From rebel governance to energy and environmental policies in a post-war setting: The case of the Taliban in Afghanistan

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Abstract

A vast body of literature has established how armed conflicts and wars are harmful to the environment, and it is generally assumed that peace should be beneficial to it. This article investigates the understudied environmental and energy discourse and policies of an armed insurgency turned national government after a protracted war, with the case of the Taliban regime following their August 2021 complete takeover of Afghanistan. This article reviews the official discourse of the former rebel group on these matters, uses stakeholders interviews (from the Taliban government, independent experts, and the opposition), and deploys remote sensing techniques to assess and understand the gap between the regime's declared intentions to fight climate change, and the reality of deforestation across the country on the one hand (for firewood, timber exports, and opium poppy cultivation), as well as the strong development of poorly regulated coal production and exports. These elements, as well as the lack of investments in the renewable energy sector, constitute a historical continuation of the neglect of the environment and a contradiction to the official discourse of grave concern over climate change and the environment.

Keywords: Afghanistan; climate change; coal mining; deforestation; energy policy; Taliban

Résumé

Un vaste corpus académique a établi les effets néfastes des conflits armés et des guerres pour l'environnement et il est généralement présumé que la paix devrait lui être bénéfique. Cet article examine le discours et les politiques environnementales et énergétiques, peu étudiés, d'une insurrection armée devenue gouvernement national après une guerre prolongée, en prenant comme exemple le régime Taliban après sa prise de contrôle totale de l'Afghanistan en août 2021. Cet article examine le discours officiel de l'ancien groupe rebelle sur ces questions, s'appuie sur des entretiens avec des parties prenantes (gouvernement taliban, experts indépendants et opposition) et déploie des techniques de télédétection pour évaluer et comprendre l'écart entre les intentions déclarées du régime de lutter contre le changement climatique et la réalité de la déforestation à travers le pays (pour le bois de chauffage, les exportations de bois et la culture du pavot), ainsi que le fort développement de productions artisanales mal réglementées et d'exportations de charbon. Ces éléments, ainsi que le manque d'investissements dans le secteur des énergies renouvelables, constituent une continuation historique de la

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négligence de l'environnement et une contradiction avec le discours officiel de profonde préoccupation concernant le changement climatique et l'environnement.
Mots clés: Afghanistan, changements climatiques, extraction minière du charbon, déforestation, politique énergétique, Taliban

Resumen

Una gran cantidad de literatura ha establecido cómo los conflictos armados y las guerras son perjudiciales para el medio ambiente, y generalmente se asume que la paz debería ser beneficiosa. Este artículo investiga el poco estudiado discurso y las políticas medioambientales y energéticas de una insurgencia armada, convertida en gobierno nacional tras una guerra prolongada: el régimen talibán tras su toma completa de Afganistán en agosto de 2021. Revisamos el discurso oficial del antiguo grupo rebelde sobre estas cuestiones, utilizando entrevistas con las partes interesadas (del gobierno talibán, expertos independientes y la oposición), y utilizamos la teledetección para evaluar y comprender la brecha entre las intenciones declaradas del régimen de luchar contra el cambio climático y la realidad de la deforestación en todo el país (para leña, exportación de madera y cultivo de adormidera/opio), y el fuerte desarrollo de la producción y exportación de carbón, escasamente regulada. Estos elementos, así como la falta de inversiones en el sector de las energías renovables, son una continuación histórica del abandono del medio ambiente y una contradicción con el discurso oficial de preocupación por el cambio climático y el medio ambiente.
Palabras clave: Afganistán; cambio climático; minería del carbón; deforestación; política energética; Talibán

1. Introduction

Most ongoing armed conflicts in the world, as in Myanmar, Colombia, or Libya, are intra-state conflicts, involving one or more Armed Non-State Actors (or 'ANSAs'), which may be supported by foreign powers, but which are fighting against government forces or other ANSAs (Geneva Academy, 2022; (Heidelberg Institute for International Conflict Research [HIIK], 2022; Elayah & Lambert, 2023). Over the past ten years, several ANSAs – such as the Houthis in Yemen and the Shabab in Somalia – have managed to control major cities and government structures in their respective countries. In the rare case of a complete country takeover by an ANSA, as in Afghanistan in 2021, several important policy aspects of new governance structures have been overlooked. This is particularly true for environmental and energy policies. This article seeks to document how energy and environmental policies have changed under a victorious ANSA, the Taliban, now in government. We examine whether the Taliban have maintained policies aimed at environmental protection and the decarbonization of Afghanistan's economy and society, and whether they have managed to reduce carbon dioxide emissions as agreed by Afghanistan in 2015 when it signed the Paris Agreement on Climate Change.

Beyond the importance of better understanding the Afghan case, we explore the energy and environmental policy dynamics at play following the complete or near complete takeover of a country by an ANSA. This, in turn, could help better predict the environmental and humanitarian aftermath of such geopolitical events and how tens of millions of lives might be affected in the short, medium, and long term. Understanding these policy choices is critical, as they drive the dynamics of climate change adaptation, environmental degradation, and ultimately, poverty (Intergovernmental Panel on Climate Change [IPCC], 2022; 2023).

