More than 60 % of the world's employed population are in the informal economy', Press release, 30 April 2018 (https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_627189/lang-en/index.htm).

(20) 'A framework for assessing the accountability of local governance arrangements for adaptation to climate change', op.cit., pp.671-691.

(21) An example of such baseline surveys comes from an EU-funded GCCA programme in Vanuatu and Uganda: <https://www.gcca.eu/programmes/global-climate-change-alliance-adaptation-climate-change-uganda>.

(22) Bardhan, P., 'Irrigation and Cooperation: An Empirical Analysis of 48 Irrigation Communities in South India', *Economic Development and Cultural Change*, Vol. 48, No 4, 2000, pp. 847-865.

there is both top-down and bottom-up oversight over the use of these funds. Furthermore, devolving powers to local governments should not be done without institutionalised ways of engaging *de facto* prominent local governance institutions outside the state's realm and more widely the local community. Ideally, local governments could act as coordinators and facilitators of a public forum (and transparency) for different local voices to engage regularly with each other on questions concerning changing climatic conditions and their repercussions. In concrete terms, this could resemble the format of local peace committees (local climate adaptation committees), with state-sanctioned budgets managed by local governments and overseen by national and international donors.

From the perspective of international organisations and non-governmental organisations (NGOs) this implies a focus on two aspects in particular: supporting scaling up and institutionalising local governance institutions' climate adaptation capacities and ensuring that all adaptation work is conflict-sensitive. While the importance of the local level and support for vulnerable communities is increasingly recognised in funding decisions, it is less clear how the various programmes aiming at these goals contribute to strengthening local governance institutions' capacities and accountability to enable further adaptation. Clear authority and division of responsibilities are crucial for accountable climate adaptation, and local governments taking on a coordination and managing role can strengthen accountability⁽²³⁾. Yet, as it is, the bulk of the climate adaptation funds still go to national-level programmes and policies, with devolved climate adaptation funds representing exceptions rather than the rule. Conflict-sensitive climate adaptation

needs to be streamlined and institutionalised in the agenda of local public authorities for it to become sustainable. The multilateral Local Climate Adaptive Living Facility of the UN Capital Development Fund (UNCDF) is a promising initiative in this regard as it aims at supporting community-level resilience by strengthening the financial bases of local governments to organise adaptation⁽²⁴⁾.

Conflict-sensitive climate adaptation needs to be institutionalised in the agenda of local public authorities for it to become sustainable.

All climate adaptation needs to be conflict-sensitive: there is no such thing as a purely technical solution to climate change adaptation. As climate variability increases and natural resources and land terrain become scarcer, adaptation becomes ever more politically sensitive. International actors supporting climate

change adaptation programmes – no matter how technical the area is considered to be – should always base their designs on existing local sources of resilience and a conflict analysis that maps out existing political and inter-group dynamics and helps to identify the risks of the intervention. Indeed, while structural prevention may seem close to development efforts, not all development interventions are conflict preventive. Efforts to support livelihood adaptation or improving access to water are preventive only if they help to lower the local rationale for future armed mobilisation.

(23) 'A framework for assessing the accountability of local governance arrangements for adaptation to climate change' op.cit., pp.671-691.

(24) UN Capital Development Fund – Local Climate Adaptive Living Facility: <https://www.uncdf.org/local/homepage>;

OPERATIONAL PREVENTION: SUPPORT FOR LOCAL-LEVEL COPING CAPACITIES

While structural prevention presents several benefits – lack of urgency, broad positive implications, and relatively low political sensitivity – the next ten years will also require increasing investments in more operational prevention in the face of climate shocks and crises that severely stress the coping capacities of societies and communities. Preventive diplomacy, third-party mediation efforts, and regional conflict early warning systems (CEWS) are examples of operational prevention tools often used at a national level in situations of rising political tensions. Yet, even before tensions reach national or high political levels, several opportunities exist at the local level that can help to prevent escalatory processes. Local governance institutions are crucial in responding rapidly to a climate-related shock that risks becoming a social disaster. Equally, local action plays a pivotal role in alerting the relevant national authorities to emerged local tensions and resolving these before they escalate to full-blown conflicts.

Operational prevention in the face of climate hazards can be categorised along two main dimensions. First, efforts to ensure rapid and conflict-sensitive alleviation measures when a drought, flood, landslide, or a wildfire takes place are contingent on the availability of local governance institutions capable of swiftly and effectively responding to such events ⁽²⁵⁾.

Second, explicit local conflict prevention efforts that take the form of early warning systems and rapid responses to escalatory threats, including through local peace negotiations and institutionalised local peace committees, can alert to climate-related security threats, minimise mismanaged adaptation and mitigation strategies at the local level and impede such threats from escalating into violent confrontations ⁽²⁶⁾. Crucially, while disaster responses and coping mechanisms in the face of extreme weather phenomena need to be conflict-sensitive, i.e. they need to consider the effects of the interventions on local political and economic dynamics and particularly on vulnerable groups and stakeholders, explicit efforts to prevent conflict escalation need to be climate-sensitive. Put differently, coping and adapting to climate change without localised peace efforts will be at best suboptimal in a conflict-affected context, while local peace efforts will remain ineffective without consideration of the threats stemming from climate change ⁽²⁷⁾.

There are several reasons why natural disaster management efforts benefit from strong local ownership and participation of multiple local governance institutions/actors. As discussed, the level of exposure to and in particular socio-economic vulnerability in the face of climate hazards varies greatly within a state, as does the needs to manage natural disasters. While national political leadership plays an incremental role in disaster relief and support, in many contexts the materialisation of effective central state efforts can take considerable time ⁽²⁸⁾. Local governance actors are by default closer to the crisis and therefore more apt for acting as the first responders. Second, the social, political and security consequences of a natural disaster are also context-specific, and knowledge on these is more likely to be found at the local level. Third, and relatedly, responding to

(25) Federal Emergency Management Agency (FEMA), 'Disaster sequence of events', State Disaster Management Course (<https://training.fema.gov/emiweb/downloads/is208sdmunit3.pdf>).

(26) *Local governance in fragile and conflict-affected settings*, op.cit.

(27) Stark, J., Terasawa, K. and Agonafir, C.N., 'Lessons learned from the peace centers for climate and social resilience project', *Pathways to Peace Series: Addressing Conflict and Strengthening Resilience in a Changing Climate*, Chemonics International Inc., 2019.

(28) See Col, J.M., 'Managing disasters: the role of local government', *Public Administration Review*, Vol. 67, No 1, 2007, pp. 114-124.

climate shocks in a top-down fashion without strong local agency bears a high risk of undermining local power dynamics and disturbing these. This can lead to a failure of the ‘do no harm’ principle and increase rather than decrease local conflict propensity.

Fortunately, there is a growing recognition among international actors of the importance of local governments and local non-governmental actors in acting as the first responders to a natural disaster. The EU’s disaster risk reduction (DRR) support relies on a principle of making emergency response to a disaster ‘as local as possible, as international as necessary’, thus emphasising the importance of local agency in safeguarding effective relief efforts in a crisis situation⁽²⁹⁾. Indeed, there is a considerable emphasis on strengthening community-based DRR capacities and the capacities of local authorities to respond to emergencies throughout the EU’s policy documents concerning disaster relief efforts⁽³⁰⁾. Continuing to invest in such local natural disaster preparedness – that is conflict-sensitive – can make a considerable difference in whether and to what extent a drought exacerbates communal conflicts and/or how a flood gives opportunities to violent non-state actors. Yet, for local authorities to become effective first-responders in natural disaster situations and for communities to be able to retain agency in the face of a climate hazard, they need adequate decision-making powers, resources and available plans of action – including communication tools – that can be

Local governance actors are by default closer to the crisis and therefore more apt for acting as the first responders.

activated when a disaster hits. Again, the challenge is to ensure that international support contributes to the consolidation of local disaster risk reduction and management capacities that eventually become self-sustaining and embedded in the existing local institutions. Ultimately, support to operational disaster risk reduction and management efforts needs to be considered in the broader context of climate change adaptation efforts and development cooperation⁽³¹⁾.

Digital technologies – discussed in more depth in the next chapter – offer promising new tools for helping communities confronted with climate change challenges to cope in adversarial situations.

For example, farmers in Cambodia use an application funded by the EU that serves as a weather forecast and information hub on crops to cope with the increased unpredictability of local climatic conditions⁽³²⁾. The EU’s Copernicus programme equally shows the potential of space capabilities to support context-specific coping and adapting measures to climate change by providing nuanced data on various issues, such as water, vegetation and disaster risk. Naturally, for such information and early warning systems to work effectively, their users need to have capacity to actually do something about the information transmitted⁽³³⁾.

Indeed, while it is important to provide support to local institutions that enables them to respond to climate hazards swiftly and in a conflict-sensitive manner, it is equally important to strengthen local capacities to pre-empt

(29) European Commission, *Disaster Preparedness*, Factsheet, 2020 (https://ec.europa.eu/echo/what/humanitarian-aid/disaster-preparedness_en).

(30) European Commission, DG ECHO, ‘Disaster Risk Reduction: Increasing resilience by reducing disaster risk in humanitarian action’, Thematic Policy Document no. 5, September 2013 (https://ec.europa.eu/echo/files/policies/prevention-preparedness/DRR_thematic_policy_doc.pdf); European Commission, Staff Working Document, ‘Action Plan on the Sendai Framework for Disaster Risk Reduction 2015–2030: A disaster-risk informed approach for all EU policies’, 17 June 2016 (https://ec.europa.eu/echo/sites/echo-site/files/1_en_document_travail_service_parti_v2.pdf).

(31) Brahmi, A. and Poupphone, K., ‘Study on local coping mechanisms in disaster management: Case studies from the Lao PDR’, The National Disaster Management Office, Disaster Preparedness Programme (DIPECHO), September 2002.

(32) European Civil Protection and Humanitarian Aid Operations, ‘The farming app that helps Cambodian farmers cope with unpredictable weather’, 2019 (https://ec.europa.eu/echo/field-blogs/videos/farming-app-helps-cambodian-farmers-cope-unpredictable-weather_en).

(33) European Commission, ‘Copernicus – The European Earth Observation Programme’, 2019 (https://www.copernicus.eu/sites/default/files/Brochure_Copernicus_2019%20updated_0.pdf).

and respond to explicit conflict threats. In this regard, local peace committees (LPCs) and other inclusive local peace structures present potential. LPCs are institutionalised and context-specific structures that are established for the purposes of preventing violent escalation of local disputes and fostering peaceful relations at the local level in the face of escalatory dynamics⁽³⁴⁾. Peace committees are conceived to be ‘organic, inclusive, participatory, and non-threatening social spaces that facilitate dialogue and mutual understanding, and allow for constructive problem-solving and joint action to prevent violence’⁽³⁵⁾. Such structures have existed for decades in sub-Saharan Africa (Kenya, South Africa and Ghana are often cited as examples) and similar structures have been formed in other regions as well. In practice, such structures often involve local customary authorities and conflict resolution practices, local/district authorities, and civil society representatives from different interest groups and communities⁽³⁶⁾.

LPCs, by virtue of their institutionalised and participatory nature, can swiftly respond to both local and external threats to peace from a context-specific perspective by deploying a wide range of tools and strategies, such as inter-communal dialogue, curtailing of rumours, organising peace talks, and disseminating and translating broader peace frameworks in locally adaptable ways⁽³⁷⁾. Rather than yet another *ad hoc* peace initiative imposed by an external actor, LPCs are (in theory) institutionalised and embedded in the local governance context, with clear functions and relations to the local authorities and higher-level peace frameworks (scaling up through national peace infrastructures, for example). These grassroots peace structures can be effective in responding to local tensions exacerbated by prolonged drought or

floods and they can also pre-empt such tensions given their institutionalised and local nature. On the other hand, the core challenges with LPCs highlight the main problems with local operational prevention efforts more broadly: when organic and inclusive, LPCs tend to suffer from chronic lack of resources that would allow them to take swift preventive or peace-making action. Moreover, when LPCs do receive considerable funding from state authorities and international actors, they risk losing their local legitimacy and becoming battlefields for local power competition, therefore undermining the very essence of their benefits⁽³⁸⁾. Both international actors, from donors to NGOs, and national and local authorities have to play a delicate balancing game between supporting and recognising LPCs as part of holistic peace efforts while preserving their agency as bodies firmly grounded in the needs and interests of the local peace crusaders.

At best, LPCs can work as significant operational prevention tools on the ground, reacting swiftly to early signs of security threats and managing local efforts to resolve tensions constructively and non-violently. For international actors to support LPCs and other local peace structures positively, it is essential that the existing institutions and local peace-makers are properly identified and mapped before any intervention takes place. Indeed, in addition to (or within) a conflict analysis there is a need for a resilience analysis, assessing the existing sources of peace and resilience on the ground. On that basis, both intergovernmental organisations and NGOs can then focus their interventions on strengthening the institutionalisation and effectiveness of operational local peace efforts.