This article considers Taliban policies through two lenses. First by examining policy declarations, official statements and new economic and administrative orientations made by the Taliban; and second, by reviewing several key activities which are generally at the core of environmental degradation and emissions of greenhouse gasses. These include power generation, energy provision, and deforestation.

Several sections provide a comprehensive analysis of the relationship between armed non-governmental actors, energy resources, and the environment through a case study of Taliban policies in these fields. The article begins with a literature review, followed by an explanation of the political ecology theoretical framework. The methodology is then explained, and the fourth section examines the complex and fragile Afghan humanitarian, economic, and geographic context, as well as the structure and governance style of the Taliban. Using satellite imagery analysis, the fifth section assesses the status of deforestation dynamics and

opium cultivation in the country. The sixth section delves into the growth of coal mining and trade, as well as the changing energy and power generation landscape in Afghanistan. A conclusion contextualizes the findings and discusses the broader implications.

2. A review of armed non-governmental actors, energy resources, and the environment

Over the past decade or so, the world has witnessed a deterioration of global safety and security indicators (Institute for Economics and Peace 2019; United Nations, 2022a; Wright, 2022). In 2009, the United Nations Environment Program's Expert Advisory Group on Environment, Conflict and Peacebuilding had warned that "…there is significant potential for conflicts over natural resources to intensify in the coming decades" (United Nations Environment Programme [UNEP], 2009). Indeed, a decade later, the HIIK Conflict Barometer for 2019—which characterizes global conflicts on a five-level intensity scale from disputes to wars— identified 87 conflicts essentially or largely driven by natural resources (HIIK, 2020). This was a 10% increase in a decade (HIIK, 2011).

These 87 resource-caused conflicts represent only a minority of the total number of 358 observed conflicts in the HIIK Barometer (HIIK, 2020). International reviews of conflicts converge in highlighting that the world has benefited from a decrease in *inter-state* conflicts since World War II (World Bank, 2020; Institute for Economics and Peace 2019; von Einsiedel *et al.* 2017), but suffered from a rise in *intra-state* conflicts and other forms of organized violence, such as armed rebellions, terrorism or civil wars (von Einsiedel *et al.* 2017). The most important category of conflicts in the Heidelberg Barometer was "system and ideology" conflicts (HIIK, 2020). In other words, most ongoing conflicts are not being driven first and foremost by natural resources scarcity, abundance or competition, but rather due to political rivalries and/or ideological differences. These conflicts are primarily aimed at controlling or changing a country's political system or result from ideological and religious differences. Factions may, for example, strive for democracy over autocracy or fight for a theocracy versus a more secular state. This does not preclude natural resources from playing a role in conflict dynamics.

Scholars such as Shaffer (2011) have argued that any dichotomy between politics and natural resources is artificial since the two are inseparable. The United Nations Environment Programme (UNEP, 2009) stressed that the exploitation of natural resources and related environmental issues could "…be implicated in all phases of [a] conflict cycle, from contributing to the outbreak and perpetuation of violence to undermining prospects for peace" (2009, p.5). Thus, even if natural resources were not the initial cause of a conflict, they may well play a significant role in their later development. In his seminal work on the drivers of conflicts, Keen (2000) demonstrated that even if a conflict starts from ideological and/or historical grievances, natural resources may play a role in fueling tensions between rival factions or keep a conflict alive for years as some non-state actors may substantially benefit from the status quo. Accordingly, the availability of precious natural resources like oil, coal and gas may increase tensions between opposing political groups, factions or countries, leading to an escalation of tensions and or even a war effort. Natural resources are seen as strategic targets by governments, insurgent groups, and criminal organizations alike.

Following the end of the Cold War, a substantial body of literature linked armed conflicts with natural resources (mis-)governance in the global South, as armed non-state actors (ANSAs) needed to find alternative sources of funding once the Soviet or American superpower stopped financing them (see e.g., Le Billon 2001). Taking this logic further, Collier, Hoeffler & Rohner (2009) quantitatively analyzed a large set of civil conflicts data from across the world and concluded that "…where a rebellion is financially and militarily feasible it will occur." Across the Middle East, North Africa and Afghanistan (increasingly called 'MENAA'), a body of literature has shown for instance how terrorist organizations, militias and armed groups have been able to threaten and fight a weakened sovereign state with energy resources. For instance, in the once vast territories controlled by terrorist organization Daesh, the oil and agricultural resources were used to fuel the rebel regime's war capabilities against the weak states of Iraq and Syria over several years (see e.g., Jaafar & Woertz, 2016). In Afghanistan, a number of reports have highlighted how the cultivation and trade of opium poppy (Papaver somniferum L.; a plant used to produce opium and heroin), have been funding the guerilla war waged by the

Taliban movement for two decades (Perl, 2001; Peters, 2009; Schmidt, 2010; Felbab-Brown, 2016, 2021; Dudek, 2021; United Nations 2022b).

Historically, the literature on natural resources, the environment and armed conflicts has focused primarily on high-value commodities such as oil and drugs or on environmental degradation resulting from warfare (see e.g., Closmann, 2009; Brauer, 2011). However, a growing body of literature is now addressing the more complex links and feedback loops between armed conflicts and broader environmental resources and dynamics. Climatic considerations have been at the center of attention for their potential to disrupt agriculture and national economies.