At the same time, it is important to maintain realism in terms of the scope of such efforts.

(34) Odendaal, A., *An Architecture for Building Peace at the Local Level: A Comparative Study of Local Peace Committees*, Bureau for Crisis Prevention and Recovery of the United Nations Development Programme, 2010; Odendaal, A., *A Crucial Link: Local Peace Committees and National Peacebuilding*, United Institute of Peace, Washington, 2013.

(35) Nganje, F., ‘Local peace committees and grassroots peacebuilding in Africa’, in McNamee, T. and Monde. M. (eds.), *The State of Peacebuilding in Africa: Lessons Learned for Policymakers and Practitioners*, Springer International Publishing, Cham, 2021, pp.123-139.

(36) Ibid.

(37) *Local governance in fragile and conflict-affected settings*, op.cit., pp. 105-106.

(38) ‘Local peace committees and grassroots peacebuilding in Africa’, op.cit.; *An Architecture for Building Peace at the Local Level*, op.cit.

LPCs and other local efforts to prevent and mitigate violent escalation ultimately rely on soft and – by definition – local tools that can help to maintain peaceful local relations. They cannot be expected to resolve the underlying structural issues that often have national/state-level roots. Therefore, for LPCs to work efficiently as operational prevention tools, their work must be coordinated with and supported by wider efforts to reform socioeconomic structures and strengthen governance. This is best achieved by supporting clear mandates for LPCs that carefully define the relations between LPCs, local authorities and national institutions/frameworks in a given state ⁽³⁹⁾. In addition to clearly defined vertical relations, it can be useful to ensure strengthening networks between LPCs within and across countries, as this can help to share best practices, lessons learned and successful examples of prevention between localities.

Finally, it is increasingly critical that LPCs and other local peace actors cooperate and coordinate with those institutions and initiatives geared explicitly towards strengthening climate change adaptation and for example disaster relief, and vice versa. This requires better integration and coordination of peacebuilding and climate change adaptation funding in conflict-affected and vulnerable contexts ⁽⁴⁰⁾. LPCs can play a significant role in helping to cope with adverse climatic conditions by contributing to peaceful and constructive resolution of natural resource competition and local tensions related to the redistribution of public goods and services at the local level. Hence, in practice, peacebuilding funding can on many occasions translate to strengthening coping capacities. Equally, climate change adaptation funding can serve as structural conflict prevention funding, if it is channelled in a conflict-sensitive way. It is critical to understand that while these mutual benefits call for more coordination in funding and implementation of programmes in conflict-affected and vulnerable contexts, the mutual benefits are by no means automatic. Support to coping and adaptive capacities may be harmful to local

peace dynamics and resolving local tensions – particularly resolving a given confrontational relationship between two political actors – does not in itself resolve the hurdle of a deteriorating environment and climate change's contribution to environmental degradation.

Key messages

- > Local governance institutions can play a key role in undertaking preventive action to mitigate climate change, both structural prevention that strengthens adaptive capacities and operational prevention that addresses coping capacities.
- > More decision-making powers and financial autonomy regarding climate change adaptation are needed at the local level for local governance institutions to become apt for the challenge and scale up efforts in the coming decade.
- > Local adaptive measures need to be based on interactive governance that engages with informal institutions and civil society to be conflict preventive.
- > Key components of operational prevention are conflict-sensitive disaster responses and climate-sensitive early action measures to resolve conflict peacefully at the local level.
- > International interventions to support local capacities need to commence with an assessment of peace resources (as part of the conflict analysis) that identifies and maps existing sources of resilience and peacebuilding at the local level.
- > Local Peace Committees (LPCs) and devolved climate change funds are concrete mechanisms to foster and strengthen climate security.

⁽³⁹⁾ 'Local peace committees and grassroots peacebuilding in Africa', op.cit.

⁽⁴⁰⁾ *Winning the Peace: Peacebuilding and Climate Change in Mali and Somalia*, op.cit.

REMEDY 2

DIGITALISATION FOR PEACE

As discussed in Part I regarding our second megatrend, digitalisation will not directly or automatically undermine peaceful societal or international relations within the next ten years (or beyond). Indeed, in comparison to our first megatrend, i.e. climate change, digitalisation does not necessarily have such systemic-level negative implications as contributing to environmental degradation. Nevertheless, as we have seen, there are several ways in which digitalisation can be used to wage and escalate conflict once conflict cleavages have emerged. In particular, digitalisation risks accelerating conflict mobilisation processes and increasing the range of potential victims as well as the number of actors involved in conflicts.

How can these conflict escalatory effects of digitalisation be prevented? In essence, tackling the root causes of conflicts – such as (local) governance weaknesses and inequalities between groups – will help to prevent the emergence of cleavages that instigators and mobilisers of violence can benefit from (whether online or offline). Yet the nature of digitalisation offers also more specifically tailored preventive options that can undermine the escalatory potential of digital tools. In short, digitalisation itself can be utilised to facilitate conflict prevention. Again, this is due to its nature as a platform of action and a tool that can be used for political purposes. There is no reason why the technological innovations that facilitate communication and collaboration among groups of people could not be used for enhancing rather than undermining peace. After all, facilitation of communication is a key aspect of conflict prevention and peacebuilding⁽¹⁾.

Specifically, new ways of understanding and analysing big data and new innovations in communication can be used to identify escalatory dynamics and seek solutions, just as they can also be used for escalating a situation. Digitalisation can play a positive role at the level of structural prevention and be deployed to tackle the underlying factors and processes that cause conflicts – while not losing sight of the fact that digital technologies can play a negative role in conflict escalation. Furthermore, digitalisation is particularly promising as an enabler of more effective operational prevention in situations where a conflict is about to escalate or expand. The two components are clarified in the sections below.

STRUCTURAL PREVENTION: FROM DIGITAL PUBLIC GOODS TO ACCOUNTABLE USE OF AI

Digitalisation can strengthen peace by improving governance efficiency, specifically the provision of public goods and services, and facilitating communication between constituents and public authorities in conflict-affected and vulnerable settings. The pandemic crisis

(1) Quihuis, M., Nelson, M. and Guttieri, K., 'Framing Peace technology: scope, scale and cautions', *Building Peace* 5, 2015.

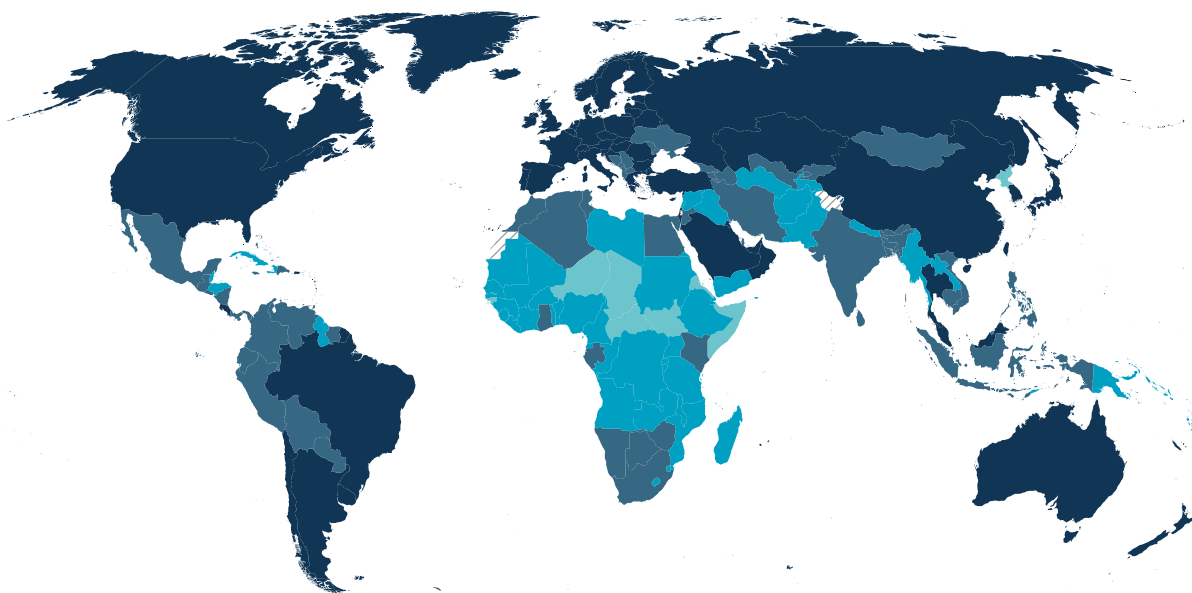
E-government development across the world

E-Government Development Index in 2020

EGDI LEVEL

Level of online services, telecommunications infrastructure and human capacity in e-government


 No Data Low Middle High Very High



Data: UN Department of Economic and Social Affairs, *E-Government Survey*, 2020; European Commission, 2021

has demonstrated the value of digital public goods and services from e-health services to digital transfers of pensions. Where such digitalised services have been lacking, restrictions on movement of people have generated more severe societal consequences. In Ukraine, for example, after the onset of the Covid-19 pandemic pensioners in the non-government controlled areas of the disputed region faced difficulties in getting their monthly payments, as this required crossing the contact line that had been closed to prevent the spread of the virus ⁽²⁾. Electronic money transfers can eliminate such complications and help in fighting

against corruption, as indicated by several case studies ⁽³⁾. In Afghanistan, transferring from cash payments to digital payments (using mobile phones) increased the net salaries of police officers who had previously had some of their pay siphoned off by various ‘middlemen’ ⁽⁴⁾. Such reforms in conflict-affected contexts can help establish trust in governance structures and undermine support for armed and violent groups.

More broadly, the expansion of the IoT, blockchain technology, and AI-based data analysis can help public authorities to provide and

(2) Mustasilta, K., ‘From bad to worse? The impact(s) of covid-19 on conflict dynamics’, *Brief No 10, Conflict Series*, EUISS, June 2020.

(3) Cangiano, M., Gelb, A. and Goodwin-Groen, R., ‘Integration of Government Digitalisation and Public Financial Management – Initial Evidence’, in Gupta, S. et al. (eds.), *Digital Revolutions in Public Finance*, International Monetary Fund, Washington D.C., 2017.

(4) Lindberg Y. and Torjesen, S., ‘Mobile phones build peace’, *Stanford Social Innovation Review*, August 2013 (https://ssir.org/articles/entry/mobile_phones_build_peace).

monitor public services more efficiently and in increasingly transparent ways. For example, traffic sensors can be used to direct traffic in ever more densely populated cities and thus facilitate everyday life for millions of people. In contexts where trust in law enforcement is low, substituting or supporting human officers with AI, for instance in traffic control, can in fact improve trust in the rules-enforcement system as robots are considered less corruptible in enforcing laws⁽⁵⁾. Indeed, using AI to counter and weaken the effects of prejudices and corruption has the potential to strengthen trust in governance systems that rely on compliance.

Relatedly, as a recent study by the Organisation for Economic Co-operation and Development (OECD) shows, digitalisation can help authorities to extract revenues and to spend these in more effective and accountable ways⁽⁶⁾. For example, big data analytics using machine learning techniques can improve our understanding of the fairness and efficiency of different taxation regimes and help authorities to build better tax systems and improve voluntary compliance. In Denmark, for example, tax authorities use machine learning to identify fraudulent firms (that avoid their tax duties)⁽⁷⁾. Improvements in the collection of taxes such as VAT can help national and local authorities in their revenue extraction, which can then be used to provide better public goods and services. Again, easier and faster collection and analysis of comprehensive data on where and how government spending takes place can increase the transparency of public authorities and make them more inclined to act accountably.

Furthermore, digitalisation can increase peaceful participation in the political arena and foster genuine democratic governance. At the structural level, two-way interaction between authorities and constituents can be facilitated by ICTs expanding their outreach. Today social

media remains a rather biased environment in terms of its active users. Increasingly, however, whether we like it or not, social media platforms will connect even larger numbers of people and will be used by a more heterogeneous pool of citizens: this means that people can voice their grievances more easily. Naturally, risks are involved: being able to communicate 'directly' with the authorities concerning one's needs can generate high expectations, which can then be disappointed if the authorities in charge do not have the resources (or will) to actually follow up on the large volume of messages they receive from their constituents. Moreover, structural vulnerabilities and long-term worrying trends can be marginalised in the public discourse as more 'immediate' concerns and events are prioritised.

More data and computing power to spot vulnerabilities

Digitalisation can also serve structural prevention more directly by supporting our capabilities to identify, analyse and address underlying root causes of conflicts before any immediate escalation threat. As outlined in the trends prognosis, within the next decade the growth of the IoT and other digitalised data collection and preservation tools will further expand the available big data (to which of course not all users will have equal access), driving and necessitating new machine-learning and other AI-based data analysis techniques⁽⁸⁾. This will enable more comprehensive data compiling, structuring, and analysis and can complement human-led theoretical and analytical efforts to understand structural and political conflict vulnerabilities. Specifically, there are two dimensions that make big data analytics potentially helpful in structural prevention. The first relates to the nature of the data that machine-learning techniques can analyse

(5) See e.g. Smartcity, 'How Robot Policing Is Taking Over The Challenging Roles?', 8 July 2020 (<https://smartcity.press/robot-policing-in-smart-cities/>).

(6) de Mello, L. and Ter-Minassian, T., 'Digitalisation challenges and opportunities for subnational governments', OECD Working Papers on Fiscal Federalism, No 31, 2020.

(7) Ibid.

(8) NATO, *Science & Technology Trends 2020-2040*, 2020.

and access. These days, the data used to follow trends in the key structural vulnerabilities to conflict – be it climate change-related variables, corruption, economic development, horizontal inequality, etc. – is drawn mostly from formal records, reports, newspapers, and expert surveys and interview material. As more people and objects are connected to the internet and more data becomes available (also for researchers), these key factors and their interactions can be captured in more nuanced ways. The logic is similar to the business and marketing models of benefiting from the IoT in data analysis and subsequent adaptation; yet instead of analysing customer behaviour or product movement for higher profits and lowered costs, the aim is to identify societal vulnerabilities and find optimal solutions to them ⁽⁹⁾. This can help to spot weak signals of emerging issues that are difficult to detect through more conventional analyses. For example, big data analytics can help capture such difficult-to-measure concepts as corruption by using more micro-level data on human behaviour and movement of resources and learning about the associations between different types of corruption and societal outcomes. The superior computing power of AI and its automated learning and adjusting of the models can also support our knowledge, for example, about the conditions under which communities are more or less vulnerable to droughts and what exactly they would need to improve their adaptive and coping capacities.

Second, the analysis can be automatically and instantly updated, thus speeding up our learning process about changes or emerging issues. AI accelerates the modelling process and can automatically adjust to new data inputs ⁽¹⁰⁾. This has the potential of making political risk and vulnerability analyses more adept at spotting threatening changes and emerging issues earlier than before. Forecasting the future requires

a comprehensive and nuanced understanding of the present (which we constantly learn more about), and AI can help us become better at this. Instead of relying on yearly or monthly data points of socio-economic conditions, attitudes towards public authorities, or perceived security threats among a given population, futurists and other analysts can increasingly use dense over-time data that not only captures these variables in a more nuanced manner but is also able to spot gradual changes over time. Overall, then, data mining and machine-learning techniques can be used in foresight to identify patterns that we have missed as well as capture change where we have not yet detected it or correct our misconceptions about patterns that do not actually exist (although we think they do) ⁽¹¹⁾.

These possibilities come with challenges. First, data mining and AI-based data analysis raise serious ethical and privacy issues: under what conditions should data collected by different types of sensors and applications (street cameras, digitalised access passes for public transportation, agricultural production innovations, social media posts, map-services) be shared and with whom and for what purposes? What are the risks for privacy posed by sharing of such data and machine-learning techniques being used to analyse such data? These questions, which are also being asked in relation to using AI to support business models in knowing their customers better, have to be discussed among analysts and researchers or officials advocating the use of AI for the provision of public goods and services.

Another challenge relates to the nature and quality of the data being analysed. As the saying goes, 'put garbage in, and garbage comes out'. In other words, as AI ultimately relies on historical data made available to it by humans, the biases and prejudices that have influenced the

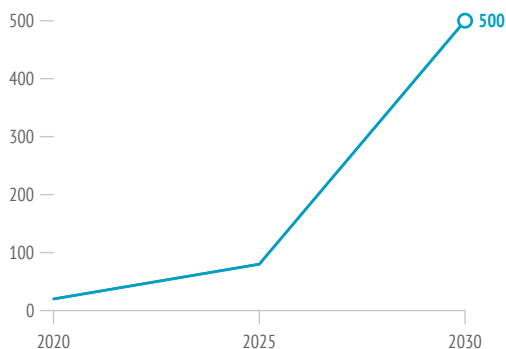
(9) See Chui, M., Löffler, M. and Roberts, R., 'The Internet of Things', *McKinsey Quarterly*, March 2010 (<https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-internet-of-things#>).

(10) Software Testing Help (STH), 'Data Mining Vs Machine Learning Vs Artificial Intelligence Vs Deep Learning' (<https://www.softwaretestinghelp.com/data-mining-vs-machine-learning-vs-ai/>).

(11) Benavides Rincón, G., 'Guest Editorial: On "Big Data, AI, and Futures Studies"', *World Futures Review*, Vol.12, No 2, pp. 147-150.

Projected growth of the Internet of Things

Number of connected devices



Data: DNV Technology Outlook 2030, DNV GL AS, see dnvgl.com/to2030

people generating the data can transfer to the AI and its analysis⁽¹²⁾. For example, facial recognition systems are known to perform more poorly with non-Caucasian and dark-skinned faces. This is not because of some inherent racism in AI but because of the training datasets and subsequently algorithms making it easier for AI to recognise white faces⁽¹³⁾. A classic example of AI bias is software used to predict the risk of recidivism among American prisoners. The AI-based system, which relies on historical data derived from criminal records, has been found to systematically assess black offenders as more likely to reoffend, due to inbuilt bias in the training data (black men are particularly over-represented in criminal records data and thus the models learn to associate them with a higher reoffending rate)⁽¹⁴⁾. While excelling in clustering and finding associations between different indicators, thus creating profiles of specific outcomes, AI is not good at separating between causation and correlation or assessing how much substantive weight should be given

to equally strong associations when predicting outcomes for new cases⁽¹⁵⁾. Hence, in the above example, the model does not automatically learn to correct the racial bias and downplay its significance for example in relation to past recidivism levels (or some other substantive predictor of reoffending). Other examples abound. Amazon, for example, used an AI-based recruitment tool found to be biased against women (for similar reasons as indicated above)⁽¹⁶⁾.

There are other types of biases, too. Notably, from a conflict-prevention perspective, while digitalisation of conflict-affected and fragile countries continues (and accelerates), the available data will continue to vary in nature and quality between and within countries. It will remain more difficult, for instance, to access specific micro-level data from rural villages in Kyrgyzstan than from wealthy suburbs of Nairobi. Relatedly, data will continue being unequally available to different actors and organisations. Indeed, the value of data is going up, and private companies, state actors, and other managers of data might not be inclined to easily (or cheaply) share their data. These problems are symptomatic of the digital divide that will persist throughout the coming decade, even with increasing access to the internet and other digital tools.

There is still room for cautious optimism, however, when it comes to deploying AI and big data for better understanding of people and societies, therefore helping researchers and policy-makers to design better policies. The biases in machine-learning techniques are ultimately the result of human input and can be removed from AI systems. Going back to the example of Amazon, analysis of the hidden biases revealed certain keywords (e.g. 'executed') associated

- (12) Boysen, A., 'Mine the Gap: Augmenting Foresight Methodologies with Data Analytics', *World Futures Review*, Vol. 12, No 2, 2020.
- (13) See Venkatraman, V., 'Coded Bias review: An eye-opening account of the dangers of AI', *NewScientist*, 12 August 2020 (<https://www.newscientist.com/article/mg24732951-400-coded-bias-review-an-eye-opening-account-of-the-dangers-of-ai/#ixzz6iljRdBR>).
- (14) Kaplan, J., 'Why your AI might be racist', *The Washington Post*, DemocracyPost, 17 December 2018 (<https://www.washingtonpost.com/opinions/2018/12/17/why-your-ai-might-be-racist/>).
- (15) Van Belkom, R., 'The Impact of Artificial Intelligence on the Activities of a Futurist', *World Future Reviews*, Vol. 12, No.2, 2020, pp. 156-168.
- (16) 'Mine the Gap', op.cit.

with successful applications and that were more often chosen by men to describe their skills and experience than by their female counterparts with similar profiles. Once the training data was cleaned to exclude such biases, the outcome turned out to be more transparent and reliable than would be the case with a purely human-based recruitment process⁽¹⁷⁾. Moreover, while the digital divide will remain a reality, the scale of the problem depends on the attention and investments that equal digital access and local innovations across the world receive. Even in contexts where responding to humanitarian needs and ensuring basic rights are priorities, supporting critical digital infrastructure at the micro-, meso-, and meta-levels needs to take place in order for the positive dividends of digitalisation to have a chance to overtake the associated risks and threats.

Finally, conflict prevention rationale needs to be integrated in the regulatory frameworks and norms that incentivise and disincentivise actors in seizing opportunities presented by developing digital technologies. This does not mean regulations that impede the development of the technological innovations underway. Rather, adopting a conflict preventive approach translates to establishing norms and regulations on the basis of an analysis of the risks and dangers posed by specific digital technologies and how these can be minimised and overseen, as well as incentivising a more positive use of technologies. The EU Commission's Ethical Guidelines for AI identify seven key principles and good starting points in development of AI: human agency and oversight, technical robustness and safety, privacy and data governance, transparency, non-discrimination and fairness, societal and environmental well-being, and accountability⁽¹⁸⁾. It is important that such principles are agreed upon at a global level to explicitly achieve consensus on the minimal denominators directing the development of these new technologies.

From a conflict-prevention perspective, particularly norms on accountability, transparency, as well as social and environmental well-being, play a key role in encouraging positive and discouraging negative (and escalatory) behaviour. Operationalising these norms through identification systems for individual 3D-printers or setting clear rules and timeframes for collecting and maintaining personalised data can disincentivise the use of certain tools for conflict purposes⁽¹⁹⁾. Agreeing on an international bill of rights for the digital world – as suggested by various political leaders and commentators – would not be important solely for its behaviour-directing impact prior to possible violation of rights. From a conflict prevention perspective, the importance would also stem from the institutionalisation and enforcement of rights that can be invoked when seeking justice/reconciliation after a breach of such rights⁽²⁰⁾.

OPERATIONAL PREVENTION: DATA, AI AND COMMUNICATION FOR PEACE

Beyond structural measures, digitalisation can perform a useful role with regard to operational conflict prevention by

1. helping us to more precisely model and analyse conflict risks;
2. countering escalatory narratives and identifying possible solutions or alternatives to violence;

(17) Ibid.

(18) See European Commission, High Level Expert Group on Artificial Intelligence, *Ethics Guidelines for Trustworthy AI*, 2019.

(19) See 'Additive manufacturing in 2040', op.cit.

(20) See Ghosh, D., Abecassis, A. and Loveridge, J., 'Privacy and the pandemic: time for a digital bill of rights', *Foreign Policy*, 20 April 2020 (<https://foreignpolicy.com/2020/04/20/coronavirus-pandemic-privacy-digital-rights-democracy/>).

3. helping to change micro-level behaviour by alerting to violence-inducing patterns; and
4. facilitating faster and more inclusive communication in a time of crisis.

First, the coming decade will likely see further development of and, hopefully, enhanced co-operation around conflict analysis and Conflict Early Warning Systems (CEWS) that use machine-learning techniques and automated data collection to assess future conflict probabilities and to guide preventive action ⁽²¹⁾.

Recent advancements in the EWS of regional organisations, states, and academic institutions are indicative of this development. Perhaps the most advanced of such publicly available projects to date is the Violence Early Warning System (ViEWS), developed and managed at the Uppsala University Department of Peace and Conflict Research. The ViEWS provides monthly forecasts of national and subnational level conflict dynamics for 36 months at a time, employing machine learning and an ensemble of models (informed by conflict research literature) to arrive at high-quality predictions of conflict risk ⁽²²⁾. Apart from its unique granular forecasts that assess probabilities for spatially disaggregated subnational regions, the project brings added value to aggregate conflict forecasts by estimating three types of armed violence (state-based violence, non-state violence, and violence against civilians). Evaluations of the ViEWS have found it to perform well in predicting armed dynamics, though it is less accurate in foreseeing sudden escalation in spaces that have not witnessed earlier escalation ⁽²³⁾. The ViEWS is currently restricted to forecasting armed violence in Africa, but it intends to widen its geographical scope and is constantly developing its forecasting models.

Conflict prevention uses of digitalisation

From better early warning to more effective action



The EU's conflict Early Warning System (CEWS) also takes a quantitative analysis of conflict probabilities as its starting point, deploying the Global Conflict Risk Index (GCRI). The models use open source data (including data from the Uppsala Conflict Data Programme) and rely on a number of socio-economic, political, security, and other conflict-affiliated structural factors in estimating conflict intensity and probability scores (spatially at a national level). The GCRI, designed by the Commission's Joint Research Centre, recently started exploring AI random-forest models in addition to the more conventional linear and logistical statistical regression models used thus far ⁽²⁴⁾. As highlighted by EU officials, the quantitative assessment of conflict risk is only a starting point for the CEWS, which subsequently relies on qualitative expert analysis and joint assessment to arrive at identifying priorities. A useful component of the EU's EWS is a digital platform that allows the user to visualise the different structural

(21) Guo, W., Gleditsch K., and Wilson, A., 'Retool AI to forecast and limit wars', *Nature*, October 2018 (<https://www.nature.com/articles/d41586-018-07026-4/>.)