Extreme meteorological events – like heatwaves, heavy rains, and droughts – are occurring with greater frequency (IPCC, 2021, 2023). Climate change has thus been recognized as a "threat multiplier" (Muzamil *et al.*, 2021; Nett & Rüttinger, 2017), as nations, communities and individuals may fight over fertile agricultural land and other scarce resources. Consequently, Rajmil *et al.* (2022) argue that the combination of war, harsh climatic conditions, and challenging geography might make it more difficult for a country like Afghanistan to recover from conflict. From a neo-Malthusian perspective, adverse climate change causes resource scarcity and hunger, which in turn is expected to drive competition and conflict over resources (Homer-Dixon, 2010). Alternatively, the consequences of climate change for conflict are chiefly catalyzed through mass migrations and displacement, which in turn adversely affect the economy and political stability (Burke *et al.*, 2015; Dell *et al.*, 2008; Hsiang & Meng, 2015; Koubi, 2018).

The relationship between climate change and conflict is contentious and has seen greater attention from researchers over the past decade. There is undeniable evidence that climate change has exacerbated human difficulties for agricultural production, food supplies, and water security across various world regions, such as the drylands of the Sahel, the Horn of Africa, and Central Asia (see e.g., Descroix *et al.*, 2018; IPCC, 2021, 2022). However, significant debates persist as to the possible causations between climate change and armed conflicts in the world (for critical reviews of these debates, see e.g., Asaka, 2021; Mavrakou *et al*., 2022). Additionally, there is a dearth of research investigating climate and environmental policies following a civil conflict, and more particularly after the takeover of a country by an insurgency.[2] This article thus investigates the energy and environmental policies of the Taliban regime, following their August 2021 takeover.

3. Theoretical framework and methodology

Theoretical framework

The trans-disciplinary and critical study of the policies and politics surrounding natural resources and environmental governance and conflicts, as well as the political economy of environmental degradation, has been at the heart of the framework of political ecology (De Jong *et al.*, 2003; Delang 2005; Le Billon, 2001). Afghanistan's first two years of post-war governance must be situated against two global crises: a climate crisis that particularly affects agriculture in low-income countries, and an energy crisis that followed the 2022 Russian invasion of Ukraine. This context has coincided with Afghanistan's most acute economic crisis in decades, effectively crippling the government and the private sector's capacity to invest in energy and environmental programs. However, this situation should not be seen as unforeseeable or unique. The institutional instability engendered when a country is taken over by guerrilla or armed militant groups rarely, if ever produces favorable economic circumstances in the short term. Consequently, comparisons can be made between this post-conflict governance by a former ANSA and other groups, such as the Houthis in parts of Yemen, Al-Shabaab in parts of Somalia, or previously ISIS (aka 'Daesh') in Northern Iraq and swathes of Syria. Much older, post-conflict governance settings controlled by former guerillas, as in Castroist Cuba in the 1950s or in Maoist China in the 1940s, were very different contexts.

The contemporary humanitarian crises in Afghanistan, Burkina Faso, Niger, Somalia, and Syria, among others, all seem to follow a similar broad pattern. This pattern typically involves the rise of one or more ANSAs successfully contesting a weak, corrupt and/or failed state that was particularly unable to protect its agricultural

[2] For an exception, see Barakat's (2022) policy paper addressing the Taliban climate discourse following their 2021 takeover.

sector and food security from the impacts of climatic change. In turn, the state's ability to finance necessary measures for climate adaptation and food security was further constrained (see e.g., IPCC, 2022, p.15; IPCC, 2023, p.17 & p.37; Mavrakou *et al.*, 2022; Lambert *et al.*, 2021). It is worth noting again that the exact mechanisms and causal links between environmental degradation, weak or failed states, and the rise of ANSAs at play remain debated (see e.g., IPCC, 2022, p.15.; Mavrakou *et al.*, 2022; Nett & Rüttinger, 2017; Lambert & Descroix, 2018).

Prior to the 1970s, environmental laws and policies were lacking or totally absent in most countries, including in the most industrialized and stable nations of the Global North. Visible effects of global environmental change were still rare, and no global architecture for multilateral climate governance existed. Action accelerated following the 1992 Earth Summit in Rio de Janeiro, which established the United Nations (UN) so-called "sister conventions" on biodiversity, desertification, and climate change. Since then, the UN Framework Convention on Climate Change (UNFCCC) has provided the foundation for annual international negotiations. These summits have become central to global environmental politics, particularly since the highly publicized 2009 Copenhagen summit and the 2015 negotiations that produced the Paris Agreement on Climate Change. Despite clear limitations, such as the self-determined ambitions of countries to decrease their emissions of GHGs over time, the Paris Agreement is now the main multilateral framework for the coordination of efforts to mitigate and adapt to climate change.

Drawing comparisons with situations prior to the 1990s does not generate useful insights, since many guerillas and armed non-state actors were then relying on Cold War sponsorship, and especially after taking over a capital city as in Communist China, Socialist Cuba, or Baathist Iraq and Syria. Prior to 1991 and the complete end of the Cold War, armed non-state actors had fewer incentives to rapidly generate revenues from natural resources such as oil, drugs, timber, or gems (Le Billion, 2001). To better appreciate how former guerillas-turned-rulers can (un-)sustainably govern a post-conflict country in the twenty-first century, the first two years of Taliban rule in Afghanistan provide more useful insights.