(22) Hegre H., et al., 'ViEWS: a political violence early warning system', *Journal of Peace Research*, Vol. 56, No 2, 2019, pp.155-174.

(23) Ibid.; Baron, M. and Rrustemi, A., 'Artificial Intelligence tools versus practice in conflict prevention: The case of Mali', *The Hague Centre for Strategic Studies*, 2020; Mosely, T.R., 'We are finally getting better at predicting organized conflict', *MIT Technology Review*, 24 October 2019.

(24) Halkia M., et al., 'The Global Conflict Risk Index: Artificial Intelligence for Conflict Prevention', *JRC Technical Reports*, 2020 (https://publications.jrc.ec.europa.eu/repository/bitstream/JRC118746/ai_gcric_technical_report.pdf).

components making a country vulnerable to violence escalation, therefore guiding the users more than a simple conflict probability score would do ⁽²⁵⁾. On the other hand, the annual timeframe of the EU's EWS and its focus on structural vulnerabilities limit its usability as a system that would help to spot early signs of escalatory processes: effective conflict prevention is time-sensitive, and models based on yearly updates are quasi-optimal for timely early warning.

Many other initiatives applying AI and other innovative data analysis tools exist that aim at delivering early warning messages and facilitating action in the face of peace and security threats. For example, the Ecological Threat Register, mentioned in the previous chapter, combines its positive peace index with forecasts on environmental and climate-related change to come to identify key countries in danger of ecological catastrophes ⁽²⁶⁾. Similarly to the EU's CEWS, the early warning project of the US Holocaust Museum and Dartmouth College takes a quantitative risk model as its starting point in forecasting the vulnerability of countries to genocide and mass atrocities with a timeframe of two years ⁽²⁷⁾.

The way these and other early warning initiatives develop depends on the quality and nature of the data they use, the advancements in theoretical understanding of escalatory dynamics, and the new methodological tools being made available to researchers and analysts. Moreover, their progress ultimately also depends on how

they are (or are not) used by decision-makers and practitioners, which itself depends on how useful these actors perceive the available tools to be. Common challenges across many of the EWS are forecasting (on time) entirely new conflicts and the diminishing accuracy of the forecasts over time ⁽²⁸⁾. A key aspect here is that the models are theoretically and empirically focused on structural conflict drivers and take less into account actors' behaviour, strategies or, for example, public attitudes and perceptions. This is both a data and a theoretical issue: while having identified multiple structural and socio-economic conditions that make countries and/or areas vulnerable to conflict escalation (for which data is often available on an annual or monthly basis), we are weaker at understanding and empirically grasping context-specific political behaviours, interactions and mechanisms that lead a fragile situation to culminate in armed violence or civil unrest. However, the increasing availability of

granular big data can help early warning projects to both understand and grasp the factors associated with the onset of such escalatory dynamics as well. For example, AI can assist researchers in identifying, collecting data on, and analysing the associations of hate speech, fake news and conflict escalation and alert policy-makers to issues and situations with escalatory potential ⁽²⁹⁾.

More frequent updates of the data on which the forecasts rely will also enable more frequent iterations of the forecasting models and can improve the quality of these estimates ⁽³⁰⁾.

The increasing availability of granular big data can help early warning projects to grasp the factors associated with the onset of such escalatory dynamics.

(25) The author refers here to the Science4Peace Portal that includes a Global Conflict Risk Dashboard that allows the user to select individual countries, see their conflict intensity and probability scores and get an overview of the main independent factors assessed to contribute to the given probabilities: <https://science4peace.jrc.ec.europa.eu/ecas/logi/ecas/logi/ecas/logi/ecas/login>.

(26) See the project website: <https://ecologicalthreatregister.org/>.

(27) See the project website: <https://earlywarningproject.ushmm.org/about>.

(28) 'ViEWS: a political violence early warning system', op.cit., pp.155-174.

(29) Yankoski, M., Weninger, T. and Scheirer, W., 'An AI early warning system to monitor online disinformation, stop violence and protect elections', *Bulletin of the Atomic Scientists*, Vol. 76, No 2, 2020, pp. 85-90.

(30) "Mine the gap, op.cit.

Projects such as the Global Database of Events, Language and Tone (GDELT) that rely on automated real-time dataset compiling using news data from across the world including local news outlets and in over 100 languages can thus contribute to the quality and nature of the data used to understand pathways towards conflict escalation⁽³¹⁾. In particular, the advancements in natural language processing (NLP) have the potential to enable measuring of genuinely local processes, attitudes, and emotions rather than relying on international or national translations and reports of the local processes. At the same time, the constant updates on data can enable faster awareness of alarming changes and emerging conflict issues.

These data advancements are not useful just for the precision with which probabilities of violence can be measured but also in order to learn more about the complex pathways that explain conflict escalation⁽³²⁾. From a peace-builder or mediator perspective, early warning models need to clearly identify the main drivers of violence and guide context-specific prevention rather than solely offer a probability score (irrespective of its precision)⁽³³⁾. Only then can more effective early action take place. The combination of improvements in data collection efforts and iterative AI-using methods can help uncover hidden systemic patterns in the data that are key to understand spaces for prevention or question some of the assumptions that guide the policies today. These findings can then be used to adjust models and theories guiding not only future iterations of forecast models but also more conventional inferences. This can improve our comprehensive and

nuanced understanding of how different types of conflicts escalate⁽³⁴⁾.

Beyond conflict forecasting and early warnings, AI can be deployed as a digital assistant that enables real time conflict and impact analysis, facilitating data collection, mapping of relevant actors in a specific situation, and especially visualising their complex (and changing) networks⁽³⁵⁾. Conflict analyses are ideally comprehensive (covering different conflict layers, actors and incompatibilities in a nuanced manner) and frequent (to capture changes in the dynamics). This makes them laborious and resources-consuming. The computing power of AI and its ability to include a wide spectrum and different forms of data (including text, videos and pictures) that it can constantly monitor can be beneficial in maintaining an up-to-date comprehensive conflict picture⁽³⁶⁾. In concrete terms, AI-assisted virtual platforms including conflict maps enabling a better understanding of the different actors and layers of a specific conflict could help conflict prevention and peace-maintaining efforts⁽³⁷⁾.

Forecasting future outcomes is not the only way of using advancements in data analysis to build scenarios that can inform future action. A recent paper by the ViEWS team used simulations to assess the overall effect of UN peacekeeping operations on conflicts and produced concrete estimations of the savings and/or losses of different scenarios of investment in UN peacekeeping operations (PKOs). The paper, which overall found PKOs to be more effective in violence reduction than previously estimated, enhanced its policy relevance by applying cutting-edge data analysis tools that

(31) The GDELT Project: <https://blog.gdeltproject.org/the-datasets-of-gdelt-as-of-february-2016/>.

(32) See Hegre, H., et al., 'Introduction: Forecasting in Peace Research', *Journal of Peace Research*, Vol. 54, No 2), pp. 113-124.

(33) 'Retool AI to forecast and limit wars', op.cit.

(34) 'Mine the gap', op.cit.; 'Introduction: Forecasting in peace research', op.cit.; 'The impact of artificial intelligence on the activities of a futurist', op.cit.

(35) Höne, K., *Mediation and Artificial Intelligence: Notes on the future of international conflict resolution*, Diplo Foundation, 2019; Jacobson, B. R., Höne, K.E., and Kurbalija, J., 'Data diplomacy: Updating diplomacy to the big data era', DiploFoundation, February 2018.

(36) Mäki, N., 'Between Peace and Technology: a case study on opportunities and responsible design of artificial intelligence in peace technology', Thesis, 2020, Laurea University of Applied Sciences, Vantaa, Finland.

(37) Ibid.

allow assessment and comparison of ‘what if’ scenarios⁽³⁸⁾. These type of applications of new methodologies enabled by advances in software and data can help to bridge research and policy and foster evidence-based conflict preventive action. The paradox of not knowing the counter-factual outcomes of action or inaction (or their respective costs) makes justifying considerable resources in active conflict prevention sometimes politically difficult. The coming decade may provide increasing possibilities to estimate the relative costs of different scenarios and actions more credibly, therefore enabling more informed and grounded policy-making. However, the potential of AI, big data, and subsequently improved conflict models will only be harvested if there are concerted efforts to seize the opportunities brought by the digital revolution. Proposals such as the one made by leading conflict scholars to establish an international consortium with the aim of jointly developing models of conflict pathways in order to inform preventive action are worthy of serious consideration in this regard⁽³⁹⁾.

Countering escalatory narratives and offering peaceful alternatives

Digitalisation can assist peace practitioners and facilitators also by helping to counter conflict-escalatory narratives, including hate speech and deep fakes, and by promoting alternative narratives and offering ideas to resolve incompatibilities. In its simplest form, such action takes the form of online campaigns to inform people or shape a narrative around a topic. An illustrative example comes from the 2020 presidential election campaign in the United States. After then-President Trump controversially declared that a far-right group, ‘Proud Boys,’ should ‘stand back and stand

by’ (rather than demobilise) and the group gained a considerable boost on social media, a counter-campaign emerged when the #proudboys hashtag was reclaimed by gay Twitter users and activists. Within days, the LGBT community led a trend that flooded the hashtag with images of gay pride to the extent that it became difficult to use the hashtag to find the original group or its messages. During the first five days of October 2020, the hashtag was used more than 88 000 times, mainly to spread images of happy couples⁽⁴⁰⁾. While it can be argued that such action could also further polarise the opponent and even lead to acts of violence in retaliation, the spontaneous campaign did succeed at least temporarily in eclipsing originally hateful content with a message of love and peace, using a non-violent digital tactic.

The #proudboys campaign can be regarded as an example of digital disruption methods, referring to activities that aim at making it difficult to find extremist or violence-inducing content online and/or that redirect pathways from memes, videos, and other forms of content to non-violent and anti-extremist messages⁽⁴¹⁾. The benefits of digital disruption have been discussed in the context of countering violent extremism. Rather than primarily aiming at deradicalising already radicalised individuals, the aim is to – literally – disrupt the spread and popularisation of digital content that can contribute to the radicalisation of others. Another concrete example of digital disruption to counter violent-inducing content is a campaign by Norwegian hackers in the aftermath of the right-wing terrorist attack in Oslo and Utoya in 2014. The campaign by the hacktivist group Anonymous aimed at drowning out the violent manifesto that the perpetrator had published online. The campaign succeeded in obscuring

(38) Hegre, H., Hultman, L. and Mogleiv Nygård, H., ‘Evaluating the conflict-reducing effect of UN peacekeeping operations, Appendix, *Journal of Politics*, forthcoming

(39) ‘Retool AI to forecast and limit wars’, op.cit.

(40) BBC News, ‘Proud Boys: Far-right group becomes LGBT trend online’, 5 October 2020 (<https://www.bbc.com/news/world-us-canada-54380656>).

(41) Schori Liang, C. and Cross, M.J., ‘White Crusade: How to prevent right-wing extremists from exploiting the Internet’, *Strategic Security Analysis*, Issue 11, Geneva Centre for Security Policy, 2020.

the manifesto to the extent that finding the original one became difficult⁽⁴²⁾.

Digital disruption can be more broadly useful in operational conflict prevention as a method to impede or at least slow down the spread of escalatory messages and therefore decrease their impact in mobilising support for violent groups. Key actors in this are social media and internet search engine companies. The past decade has witnessed these companies mostly trying to present themselves as neutral platforms of information flow and freedom of speech while facing increasing criticism for giving space to hate speech, disinformation, autocratic regimes, and other messengers and movements that are seen as peace-threatening. The coming decade will be crucial in how these and other, new platforms will approach social responsibility and the protection of civil rights such as the right to peace and freedom from prosecution. Already in the past year social media giants have begun to implement various warning labels and tags to warn online users of disinformation and take steps to curb violence-inducing speech, culminating in the barring of Donald Trump from these platforms in the aftermath of the US presidential elections⁽⁴³⁾.

Beyond warning users of the nature of the content they are about to share/follow and/or impeding them from doing this, recent initiatives include influencing browsing algorithms to direct a user engaging with extremist content to messages that challenge and provide alternatives to such content. There are numerous examples of government and particularly NGO-led projects that use digital technologies to offer alternative narratives and to undermine narratives aimed at radicalising and mobilising individuals for violent extremist purposes. The general idea in many such projects is to create carefully targeted and appealing digital content

(e.g. videos, written content, music) that provide substantive alternatives to the messages of violent organisations and/or directly counter such messages. For example, a project by Moonshot CVE and Jigsaw targets users of keywords associated with extremist content with advertisements that redirect them to anti-extremist content on YouTube⁽⁴⁴⁾. Such initiatives are particularly important for a preventive approach as not only do they disrupt the flow of violence-inducing content but they offer alternative ways of viewing an issue and responding to it, and can therefore reduce the number of potential online recruits for extremist or terrorist organisations.