The Afghan Taliban have so far been able to take over a capital city, rule a whole country, and even sign some diplomatic agreements with foreign powers, though without receiving formal recognition by the international community. Similar to the situations in Syria and Yemen, rapidly after their partial takeover by their respective ANSAs in the 2010s, food insecurity reached alarmingly high levels. In a December 2022 address to the UN Security Council, the United Nations (U.N.) aid chief Martin Griffiths reported that 97% of Afghans were living in poverty, two-thirds of the population required humanitarian aid to survive, and over 20 million people faced acute hunger (Reliefweb, 2022). Furthermore, although the war between the US-led North Atlantic Treaty Organization (NATO) forces and the Taliban-led insurgency has ended, the local Islamic State affiliate – the Islamic State in Khorasan Province (ISKP) – has continued its attacks against the government, now led by the Taliban, and the wider population. Consequently, Afghanistan is not post-conflict, but in a post-war situation, characterized by a drastic fall in annual fatalities from large-scale combat, punctuated by sporadic incidents of violence and persistent insecurity.

Methodology

We employed four complementary methods to investigate the situation in Afghanistan. First, a comprehensive review of academic sources, gray literature, and reports from international organizations and humanitarian Non-Governmental Organizations (NGOs) was conducted. Data were extracted from these documents to understand the post-war environmental and energy governance in the country, the Afghan context, as well as the policies and actions of the Taliban government and administration.

Second, Geographic Information System (GIS) software (Esri ArcGIS Pro) was used to map coal mining sites and trade routes. This process allowed for an analysis of the spatial dimensions of Afghanistan's energy economy within its complex and rugged geography.

Third, satellite imagery analysis investigated the evolution of Afghan forests nationally and in the long-held Taliban-controlled Kunar province, in the mountainous northeastern part of the country. A change detection method was employed to assess Afghanistan's land use and land cover over a five-year period from 2019 to 2023, showing the return of the Taliban (2021) and two complete years during which they controlled

the country (i.e., 2022 and 2023). Land use and land cover imagery was sourced from the ESA Sentinel-2 satellite constellation, accessed via Esri's data services. The instrument can capture imagery with a spatial resolution of up to 10 meters. The 10-meter resolution enabled extensive examination of Afghanistan's land use and land cover change patterns over the time series. This satellite imagery comprises nine classes namely, surface water, trees, flooded vegetation, crops, built area, bare ground, snow/ice, clouds, and rangeland.

Finally, the authors conducted six qualitative interviews with subject-matter experts to cross-check the accuracy of some sources and to shed light on issues poorly documented or severely neglected by the literature. This included a former Kabul-based Afghan government official now working abroad (who remains anonymous); a former Afghan expert who had led the largest Rule of Law program in Kabul, the 'Afghanistan Justice Sector Support Program', Mr. Rahimullah Mojaddedi; a Tajik consultant for international organizations in Tajikistan and at the border with Afghanistan (who also requested to remain anonymous); an Uzbek university lecturer specialized in Central Asian sociology and international relations, Dr. Farkhrad Ali Muhamedov; a well-connected Afghan civilian of the pre-invasion Afghanistan who played an important role in the August 2021 evacuation of the ruling elite (anonymous); and finally, the Taliban spokesman abroad, Mr. Suhail Shaheen.