While digital disruption of violence-inducing messages can play a role in preventing violent mobilisation, these methods remains challenging in that they are labour-intensive and increasingly difficult to execute effectively (given the ever-growing flow of information online). For example, Facebook attempted to curtail messages posted by a far-right extremist group called Boogaloo by adjusting their algorithms to decrease the visibility of their messages. However, the Boogaloo group responded by altering the keywords leading to their site, which made Facebook's efforts somewhat futile⁽⁴⁵⁾. The basic challenge with countering disinformation and other content that may contribute to escalatory processes is twofold: first such content needs to be identified as precisely as possible (also taking into account that keywords may change). Second, after identifying such content and analysing who it targets and who spreads and perhaps acts upon it, the task is to counter its flow and offer alternative narratives on the issues at stake. This process quickly becomes labour-intensive.

Nevertheless, advancements in data mining and machine learning techniques can significantly improve such methods to counter

(42) Ibid. For the call for the campaign, see: <https://pastebin.com/DktSNbme>.

(43) See e.g. Brown, M., et al., 'Twitter put warning labels on hundreds of thousands of tweets. Our research examined which worked best', *Washington Post*, Monkey Cage Blog, 9 December 2020 (<https://www.washingtonpost.com/politics/2020/12/09/twitter-put-warning-labels-hundreds-thousands-tweets-our-research-examined-which-worked-best/>).

(44) 'White Crusade: How to prevent right-wing extremists from exploiting the Internet', op. cit.

(45) Ibid.

conflict-inducing content in the digital realm. Machine learning models can be trained to identify memes, tweets, video clips, etc. that spread violence-inducing content and/or fall under disinformation or deep fakes. This analysis, while serving as a starting point in early warning signals or conflict analysis, can also be a first step in countering such messages and informing people of the problems with given content while presenting existing alternatives to the behaviour it encourages. As these new methods and software develop, the faster and better they can become at recognising different types of content as violence-inciting, even when the disseminators of such content change keywords, tags or other elements. There are other promising initiatives on the way. For example, a research project at Princeton is developing a forecasting model on outbreaks of fake news and online propaganda. Such a social media 'weather report' could help us adjust our expectations with regard to the digital realm and remain alert to the influence of specific disinformation chains in a given day⁽⁴⁶⁾. Another example is a project at the University of Notre Dame to use AI to uncover deep fakes and false memes to warn officials about the imminent emergence of online and offline conflict mobilisation⁽⁴⁷⁾.

There is quite a bit of understandable scepticism about the relative effectiveness of digital platforms to counter disinformation flow and its negative societal implications. However, there are also some early signs that change may be underway. While the steps taken against disinformation and incitement to violence in the wake of the presidential elections in the US were argued by some to be inadequate and by others to be excessive, the fact that measures such as banning the instigators from social media appear to have had some effect on toning down misinformation at least in the short

term is noteworthy⁽⁴⁸⁾. While the decisions taken themselves caused shock and met with opposition – and raised important questions about censorship and freedom of speech – the way the social media companies acted demonstrated that change is possible given political will to enact it.

Apart from disrupting violence-inducing communication and redirecting users to counter-narratives, digitalisation can teach us about our own micro-level behaviour and help to channel it in a more peaceful direction. The effects of such micro-interventions that would alert us regarding our polarising or conflict-inducing behaviour rest on the notion that mediative technologies can shape our social interactions⁽⁴⁹⁾. In the same way that smartwatches and applications on smartphones measure sleep, time spent on social media, physical activity, etc., applications that would report back to users on the ways they have interacted with other people and the types of news and stories they have engaged with during the past week might be imagined, measuring the quality and nature of one's social interactions. While such apps might at first glance seem invasive, reminiscent of a personal Big Brother, many would probably prefer such constructive bottom-up feedback to top-down surveillance and tracking. Moreover, in comparison to applications that monitor one's physical activity or nutrition, such societal impact feedback could in fact be argued to make less intrusive use of one's private information. Such applications could be particularly useful in times of high local and societal tensions, such as elections. While they would not stop violent manipulators seeking to escalate a situation, such applications could mitigate escalatory rhetoric and behaviour from spreading uncontrollably. In essence, these AI-enabled innovations would provide us with feedback on the

(46) Newitz, A., 'A weather forecast for fake news outbreaks on social media is coming', *NewScientist*, 29 July 2020.

(47) Yankoski, M., Weninger, T. and Scheirer, W., 'An AI early warning system to monitor online disinformation, stop violence and protect elections', *Bulletin of the Atomic Scientists*, Vol. 76, No 2, pp. 85–90.

(48) Dwozking, E. and Timberg, G., 'Misinformation dropped dramatically the week after Twitter banned Trump and some allies', *The Washington Post*, 16 January 2021.

(49) 'Framing Peace Technology: scope, scale and cautions', op. cit.

type of societal footprint we have (similar to the notion of an ecological footprint)⁽⁵⁰⁾.

The development of digital tools and applications such as those outlined above reflect a growing interest in peace innovations, i.e. social and technological novelties that are geared to 'facilitate the prevention of conflict and/or alleviate the harmful consequences of human suffering when conflict occurs'⁽⁵¹⁾. There is growing potential and increasing practical opportunities for such innovations as entrepreneurs are increasingly aware of their social responsibility (or at least reputation) and digitalisation enables cooperation between different types of actors both horizontally and vertically. Whether and how new peace innovations develop is largely a function of investment and cooperation between the different stakeholders, particularly technical and social entrepreneurs, peace and conflict scholars, local experts, and policy communities. The role of states' and international organisations' innovation funds and institutional umbrellas is pivotal here to guarantee investments, forge connections, and enable scaling up of individual projects.

Digital diplomacy and communication

Finally, digitalisation can aid operational conflict prevention by accelerating and improving the quality of communication and – particularly in this case – preventive diplomacy, mediation and negotiations⁽⁵²⁾. Time is of the essence in a situation where tensions are increasing, and violent escalation appears imminent. Digitalisation, as we know, will continue to overcome physical barriers and obstacles imposed by geographical distance, allowing actors across the world to meet directly in a digital space with increasing ease and facility. This is critical for operational prevention as it can allow

conflict parties and/or third parties to discuss, communicate their priorities, and interact non-violently irrespective of their location. Simultaneously, the quality of preventive talks and communication between different stakeholders can improve as digitalisation allows for more inclusive participant pools and agendas while keeping the participants physically and politically safe. Notably, this applies to various conflict levels and horizontal and vertical communication between different political actors.

Concerning the speed of responding to early warning signals and facilitating or organising talks with relevant stakeholders, digitalisation can accelerate processes by removing obstacles of physical distance and security or political risks related to travelling. The pandemic crisis has provided ample proof of this, as digital platforms and internet connections have enabled conflict parties to continue their negotiations and keep non-violent communication alive despite the restrictions on movement and social distancing policies⁽⁵³⁾. On the other hand, the pandemic has also revealed existing challenges and the need for technical and organisational transformation for digital diplomacy to fully realise its potential as an effective tool in conflict prevention. Sometimes connections are bad, and stakeholders remain confined to certain safe sites where they have access to teleconferencing equipment. Such challenges should become less onerous during the coming decade as 5G allows faster and better connections and other innovations can enhance the digital reality in which actors communicate with one another. Investing in the development of the software and the technical skills of diplomats and peacemakers in conducting digital talks and/or shuttle diplomacy can pay off to facilitate more effective de-escalation in situations where conflict parties and third parties do not have the opportunity to convene face-to-face on time. In fact, digital diplomacy

(50) Ibid.

(51) Mikian, J. and Hoelscher, K., 'A new research approach for Peace Innovation', *Innovation and Development*, 2017, Vol. 8, No 2, 2017, pp. 189–207.

(52) See Hirblinger, A., 'Digital inclusion in mediated peace processes: how technology can enhance participation', United States Institute of Peace, Peaceworks, 2020.

(53) 'From bad to worse? The impact(s) of Covid-19 on conflict dynamics', op.cit.

can lower the threshold for conducting early talks between conflict parties as this can be done in relative secrecy (as no one needs to travel), thus securing both the physical and political security of all participants. Presuming that there are no leaks concerning such talks, digital tools do not always and automatically undermine the secrecy of talks but can in fact safeguard confidentiality, particularly in the early stages of a conflict escalation process. The faster and safer connections become irrespective of one's physical location, the faster mediators and conflict parties themselves can connect in times of crisis to address the emergency at hand and/or avoid escalation due to miscommunication.

Another way digitalisation can facilitate the organising of talks between conflict parties or between these and possible third parties is integrally related to the swifter analysis and agenda setting enabled by AI and big data. Utilising different types of big data, such as satellite images, GPS data, or social media sentiments, can help to identify agenda points for early talks and/or provide the third parties – as well as the conflict parties themselves – with an understanding of the political strategies and priorities as well as the perspectives of the conflict parties and their supporters⁽⁵⁴⁾. In essence, big data analytics can help to narrow the information dilemma that can arise in a conflict situation and speed up the process of identifying the positions of different parties and space for negotiations. This does not imply that the analysis of a conflict/crisis setting would be instantaneous or wholly automated, but that the relative time needed to move from early warning signs to organising preventive communication between the relevant stakeholders can possibly be compressed if new technologies are used as helpful tools in mapping the stakeholders, critical phases, and priorities of a given situation.

Digitalisation can further shorten the response time needed to move from early warning to early action.

Overall, then, digitalisation can further *shorten the response time* needed to move from early warning to early action. While technological advancements in the analysis of big data can quickly generate an overview of the situation and map the stakeholders and their interests, the advancement in the software, hardware and networks that connect people can facilitate quicker organisation of talks. This does not only apply to tier-one negotiations and informal talks between high-level leaderships. Local-level processes using text messages and messaging apps to curtail destabilising rumours already contribute to conflict prevention in contexts such as Kenya or the Philippines, and these can scale up and become more reliable with better internet connection and new innovations in communication.

Relatedly, digital technologies can improve the *quality* of operational preventive efforts. As indicated above, big data analytics can contribute to a better understanding of a situation for third-party actors to help de-escalate it. For instance, text-mining of political lead-

ers' statements and other verbatim transcripts can be used to identify priorities of decision-makers and analysis of social media sentiment can be deployed in understanding the level of public support towards certain positions. The outcomes of these AI-aided analyses can help a third-party facilitator (or an insider mediator) to have a better idea of the positions of different conflict parties, their priorities, and the support that they and their interests enjoy. Specifically, in an operational conflict prevention scenario, big data analytics can also help to find common ground between the conflict parties or more objective starting points for the talks. For example, satellite images or GPS data – provided that it derives from a trusted source – can serve as a basis for ceasefire negotiations after initial escalation, showing where different groups have moved

(54) 'Data diplomacy: Updating diplomacy to the big data era', op.cit.

and what damage has occurred ⁽⁵⁵⁾. Similarly, machine learning techniques can be used as an aid to estimate the costs of different solutions to each conflict party, and present multiple alternative pathways that would accommodate key interests in an optimal fashion. While not a magic pill that would offer solutions acceptable to all sides or remove the need for careful human-based planning and analysis, deploying big data analytics can help to put together a more optimised agenda for preventive action.

Besides contributing to the substantive agenda guiding preventive action, digitalisation can help foster inclusivity concerning participating actors and points of views in peace talks, thus potentially reducing the threat of spoiling behaviour in the wake of preventive action ⁽⁵⁶⁾. E-negotiations, digital mediation, and digital shuttle diplomacy remove the obstacles posed by physical distance and can be particularly useful in connecting representatives of groups in peripheral areas and/or third parties who cannot travel to the geographical location in question. Expanding digitalisation can, for example, enable participation of national-level authorities or third-party mediators and technical experts, or for instance peer groups from another country/region, in local-level talks between conflict parties, which previously would not have been likely due to the time-consuming and costly travel involved. Alternatively, perspectives that are often excluded from high-level political processes, such as indigenous groups' perspectives, gender considerations, or young people's priorities, can be – in theory – more easily included via digital tools. Even if the first-track process remains exclusive to the main armed and political parties, digital technologies allow negotiation teams and mediators to stay in frequent and real-time connection with a broader set of stakeholders, update them on how discussions

are progressing, take account of their priorities and include their viewpoints in the process. Furthermore, given appropriate capacities, expanding social media platforms and encrypted channels can help local peace activists and organisations to inform the wider peace-making community about threatening developments on the ground and make existing initiatives and ideas for preserving or building peace known.