4. The changing Afghan context

Harsher environmental conditions, economic sanctions, and humanitarian crisis

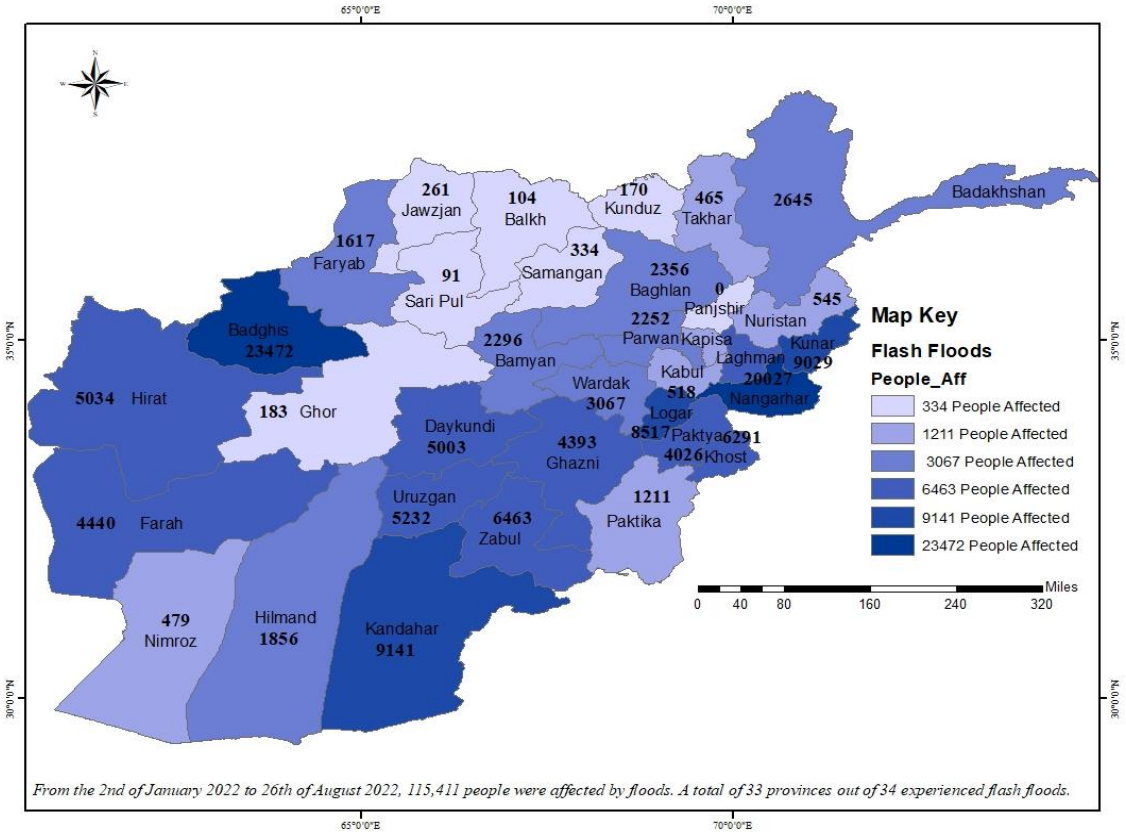
Afghanistan has a continental climate that is dry and semi-arid, with cold to very cold winters and hot to very hot summers. Because of important differences in geography and topography, local climates differ greatly. The Central Asian nation has long suffered from droughts, floods, landslides, avalanches, and soil degradation. The World Health Organization (WHO) estimated that during the war, environmental risks and pollution accounted for 26% of mortality in Afghanistan (WHO, 2016). Despite having a minimal carbon footprint—contributing only around 0.05% of global GHG emissions in 2020 (European Commission, Joint Research Centre, 2023)—Afghanistan is ranked as the world's sixth most climate-affected country (Eckstein et al., 2021). Between January 2 and August 26, 2022, natural disasters directly impacted the lives of at least 223,365 people in Afghanistan according to one estimate (Center for Disaster Philanthropy [CDF], 2024).

In early 2007, the Intergovernmental Panel on Climate Change (IPCC) stated that in the Middle East and the arid areas of Asia "…[s]oil moisture is projected to decrease in most parts of the region because projected precipitation increases are small, and evaporation will increase with rising temperatures." Fifteen years later, the IPCC confirmed these forecasts as land degradation and desertification (loss of vegetation cover or lower biomass production) have been documented as a result of shifting climatic patterns in Central Asia (IPCC, 2021, 2022). Afghanistan has seen soil degradation and flash floods severely impacting agrarian communities (80% of the Afghan population live in rural areas and their livelihoods depend on agriculture or pastoralism). Additionally, there is an estimate that over 80% of the land has degraded because of unsustainable management and over-exploitation during the decades of conflict (1979-2021), compounded by the impacts of climate change on natural ecosystems (Omerkhil *et al.*, 2020).

In the last decade, average mortality from floods, droughts, and storms has been observed to be 15 times higher in regions and countries ranked as very vulnerable, such as Afghanistan, Mozambique, Somalia, Nigeria, and Haiti, than the global average (IPCC, 2022). The cumulative consequences of more frequent and harsh droughts on natural water reservoirs and groundwater resources affect the water supply of whole towns in Afghanistan's most arid regions, such as Kandahar, Nimruz, and Helmand, resulting in a variety of humanitarian issues, including waterborne diseases, population relocation, and increased interpersonal violence in relation to access to land and resources (Eklund *et al.*, 2022).

The country has historically been heavily dependent on foreign aid funding, for as much as 75% of its public spending in the years leading up to 2021 according to the Special Inspector General for Afghanistan Reconstruction (SIGAR, 2021). However, since the withdrawal of United States and other Western forces and Taliban takeover, this has been replaced by only a minimal humanitarian lifeline, restricted primarily to food

and health aid in the form of emergency relief. Gravely insufficient, this support cannot remedy the root causes of the country's underlying political, economic, climatic and food security problems.



Map 1: Provincial distribution of 2022 flash flood victims in Afghanistan (Jan. to Aug. 2022). Author: Hamed A. Adam, based on The Office for Coordination & Humanitarian Affairs (OCHA, 2022).

The Taliban's governance, legal structure, and environmental framework

Afghanistan, a landlocked country in Central Asia, has had a turbulent modern history, with the past two centuries marked by foreign military interventions, civil wars, and their lasting aftermaths (see e.g., Dalrymple, 2014; Rashid, 1999; 2022; Centlivres-Demont & Roy, 2015). Following the Soviet Union's occupation of Afghanistan (1979-1989), a group of Islamic seminary students ('Tolab' in Classical Arabic) and former resistance fighters formed the Taliban, a new Islamist political force with national ambitions in the civil war of the 1990s. During their harsh rule of the country, between 1996 and 2001, or more recently following their second complete takeover of the country in August 2021, they have repeatedly stated that their legal governance stems from the Islamic sharia (Lombardi & March, 2022), yet without offering specifics or a description of what this means for administrative development. Prior to taking Kabul, the Taliban controlled a majority of the Afghan territory over several years —albeit loosely in some areas— without ever developing a particularly sophisticated administration. Taxation, however, was collected on most economic activities during wartime, including illegal logging and opium trafficking (Beaud & Dagorn, 2023).

The Taliban, following their reconquest of Afghanistan, have reestablished relative security, preserved public entities (such as the Central Bank), addressed some corruption, and collected taxes and customs fees. Given the country's current structural challenges, these accomplishments can be seen as impressive (Byrd, 2022; The Economist 2022). However, the Taliban have consistently rejected the 2004 Constitution, which was established after the fall of their first government in 2001. After re-taking power, they selected the monarchical constitution of 1964 with minor modifications, none of which related to environmental matters. Contrary to the constitution of 2004 and its article 15, the 1964 constitution contains no mention of environment, climate change, trees, forests or deforestation (Gul, 2021).

At the public administration level, the Taliban have replaced most leadership roles with former combatants at the expense of seasoned technocrats (Rehman & Schemall, 2022). The Taliban's focus on censorship of the media, access to technology, and freedom of speech has hampered the ability of experts to offer insights and participate in the policy process (Human Rights Watch, 2022).

When asked about the "Talibanization" of the public sector and the replacement of some public servants, Taliban spokesperson Suhail Shaheen wrote to the authors that the group only filled vacant positions with former fighters after "some Afghans encouraged by foreigners left the country." Recruitments, he affirmed, were based on merit and will continue to be, and that in addition to retaining staff, the new government was looking for competent and talented people to join the administration. The quote seems to hold some truth as our interview with a former civil servant and with a well-connected figure who has helped the exit of former regime officials confirmed that some mid- and high- level officials were offered asylum in Western countries, with some also offered educational or professional opportunities. However, a part of the Taliban narrative conflicted with the gray literature,[3] and particularly press articles, that highlighted the fear inspired in the former administration by Taliban fighters, and reports of *ad hoc*, extrajudicial murders of former civil servants (Human Rights Watch, 2021). Were these executions performed despite the desire of the new rulers amid some form of post-war chaos? Were the Taliban not able to halt this situation which lasted several months? The authors are unable to answer these questions. Nonetheless, interviews have highlighted that residual violence as well as the new legislation forbidding educated women from working in public and private offices have negatively affected the capacity of the public administration to maintain their highly skilled and experienced human resources.

Environmental law and policies in Afghanistan's difficult and changing contexts

During most of Afghanistan's modern history, there was no overall regulatory framework that specifically addressed climate-related policies, for mitigation of or adaptation to climate change dynamics and risks. This was despite the heavy toll and economic costs of extreme climatic events, such as storms, flooding and drought spells. The monarchical constitution (1964-1973) was, as already mentioned, a case in point. However, this began to change in the 2000s, largely driven by the interest of NATO member countries and the availability of related aid funding. Most notably, the Constitution of 2004 mentioned the preservation of forests and the living environment (article 15). Afghanistan's Environment Law followed in 2007, and the National Adaptation Program of Action in 2009. There were other related policies and strategies, such as Environmental Impact Assessment (EIA) regulations and various draft regulations for protected areas.

Relative to its lower standards of living, Afghanistan devoted significant attention to environmental issues from 2002-2021. This stemmed from compliance with the requirements and requests of international organizations and foreign donor governments. Foreign aid, as much as 75% of Afghanistan's public spending, was the basis of its climate change adaptation and mitigation strategies (SIGAR, 2021). However, many of these efforts were reportedly undermined by the impacts of warfare, institutional and legal shortcomings, and widespread corruption (Bak, 2019; King, 2023; United Nations, 2023).

[3] See Gossman, P. (2022, April 20) and Human Rights Watch (2021, October 22).

Corruption and development issues

Afghanistan's complex and multilayered corruption problem has existed for decades, undergirding international interventions and national development efforts (King, 2023; Beaud & Dagorn, 2023). To circumvent it, donors generally avoided channeling funds through the Afghan government or local organizations, and financial resources were directed through the Afghanistan Trust Fund (ATF) or equivalents. Aid from NGOs and the private sector often bypassed government agencies, creating a parallel service delivery system that effectively substituted for the state (Bizhan 2018). This undermined the efficiency and effectiveness of aid as it often did not match demand and supply (Bak, 2019). Despite efforts such as the Paris Declaration to improve coordination with local needs, significant resource shortages and low budget execution rates persisted (Bak, 2019).

Corruption also extended to the work of the trust funds and NGOs operating in the country, a situation exacerbated by a lack of transparency and oversight from the bypassed national government. Accordingly, a report by SIGAR (2018) highlighted that some funds lacked transparency and faced challenges in holding the government accountable. They could not ensure that funds reach their intended destinations. Paradoxically, ODA inadvertently funded the very actors who undermined their supposed state-building endeavors, including networks of warlords and extended family networks of Taliban members. Initiatives from resource inflows were sabotaged, collaborators penalized, and rent-seeking opportunities were exploited (including through theft and illicit taxation) (Zürcher 2019).