However, these benefits in inclusivity do not automatically follow from increased use of digital technologies in peace processes and preventive action. For inclusivity to increase, actors need to have the necessary technical and human resource capacities capable of using new technological innovations to inform and participate. There is also a danger that digitalisation of preventive action and particularly mediation processes increases exclusivity by creating closed spaces behind encrypted platforms and passwords that are accessed by the main high-level actors and no one else ⁽⁵⁷⁾. In order for digitalisation to contribute to swifter and more inclusive preventive action, capacity-building among peace-promoting actors – particularly on the ground in fragile and conflict-affected countries – is needed. Moreover, innovative solutions to creating secure and trusted cyber platforms that facilitate inclusive participation and flexibility in when and how different stakeholders participate are necessary for digitalisation to bear the fruits it potentially carries. Ultimately, inclusivity requires political will no matter the enabling tools available.

There are other ways in which digitalisation could enhance the quality of preventive efforts. For example, NLP tools are fast-developing and can become useful also in facilitating communication and understanding of nuances between different stakeholders during a time of crisis ⁽⁵⁸⁾. Moreover, the trust-building

(55) Ibid.

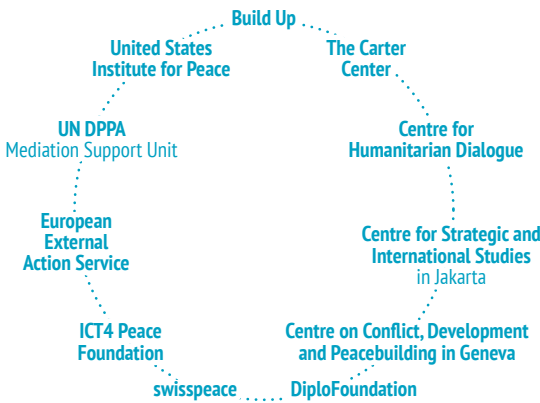
(56) For an excellent discussion on digital inclusion in mediation processes, see Hirblinger, A., 'Digital inclusion in peacemaking: A strategic perspective', CCDP Working Paper 14, 2020.

(57) Topic discussed at 'Building Trust in Cybermediation: A Collective Leadership Challenge?' panel, Geneva Peace Week Event, Graduate Institute Geneva, 29 October 2020 (<https://www.graduateinstitute.ch/communications/news/geneva-peace-week-2020-0>).

(58) See 'Between Peace and Technology: a case study on opportunities and responsible design of artificial intelligence in peace technology', op.cit.

Collective action on digital peace efforts

Cyber Mediation Network



hand, social media platforms have become key channels to spread disinformation and conspiracy campaigns that undermine public trust in (democratic) institutions and multilateral public health governance. On the other hand, digital technologies are to be thanked for maintaining connections among family members, negotiation teams, and conflict parties alike under the policies restricting movement of people. These have also served to trace the virus and mitigate its spread. The coming decade will certainly witness continuation of both peaceful and escalatory uses of digitalisation. The relative share of the two uses is a function of strategic preparedness, institutional development, and decisive action.

potential of digital technologies should not be forgotten. For example, the trust-facilitating effects of blockchain technology are increasingly discussed with regard to business models and partners but also regarding foreign aid⁽⁵⁹⁾. The characteristics of blockchain technology – i.e. the transparency of transactions among the parties to the blockchain and the near impossibility of penetrating/manipulating the nodes of the chain – could be useful also in building trust between conflict parties when taking initial concrete steps to de-escalate or prevent escalation.

Again, the way digital technologies are deployed in conflict prevention depends on the political will and investment in seizing the opportunities offered by digital tools, deploying innovations for peace, and supporting various peace actors in doing so. The Cyber Mediation Network, which brings together various non-governmental and multilateral actors, is a good example of such efforts to innovate and advance peace opportunities with digitalisation⁽⁶⁰⁾. Tech can be used both for escalation and prevention of conflict. The pandemic offers a poignant example of this. On the one

(59) Reinsberg, B., 'Blockchain technology and the governance of foreign aid', *Journal of Institutional Economics*, Vol. 15, No. 3, 2019, pp. 413-429.

(60) 'Digital Technologies and Civil Conflicts: Insights for Peacemakers', op.cit.

Key messages

- > Digitalisation provides new and expanding tools and platforms for both structural and operational conflict prevention measures that can support more effective and better targeted preventive efforts.
- > E-governance can increase transparency and curb corruption, facilitate communication between constituents and authorities, and improve governance cost-effectiveness.
- > Big data analytics, including data mining and AI-based analysis, can be used to better understand and tackle the root causes of conflict and escalatory pathways.
- > New sources and forms of data can become better integrated in conflict analysis and EWS. (If used responsibly and combining theoretical advancements and human analysis, better understanding of escalatory processes can result.)
- > AI can be utilised to disrupt hate speech and misinformation and to provide constructive alternatives.
- > Digital technologies can help preventive dialogue, negotiations and mediation processes by supporting conflict analysis, facilitating early communication between diverse stakeholders, improving inclusivity of talks, and strengthening trust between adversaries.

REMEDY 3

REGIONAL AND FLEXIBLE MULTILATERALISM

When it comes to our last megatrend, fragmentation of authority, there is no magic bullet for preventing the escalatory effects. In fact, compared to the first two megatrends, the trend can undermine conflict prevention efforts even more directly by manifesting itself as decreased international cooperation amid great power competition. On the other hand, the trajectory of this trend is more uncertain than in the case of the first two and more dependent on gamechangers and individual political actors – particularly the great powers. The specific way in which the trend evolves will also influence the challenges and opportunities it entails regarding preventing conflicts and their expansion.

This does not mean that there is no room for strengthening preparedness in terms of the pathways linking fragmentation of authority to escalatory conflict dynamics. To start with, the remedies already covered in the previous two chapters apply here as well: support to local governance institutions can ultimately make societies more resilient against the internationalisation and expansion of internal conflicts by strengthening domestic structures for resolving grievances and providing stability. Indeed, the re-intensifying interstate competition should not divert our attention from the issue of countries' internal dynamics: internal instabilities make countries (and regions) vulnerable to assertive external powers whereas strengthening internal cohesion can guard against this. Equally, seizing the opportunities offered by digitalisation for identifying escalatory threats and using digital means to structurally and operationally prevent escalatory

processes is key also in the face of this megatrend. Big data analytics and early warning systems can be used to enable earlier action in the face of escalation of interstate relations as well. Digital diplomacy can help to prevent the internationalisation of countries' internal conflicts.

Furthermore, this chapter identifies regional peace and security governance organisations and issue-based coalitions as particularly important platforms of action in mitigating the escalatory effects of fragmentation of authority. Rather than discussing the structural and operational prevention components separately, the chapter begins by analysing the necessity and feasibility of enhanced regional-level preventive action and goes on to highlight four specific aspects that deserve consideration when planning regional peace and security governance for the coming decade.

REGIONAL ORGANISATIONS AND MULTILATERAL PEACE AND SECURITY GOVERNANCE

The world faces a puzzle with regard to multilateral action as we move towards 2030. On the one hand, the presence of global challenges

ranging from climate change to pandemics increasingly demands multilateral, multi-level, and multi-track action ⁽¹⁾. Fragmenting authority at both the global and national level and internationalisation of conflicts make multilateral action even more important: maintaining and rebuilding peace requires the concrete commitment of multiple state, non-state and multilateral actors in any given contemporary conflict context. On the other hand, effective multilateral action appears increasingly complicated. As discussed in Part I, shifting international power dynamics challenge universalist liberal norms and are therefore expected to increasingly undermine multilateral institutions seen as the products of such norms. Moreover, the rise of populist-nationalism and increased great power competition threaten to further undermine investment in multilateral institutions and action ⁽²⁾.

In such an environment, regional organisations and comprehensive regional peace and security governance institutions more broadly present growing potential as platforms of multilateral action to prevent escalatory conflict dynamics. Regional multilateral action appears both feasible and necessary for three reasons in particular.

First, for the reasons discussed above, swift decision-making in the face of escalatory processes in global multilateral forums will likely continue to be challenged by great power struggles and populist trends. Nowhere is this clearer than within the UN Security Council and the growing challenges it faces in taking effective collective decisions when needed ⁽³⁾. This was

also seen during the beginning of the Covid-19 pandemic as the Council failed to support the Secretary General's call for a global ceasefire due to opposition to the resolution by some of the permanent members. Interestingly, the US and China together were the main obstacles to the said resolution ⁽⁴⁾. While decision-making on peace and security issues in regional organisations is not easy either, devolving early action to regional organisations may benefit from the fact that there are fewer competitive great powers at this level and greater common ground for shared interests.

Second, regional organisations and regional cooperation forums have substantial experience in engaging in peace initiatives. Regional organisations have been actively involved in efforts to prevent the initial escalation and expansion of armed violence, as well as to facilitate resolution of such violence, over the last decade. In sub-Saharan Africa, for example, the African Union (AU) and many sub-regional organisations, particularly the Economic Community of West African States (ECOWAS), are frequently involved in the crafting and implementation of peace agreements ⁽⁵⁾. In conflict-affected regions, such as the Lake Chad Basin, regional cooperation on issues related to the reintegration and rehabilitation of ex-combatants affiliated with Boko Haram has evolved ⁽⁶⁾. In East Asia and the Asia-Pacific, strong regional institutionalism counter-balances great power competition and is attributed at least some share of credit for the long period of (negative) peace in the region. Indeed, analysts call for increasing investment in regional multilateral forums that play an

(1) 'Shared Vision, Common Action: A Stronger Europe., op.cit.

(2) Pascal, A., 'Against Washington's "Great Power" Obsession America risks forgetting the world system that made it great', *The Atlantic*, 23 September 2019 (<https://www.theatlantic.com/politics/archive/2019/09/multilateralism-nearly-dead-s-terrible-news/598615/>).

(3) von Einsiedel, S., Malone, D.M. and Stagno Ugarte, B., 'The UN Security Council in an age of great power rivalry', United Nations University, Working Paper Series, no.4, 2015.

(4) OCHA, 'UN Security Council Fails to Support Global Ceasefire, Shows No Response to Covid-19', 19 May 2020 (<https://reliefweb.int/report/world/un-security-council-fails-support-global-ceasefire-shows-no-response-covid-19>).

(5) Coe, B. and Nash, K., 'Peace process protagonism: the role of regional organisations in Africa in conflict management', *Global Change, Peace and Security*, 2020 (<https://doi.org/10.1080/14781158.2020.1777094>).

(6) Lake Chad Basin Commission, 'Regional strategy for the stabilization, recovery, and resilience of the Boko-Haram affected areas of the Lake Chad Basin' (<https://cblt.org/stabilization-strategy/>).

important counter-balancing role *vis-à-vis* the great power dynamics in the region ⁽⁷⁾.

Third, a regional approach is increasingly necessary in the face of conflict escalation, precisely because of higher levels of internationalisation and regionalisation of conflicts, transnational armed and criminal networks, and conflict spillover effects. As armed conflicts and their repercussions in regions such as the Sahel, Lake Chad Basin, and the Middle East demonstrate, countries' internal conflicts often have huge regional implications. At a minimum, a conflict in the neighbourhood has significant negative effects on countries' economic and institutional prospects. A recent study estimates the negative effects of a conflict in a neighbouring country on domestic economic development to range from \$506 to \$14,165 per capita GDP over a period of fifteen years ⁽⁸⁾. Besides negative economic effects, an internal conflict increases the odds of conflict onset also in the adjacent neighbour countries ⁽⁹⁾.

The transnational nature of many armed organisations today indicates growing problems in this regard. Non-state groups such as ISIS strive to expand their territorial influence and benefit from destabilising wider regions beyond individual states. Furthermore, particularly in cross-border regions with low state governance capacities, boundaries mean little to local armed groups and there is widespread illicit movement of arms and other equipment across borders. Transnational criminal groups – which thrive in conflict-affected countries – have also by definition implications for wider regions rather than just individual states. In these conflict-affected contexts, crisis

An internal conflict increases the odds of conflict onset also in the adjacent neighbour countries.

management efforts without regional coordination and cooperation on peace and security are ineffective at best and counterproductive at worst. For example, demobilisation, disarmament and reintegration (DDR) processes that do not take into account cross-border movement of arms, communities involved in conflicts, or the cross-border nature of conflict-driving grievances (for example natural resources) do not only run a high risk of failing but also have a considerable risk of making certain groups more vulnerable towards violence and increasing opportunities for spoilers.