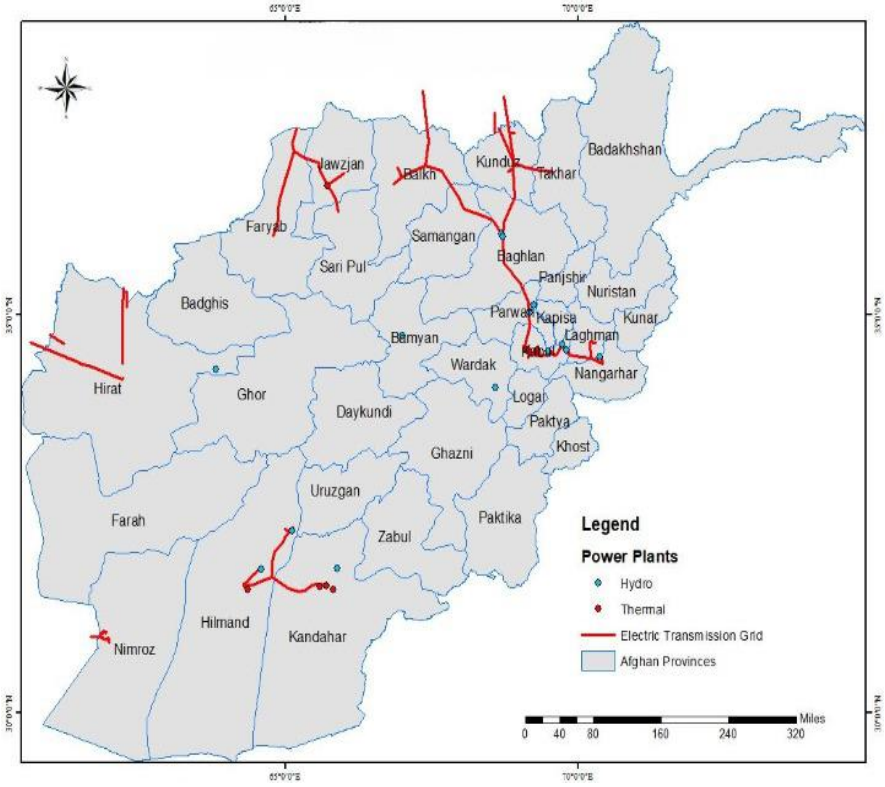
Development shortcomings and the rebel governance of the Taliban prior to the takeover

Between 2002 and 2021, the development strategy in Afghanistan prioritized security and democratization as the primary pillars of state-building, with less attention to corruption and environmental concerns. This was despite the country ranking consistently in the top 10 in Transparency International's Corruption Perceptions Index and the sixth most affected by climate change (Eckstein *et al.*, 2021). The development approach in Afghanistan was criticized for using a standardized western model and failing to account for the specificities of the Afghan context.

In contrast, community-driven initiatives showed some promise (Verkoren & Kamphuis, 2013). For instance, The National Solidarity Program (NSP) utilized a community-driven approach to project delivery. Its goal was to enhance project alignment with the unique needs of rural communities while also increasing the active engagement of villagers in project design and implementation (Beath *et al.* 2015). The NSP was especially successful in energy and water provision, and in promoting democratic processes and attitudes towards women (Beath *et al.* 2015; Fahimi & Upham, 2018).

According to estimates from the Asian Development Bank (2021), Afghanistan possesses a strong potential in the field of renewable energy of approximately 300,000 MW, supported by an average of 300 sunny days annually. Renewable energy potential has not been realized, meeting only 10% of total energy demand (Ahmadzai & McKinna, 2018). Several issues already mentioned account for this, most importantly the fragmented and uncoordinated development approach of the various international actors operating in the country (Amin & Bernell, 2018). Most energy projects implemented in Afghanistan prior to 2021 were off-grid systems that were not synchronized into a national network, often relying on imported fuel or technology (Fahimi *et al.* 2022). Afghanistan has long been heavily reliant on electricity imports, with 80% of the country's power supply met by its regional neighbors (Bertelsmann Stiftung, 2022), as illustrated in Map 2.

The absence of a unified and agreed-upon development agenda among international partners has continuously fostered a fragmented approach to energy development, despite state attempts at coordination. Each partner has pursued its distinct mission and development objectives, often diverging from the priorities and goals of the Afghan government. Consequently, the focus has been on narrowly defined objectives, rather than aligning with the government's overarching development plans (Fahimi & Upham, 2018; Amin & Bernell, 2018). For instance, the Asian Development Bank (ADB) prioritized energy and transport; the EU prioritized democratization; most US funds were aimed at security (ADB, 2019; SIGAR, 2021; European Parliament, 2023). The end result has been low electrification rates, inadequate investment prioritization, weakened institutional capacity, and a dearth of private sector investments in the electric power sector (Ershad, 2017).



Map 2: Afghanistan's fragmented transmission grid and vast isolated rural regions as of 2019. Source: Hamed A. Adam, based on Energydata.info (2019)

The Taliban's green discourse

Before their takeover of Afghanistan in August 2021, the Taliban repeatedly voiced their concerns about climate change (see Table 1). To signal its concern for the climate crisis, the Taliban, once in power, celebrated the 2022 World Environment Day. On that day, its environmental agency stated that the Taliban have been preparing an environmental framework to combat climate change.