Regional intergovernmental organisations (IGOs) have some crucial advantages in comparison to more global forums. Most clearly, they often have better knowledge of the specific conflict setting and vulnerabilities of the country/area where escalatory processes take place. Regional organisations can also be more credibly committed to a specific situation, as they have vested interests in the region and the outcome clearly matters more for them. Indeed, research finds that regional organisations often enjoy higher ideological legitimacy as peace-makers than global or state-based interferers ⁽¹⁰⁾. In the fragmenting international order where great power competition draws increasing attention, regional or sub-regional organisations have a vital role to perform in maintaining systematic multilateral peace diplomacy, particularly in areas that are not priorities for the global powers. Yet, the preventive potential that regional organisations have in conflict situations that represent strategically important contexts for the great powers is equally important: here, regional multilateral action can safeguard a situation from falling

(7) He, K., 'Contested multilateralism 2.0 and regional order transition: causes and implications', *The Pacific Review*, Vol.32, No 2, 2019, pp-210-220.

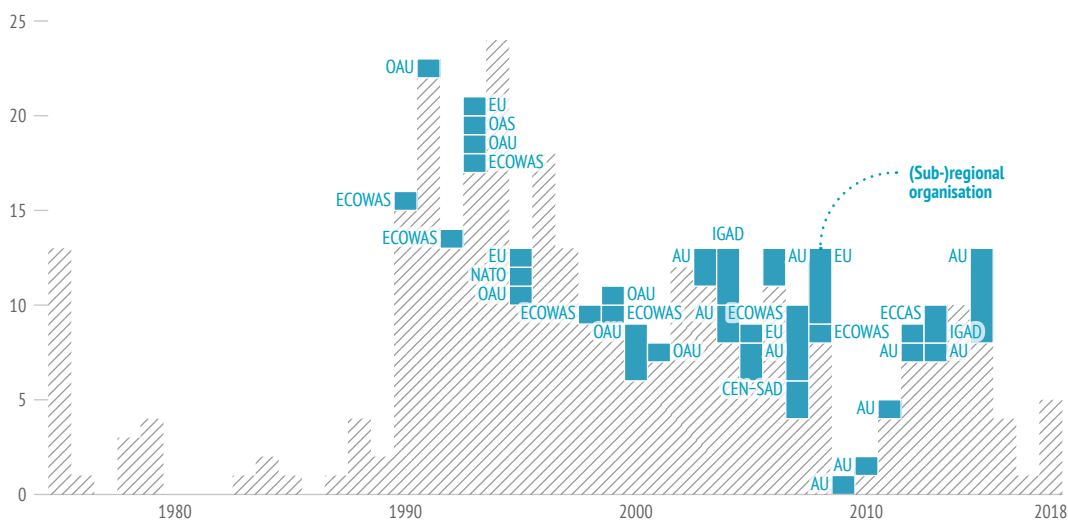
(8) Carmignani, F. and Parvinder, K., 'Your war, my problem: How conflict in a neighbour country hurts domestic development', *Economic Modelling*, Vol. 70, 2018, pp. 484-495.

(9) Ibid.

(10) Sabrow, S., 'Local perceptions of the legitimacy of peace operations by the UN, regional organizations and individual states – a case study of the Mali conflict', *International Peacekeeping*, Vol.24, No 1, 2016, pp.159-186.

Regional IGOs' participation in peace processes, 1975-2018

Participation of regional IGOs in peace agreement negotiations as third-party actors



Data: UCDP, Peace Agreements Dataset, 1975-2018

prey to global great power competition better than individual state action can.

Still, many challenges prevail in the face of effective regional proactivity and response to escalatory dynamics. Specifically, nearly all regional organisations with peace and security mandates suffer from internal decision-making problems deriving (at least partially) from differing values and priorities among their members ⁽¹¹⁾. Lack of capacities is another chronic problem with regional organisations. Indeed, for regional coordination and action to respond to the challenges of 2030, regional organisations must solve the puzzle of holistic peace and security responses. While the organisational and legal capacities (structures and mandates) of major regional inter-governmental organisations have grown considerably in the last decade, all regions continue to struggle with marshalling comprehensive capacities to the extent that would allow them to effectively and

autonomously respond to escalatory conflict processes ⁽¹²⁾. The AU, while increasingly active as a third party/facilitator in peace processes, relies heavily on external funding and resources, supplied by the EU in particular, in its peace and security efforts. The EU, on its side, still struggles with credibility as a security provider both in its neighbourhood and as a global peace-promoting actor, even though it stands out as the regional organisation with the most comprehensive toolkit in peace and security governance. At the same time the Union faces criticism for lack of investment in soft preventive measures in its external action, as it takes steps to strengthen its capacities to support security actors.

The coming decade will not make things easier for regional forums, as diffusion of power may shift the balance of power within regions and make decision-making ever more difficult. However, this only further highlights the

(11) Nathan, L., 'The peacemaking effectiveness of regional organisations', Crisis States Research Centre, Working Papers, No. 2, 2012;

(12) Wulf, H., 'The Role of Regional Organisations in Conflict Prevention and Resolution' in Wulf, H. (ed.), *Still Under Construction: Regional Organisations' Capacities for Conflict Prevention*, INEF Report, No 97, Institute for Development and Peace, University of Duisburg-Essen, Duisburg, pp. 5-19; Kingah, S. and Van Langenhove, L., 'Determinants of a regional organisation's role in peace and security: the African Union and the European Union compared', *South African Journal of International Affairs*, Vol. 19, No 2, 2012, pp. 201-222.

importance of having multilateral regional forums where discussions can continue even amid growing interstate competition. In investing in and supporting regional capacities both at home and internationally, members of the international community may want to consider the following priorities that present opportunities for strengthened regional peace and security governance.

Communication and expectations management is particularly important for regional organisations that derive their legitimacy from a shared sense of purpose, need, and usefulness among their members. On the one hand, a core function of a regional organisation is to provide a forum that brings together all regional players to discuss and agree on action concerning peace and security issues (in this case) relevant to the region. Indeed, strengthening and protecting institutional forms of multi-stakeholder communication will be key for maintaining regional organisations' resilience against interferences by external powers and internal tensions within the coming decade. On the other hand, regional organisations often face criticism for failing to be much more than 'talking shops'. Even when the fault in inaction at the regional level derives from the behaviour of an individual state or group of states, it is the regional forum that often takes the blame for not being able to 'take swift action'. Such criticism can reflect lack of knowledge on the existing capacities of the regional organisation and/or its decision-making procedures. Clear communication concerning both the existing tools of a regional body and the ways these tools can be deployed – decision-making procedures, red lines, sequence of action – is imperative for a regional organisation to maintain (and strengthen) its credibility and legitimacy as an actor. In this regard, regional peace and security actors need to carefully manage the expectations of both their domestic and international audiences. Expectations management is twofold: investing in communication on the commitment and action that can realistically be taken at a regional

level against a particular threat; and setting transparent and specific aims and procedures to check whether and how these are achieved when undertaking any peace and security action. In a decade that will see both accelerated information flow and fragmentation of the international order, regional organisations need to invest in their communication strategies to maintain their legitimacy among citizens.

In order to overcome the problem of diverse political agendas and intra-region power competition impeding collective decision-making, regional organisations need to develop and institutionalise **flexibility in their peace and security efforts**. Inaction or action countering the spirit of regional multilateralism do not need to be the only alternatives to unanimous action. Mechanisms that allow for coalitions of willing states to take action even when some members of a regional bloc stand against an initiative will be ever-more pivotal in a polynodal world. Moreover, such flexibility and pragmatism is needed also at the inter-regional and global level in the coming decade. Increased cooperation that builds on relative strengths and capacities of different regional organisations is needed to ensure multilateral action when global forums are blocked by contesting interests. Beyond inter-regional cooperation and developing interoperational capacities among likeminded blocs, issue-based cooperation that transforms regional boundaries, both in geography and geopolitics, is needed. Compartmentalising cooperation around shared functional themes in the spirit of multilateralism, even in the presence of salient conflicting issues of incompatibility, is needed to manage global challenges such as climate change (or pandemics)⁽¹³⁾. The Covid-19 pandemic has shown the difficulties of rising beyond global power competition in the face of a challenge that clearly demands cooperation across alliances. However, such coalition-building might remain more feasible at a structural level (in the absence of an immediate emergency). Differing values

(13) See ten Brinke, L. and Martill, B., 'Coping with multipolarity: EU values and the stability of international order', Working Paper No.11., Dahrendorf Forum IV, 20 August 2019.

should not stand in the way of effective multi-lateral action when needs are shared.

Moreover, in order to remain relevant in the 2020s regional multilateral action needs to better acknowledge actors beyond the state. As power fragments within states, subnational authorities (e.g. mayors) and non-state actors (civil society actors, private actors, professional associations) will be ever more influential nodes of economic, social and political power. Tensions that result from diffusion of power within states can hinder regional cooperation and integration as states become even less unitary actors⁽¹⁴⁾. Yet, fragmentation of authority can also make a much wider group of conflict preventive actors (and the networks they form) visible and more relevant. Supporting their international networking and organising horizontally and vertically (with the inter-governmental bodies) can foster peace and security by strengthening early warning and early action and sharing of lessons learned across contexts. Furthermore, hybrid coalitions of state and non-state actors with peace-promoting interests can be incremental in conflict prevention situations where inter-governmental action is blocked by great power competition or regional power battles. Supporting this bottom-up regionalism is particularly important for the protection of civilians and human rights during a decade that will witness increasing systemic competition in international relations and challenges to liberal values. More broadly, supporting a form of regional cooperation involving a multiplicity of actors and layers can mitigate the threat of regional organisations becoming playgrounds for the great powers⁽¹⁵⁾.

Finally, supporting regional organisations' conflict early warning and early action systems in particular and strategic foresight capabilities more broadly will be essential in the coming decade. The last chapter discussed the technical

potential in early warning systems and conflict forecasts given the continuing advancements in AI and new data sources. Independent academic projects are pivotal in this regard for their innovative methods and (assumed) political neutrality, yet they alone can do little to prevent conflict escalation (nor is it their responsibility or purpose). Regional organisations that pool resources across state- and non-state actors are in an ideal position to deploy early warning models to take early action. However, being in an ideal position does not mean that taking early action is easy. As a recent EUISS Conflict Series Brief shows, in Africa differing national political priorities and sensitivities still stand in the way of swift early action being triggered by continental early warning systems, for example⁽¹⁶⁾. Yet, regional organisations have mandates to build on and their early action can be regarded as less interventionist than that of any individual state actor. Investment in regional capacities to engage in preventive diplomacy and mediation in different types of conflict situations – i.e. strengthening peace mediation and negotiation training among diplomatic staff, maintaining rosters of skilled mediators, investing in deployment of special representatives – forms the basis for early action. Again, the inability to agree upon more 'hard' responses to an escalatory situation should not weaken diplomatic efforts to achieve early ceasefires or to contain the expansion of violence. At the same time, the availability of tools that disincentivise violence (such as clear red lines for withdrawing political and economic support, blacklisting, suspending membership and benefits) and protect civilians (civilian and military missions with human rights mandates) strengthens the credibility of diplomatic engagement.

Relatedly, regional-level action presents an ideal sphere for coordinating strategic foresight more broadly and policy planning in this

(14) 'Reframing the rising powers debate: state transformation and foreign policy', op.cit.

(15) For scenarios on the future of regional and interregional cooperation in times of great power competition, see Teló, M., 'Regionalism and global governance: the alternative between power politics and new multilateralism', *Annals of the Fondazione Luigi Einaudi*, Volume LIV, December 2020, pp. 5-34.

(16) Gnanguenon, A., 'Pivoting to African conflict prevention? An analysis of continental and regional early warning systems', *Brief No 3, Conflict Series*, EUISS, February 2021.

regard. While many states across the world are increasingly engaged in strategic foresight to strengthen their resilience (a trend that the pandemic has likely reinforced), their capacities are also largely constrained in the present and the ever-accelerating news (and opinion polls) cycle. Moreover, national foresight projects are by definition national and focus on a country's perspective. Regional-level exercises broaden the horizon but keep it specific to a regional space. Regional organisations are also one step further away from everyday national politics, which gives them space to invest in horizon scanning and future preparedness. Enhancing regional organisations' capacities to anticipate future threats and opportunities can be regarded as structural conflict prevention action if it leads to policymaking that mitigates threats and builds contingency plans, consolidates strengths and alleviates regional weaknesses.

Key messages

- > Strengthening local governance institutions acts as a preventive tool against the conflict-escalatory effects of the fragmentation of authority: the more resilient communities and societies are, the more difficult it is to manipulate them and play on their internal divisions.
- > Digitalisation can equally be utilised to warn against and take action in the face of conflict expansion and internationalisation.
- > Regional organisations can play a quintessential role in preventing conflict escalatory processes in a polynodal world at the international level:
 1. They can counterbalance great power competition on global forums
 2. Many have a growing track record of efforts to prevent escalatory processes and mitigate armed violence
 3. Their proximity to a conflict situation and stakes in its consequences lend them credibility and legitimacy as conflict preventors.
- > Communication and expectations management, flexibility, going beyond states, and investing in early warning and strategic foresight are guiding principles for regional-level peace and security efforts.

CONCLUSION

TOWARDS COOPERATIVE CONFLICT PREVENTION

This *Chaillot Paper* has explored three key megatrends that will have a significant impact in the coming decade: climate change, digitalisation and fragmentation of authority. As the weather, digital, and power forecast sections have outlined, by 2030 our communities, societies and the international system will have undergone considerable and visible changes stemming from these trends. Granted, the enormity and complexity of these trends has not been comprehensively discussed. Rather, the focus has been on their potential conflict escalatory repercussions. A core takeaway of the paper is that none of the three trends will automatically or directly lead to more conflicts or more intense conflict escalatory processes. However, their second-order effects can become significant conflict drivers at various stages of conflict escalation processes. The good news is that given their nature as megatrends we can anticipate how they are likely to evolve and use this knowledge to prepare for them and to prevent pathways from the trends themselves to conflict escalation. These concluding remarks summarise the main takeaways of this *Chaillot Paper* and point to some key implications going forward.

First, the publication finds each trend to be particularly influential as a conflict driver and equally preventable at different stages of a conflict escalatory process. As the first chapter in the Megatrends section has shown, more frequent climate shocks and gradually worsening climatic conditions contribute to conflict

escalation by overburdening coping and adaptive capacities in structurally and politically vulnerable contexts, thus adding to the political grievances and tensions that lead to conflict. The threat-multiplying effect of climate change does not disappear once armed violence has emerged, yet with ongoing conflict the root problems with reactive and proactive resilience become even harder to deal with. Climate change will continue to exacerbate tensions particularly at the local, inter-group level between communities that rely on natural resources for their livelihoods and lack equitable access to them. As transnational water and other resources are altered due to the pressures of climate change, interstate tensions can also increase.

As digitalisation continues, the lines between kinetic conflict and cyber conflict become ever more blurred.

Digitalisation is more of a catalysing driver of various types of conflict escalation, requiring existing conflict cleavages and deliberate action to contribute to escalation. Yet, as this *Chaillot*

Paper has argued, it can considerably accelerate conflict escalatory processes and exacerbate them by providing more extensive platforms for communication and new means of waging conflict to an ever-increasing number of actors. If climate change provides fuel for conflicts, then digitalisation accelerates them in a very compressed timeframe. As digitalisation continues, the lines between 'kinetic' or conventional conflict and cyber conflict become ever more blurred. Finally, fragmentation of authority has ramifications for conflict processes, especially in situations where a conflict has emerged and destabilised a country or parts

of it. This volume has outlined two main ways in which fragmentation of authority complicates conflict processes, namely by expanding the number of actors and (internal) layers and by driving the internationalisation of conflicts. While the trend towards a polynodal world can certainly increase international tensions and even contribute to more interstate conflicts, this outcome is not given and depends on the key players in the international system.

This is not to say that the three trends will influence conflict processes only in these linear ways, corresponding to pre-escalation, escalation and expansion processes. But these dynamics illuminate stages in escalatory pathways where there is scope to act preventively *vis-à-vis* a megatrend. This underscores the importance of continuing preventive efforts even after initial conflict escalation: for example, preventive action can stop internationalisation of conflicts or their spillover even when a conflict has already broken out. Specifically, this publication has discussed three key remedies that can serve prevention in the face of the megatrends (and other conflict drivers). Local governance institutions are critically important determinants of coping and adaptive capacities amid continuing climate change and require long-term support and adequate resources. The volume has highlighted the role of local governments in improving both conflict-sensitive responses to climate shocks and climate-sensitive conflict prevention and peacebuilding. The accountability of local governments will not improve if they remain sidelined from pivotal governance processes. Furthermore, digitalisation can be used to serve conflict preventive efforts rather than polarisation and violent escalation. What is needed for digitalisation to be used as a tool for peace is multi-sectoral cooperation among practitioners, scholars, technical experts and investors. Regional organisations can deliver multilateral responses to threatening developments even in (indeed especially in) a polynodal world but require flexibility and multi-track coalition-building to strengthen capacities.

Just like the megatrends themselves, these opportunities and imperatives to act preventively are interdependent. As the Remedies section has pointed out, strengthening local governance

renders countries stronger against external interference and manipulation. Equally, fostering regional multilateralism that is inclusive to actors beyond states can encourage international frameworks and shared norms in using digital tools in peace and conflict processes. Moreover, investing in e-services and public goods at the level of local governance can strengthen local coping capacities in the face of exogenous shocks, and more broadly build trust in local governance institutions and curb corruption. Digital technologies also help us to adapt and over the long term mitigate climate change, by facilitating assessment of the needs and threats across different contexts and offering sustainable alternatives to high-emission sectors. Unfortunately, the escalatory effects of each trend can also undermine prevention efforts in another realm. Internationalisation of civil wars, which tends to make conflicts more protracted and lethal, also complicates local and national efforts to address climate security and adaptation. Digitalisation can delay cooperation and swift action regarding climate change by facilitating ever-more effective channels for the propagation of disinformation and ‘alternative truths’. In order to counter and undermine such sabotage activities both online and offline, both local and regional-level governance matter. This brings us back to efforts to foster regional integration and strengthen local governance. The interdependency of both peace-fostering and escalation-facilitating pathways is clear.

INTO THE (UN) KNOWN (POST-) PANDEMIC WORLD

During the writing of this paper, the Covid-19 pandemic has wreaked havoc across the world, killing millions of people and bringing about profound changes in the way societies function. The pandemic has also entailed peace and conflict implications, with restrictive measures imposed by states triggering civil unrest and being weaponised by authoritarian-minded leaders and armed groups. The socioeconomic

consequences of the pandemic are yet to become fully apparent and will unfold for years to come⁽¹⁾.

These unprecedented times have also illuminated various aspects related to the three megatrends that underscore the key messages conveyed here and carry implications for the future. As noted within the chapters, the pandemic has exposed some key societal threats related to the three megatrends: the connection between environmental degradation and pandemics; the emergence of an *infodemic* alongside the deadly virus; and the struggles with global vaccine distribution amid lack of coordination between international blocs.

However, the pandemic has also highlighted several key aspects relating to conflict-preventive action. First, although the pandemic has exposed deficiencies in the preparedness of societies to cope with crisis situations and exacerbated inequalities, it has nevertheless demonstrated the value of governance, and specifically local governance structures. From the United States to Italy and Colombia, subnational authorities have played a key role in informing constituents about and organising public health measures. Many local authorities have taken swift action, sometimes even running counter to national policy lines. Across countries, public authorities have experimented with decentralised versus national decision-making procedures at different periods. While things have run anything but smoothly, the message is clear. Local governance structures are pivotal in crisis response and so is their relationship to national-level authorities and institutions. Second, the crisis has exemplified how quickly opportunities can be seized and new (digital) innovations and tools deployed on a massive scale. Such digital innovations have also helped in overcoming many of the challenges posed by the pandemic by allowing the world to keep on researching,

communicating, and engaging in diplomatic efforts. Third, the pandemic has underscored the need for collective, multilateral action, and illuminated regional and interregional interdependencies.

Heading towards 2030, several implications arise. The way in which the pandemic recovery unfolds will influence the way international actors respond to the three megatrends. The urgent need to tackle the pandemic and its immediate consequences risks leading to the neglect of other important fields of action, such as climate change mitigation and adaptation. Yet, in order to prevent the escalatory effects of evolving climate change, it is urgent

that the adaptation financing gap shrinks rather than grows, despite the impact of the pandemic and its ongoing repercussions. Relatedly, the negative socio-economic consequences are already hitting the most marginalised and the most vulnerable hardest, with malnutrition and absolute poverty levels projected to rise in 2021. In concrete terms, many communities,

regions, and societies will be even more vulnerable to climate change stressors due to the pandemic, which can contribute to escalatory processes pending preventive action. The gradual recovery from the health crisis, combined with negative socioeconomic fallout and political frustrations, will also likely reignite waves of protest across regions. The reactions to these and the way governments and public authorities respond to the underlying grievances will shape the evolution of such outbursts of civil unrest and whether they escalate into violence.

Furthermore, digitalisation may accelerate due to the changes catalysed by the policy responses to the pandemic. As discussed throughout this *Chaillot Paper*, this provides both challenges and opportunities to conflict prevention efforts. A key imperative is to develop and consolidate governing rules and frameworks

Ultimately, conflict prevention is a deeply political endeavour and as such requires political will.

(1) 'From bad to worse? The impact(s) of Covid-19 on conflict dynamics', op.cit.

for our social and political interactions online and in the digital realm more broadly. Again, as the pandemic recovery monopolises policy attention, it can become difficult to maintain the momentum to seize the opportunities to create structural and operational conflict prevention mechanisms in the cyber world. Lastly, the fragmented and uncoordinated approach to global vaccine distribution indicates a difficult and long recovery ahead, which may not only impede swift and committed action *vis-à-vis* the multiple existing threats to peace but also further strain international relations and increase tensions between the main powers.

None of the above threats will automatically or directly result from the three megatrends in the coming decade. This *Chaillot Paper* has highlighted multiple tools and platforms that help to mitigate escalatory pathways. Ultimately, conflict prevention is a deeply political endeavour and as such requires political will. A core prerequisite to influence peace and conflict dynamics up until 2030 amid the evolution of these trends is investment in (local) governance. Whether the enemy is a virus or a violent extremist group, it benefits from poor and unequal provision of public goods and basic services, including access to justice and health services. In contrast, strengthening the future prospects of governance delivery makes a country, region or society more resilient to a variety of exogenous shocks. Moreover, the megatrends and their escalatory effects call for transnational and multi-level multilateral action as a pragmatic and mutually beneficial way forward. As discussed, a polynodal world does not necessarily equal uncoordinated and uncooperative action but requires that the multilateral forums adjust to the new reality.

To what extent cooperative responses prevail and help to address the challenges in the post-pandemic world that will be both hotter and more digitalised as we move towards 2030 is a question of policy pathways and priorities. In one 'self-fulfilling prophecy' scenario, core international actors react to global challenges by making decisions based on short-term benefits, protecting themselves from the threats and each other as much as possible, only to see the threats growing exponentially and catching

up on all of them later on. In another scenario, adopting a long-term perspective helps international actors to recognise the momentum for adapting proactively to the coming change, preventing the escalatory consequences and seizing the opportunities that come their way.

ABBREVIATIONS

3D

Three-dimensional

5G

Fifth generation (of wireless mobile telecommunications technology)

AI

Artificial Intelligence

AU

African Union

CEN-SAD

Community of Sahel-Saharan States

CEWS

Conflict Early Warning System

DCF

Decentralising Climate Funds

DDR

Demobilisation, Disarmament and Reintegration

DDoS

Distributed Denial of Service

DRR

Disaster risk reduction

ECCAS

Economic Community of Central African States

ECOWAS

Economic Community of West African States

EWS

Early Warning System

GCRI

Global Conflict Risk Index

GDELT

Global Database of Events, Language and Tone

GDP

Gross Domestic Product

GNA

Government of National Accord

GPS

Global positioning system

HR/VP

High Representative for Foreign Affairs and Security Policy and Vice-President of the European Commission

IcSP

Instrument contributing to Stability and Peace

ICT

information and communication technology

ID

Identity document

IGAD

Intergovernmental Authority on Development

IGO

Intergovernmental organisation

IoT

Internet of Things

IPCC

Intergovernmental Panel on Climate Change

ISIS

Islamic State of Iraq and Syria

JCPOA

Joint Comprehensive Plan of Action

LAWS

Lethal autonomous weapons systems

LDCs

Least developed countries

LGBT

Lesbian, gay, bisexual, and transgender

LNA

Libyan National Army

LPC

Local peace committee

NAP

National Adaptation Plan

NATO

North Atlantic Treaty Organization

NGO

Non-governmental organisation

NLP

Natural language processing

OAS

Organization of American States

OAU

Organisation of African Unity

OECD

Organisation for Economic Co-operation and Development

PKO

Peacekeeping Operation

RSC

Regional security complex

SDGs

Sustainable Development
Goals

UN

United Nations

UNFCCC

United Nations Framework
Convention on Climate
Change

VAT

Value Added Tax

ViEWS

Violence Early Warning
System

Looking ahead to the horizon of 2030, this *Chaillot Paper* analyses the need for a conflict prevention approach in the face of three megatrends that will have far-reaching global repercussions.

The three trends – climate change, digitalisation and the fragmentation of authority – will not only have manifold environmental, social and political implications, but may also have considerable impact on peace and conflict dynamics.

The volume explores how each megatrend is likely to influence conflict escalatory processes in the coming decade. It also examines how investments in conflict prevention mechanisms can strengthen societal resilience and help the international community to better manage a hotter, increasingly digitalised and fragmented world.