The Taliban announced a tree planting target of thirty-five million (35,000,000) trees by the following year on March 1, 2023.[4] Against the background of repeated droughts, we could not find any official statement or document on how the logistics of this large-scale project might be financed, nor if any irrigation program has been considered to help saplings survive the hot season. It is important to place this latest announcement in perspective. From late 2001 and the ousting of the first Taliban government up to 2019, Afghanistan received on average US$4 billion dollars per year in net development aid from the international community (World Bank, 2022a), and was never able to undertake this kind of massive tree plantation program. Some of the largest tree-planting projects in Afghanistan prior to the Taliban included the US-based Afghans for Tomorrow's 185,000 trees planted, and the American 'Afghanistan Conservation Corps' project of 150,000 conifers and 350,000 fruit trees planted. These are orders of magnitude smaller than the 35 million trees announced in 2023. None of the billions in foreign aid delivered to Afghanistan has been renewed following the takeover by the Taliban, as the regime is unrecognized by the international community, considered a terrorist group by some nations, and subject to various US sanctions. It is thus difficult to see how such a massive project can be materialized in the years to come. At the time of submitting this article, the authors could not find any evidence of such a large-scale project being implemented on the ground.

[4] In Dari language, see: د افغانستان اسلامي امارت د چاپيريال ساتنې ملي اداره /د نيالګيو کښولو ملي کمپاين رسماً پيل شو., (March 1, 2023). https://rb.gy/fnm3fz

Quotes	Sources	Dates
"The Mujahideen and beloved countrymen must join hands in tree planting." "Tree plantation plays an important role in environmental protection, economic development and beautification of earth" [5]	Mullah Haibatullah Akhundzada	February 26, 2017
"These challenges ranging from world security and climate change need the collective efforts of all."[6]	Abdul Qahar Balkhi, Taliban Cultural Commission	August 26, 2021
"We believe the world has a unique opportunity of rapprochement and coming together to tackle the challenges not only facing us but all humanity, and these challenges ranging from world security and climate change need the collective efforts of all and cannot be achieved if we exclude or ignore an entire people who have been devastated by imposed wars for the past four decades."[7]	Abdul Qahar Balkhi, member of the Taliban's Cultural Commission	August 27, 2021
"Afghanistan has a fragile climate. There is need for tremendous work. Some climate change projects which have already been approved and were funded by Green Climate Fund, UNDP, Afghan Aid, should fully resume work. This, on the one hand, will help change the climate"[8]	Suhail Shaheen, head of the Political Office in Doha	October 31, 2021
"The Taliban has in place both long and short-term plans and climate change mechanisms to protect the country's environment"[9]	Hafez Aziz-ur-Rehman, director general of the National Environmental Protection Agency	July 6, 2022
"World is facing many crises but climate change tops all. This planet is our shared home and needs efforts to make it liveable. Afghanistan has sustained more than 2 billion US$ in loss this year due to climate change. We are victims of this major crisis and should not be ignored."[10]	Suhail Shaheen, head of the Political Office in Doha	Nov. 8, 2022

Table 1: Selected quotes from the Taliban highlighting their awareness of climate change. Sources in footnotes.

[5] Taliban leader urges Afghans to plant more trees. BBC News. (2017, February 26). Retrieved from https://www.bbc.com/news/world-asia-39094578

[6] Taliban official calls to fight climate change in bid for recognition. Yahoo! News. (2021, August 26). Retrieved from https://news.yahoo.com/taliban-official-calls-fight-climate-221632022.html

[7] Bove, T. (2021, September 8). Why we should care about the Taliban's environmental policies earth.org. Earth.Org. Retrieved from https://earth.org/taliban-environmental-policies

[8] Ahead of COP26, Taliban urges world to help fight climate change. WION. (2021, October 31). Retrieved from https://www.wionews.com/south-asia/ahead-of-cop26-taliban-urges-world-to-help-fight-climate-change-425600

[9] Saif, S. K. (2022, July 6). Afghanistan's climate woes worsen under the Taliban. FairPlanet. Retrieved from https://www.fairplanet.org/story/afghanistans-climate-woes-worsen-under-the-taliban

[10] Suhail Shaheen {@suhailshaheen1}. (2022, November 8). World is facing many crises but climate change tops all. This planet is our shared home and needs efforts to make it liveable {https://rb.gy/vrlg5r}. Twitter

As an Islamist movement, the Taliban have invoked Islamic teachings to encourage environmental protection. In mainstream Islamic thought, humans are God's khalifah (vice-regents) on Earth and will be held accountable for their stewardship. With the war over and the Taliban in control of the country, the group now has the political space to formulate environmental laws and policies to protect the environment as it sees fit. One important initiative happening at the environmental level at the time of submitting the article was the Qosh Tapa canal, a 280 km long and 100 meters wide canal that is expected to provide irrigation to three million acres of land and potentially employ 200,000 people within five years, according to local media (TOLOnews, 2022). In such an impoverished country, and given recurrent drought and land degradation, the project holds evident appeal for Afghanistan's rural poor. By contrast, other Central Asian countries downstream of the Aghan rivers may consider this a structural threat to their development.

In line with this official media narrative, when asked about how concerned by climate change the Taliban government is, interviewee Suhail Shaheen wrote to the authors:

> Climate change is a reality. However, it is a man-made problem. As it is a shared problem which is not limited to specific geography or a country, therefore, it requires joint efforts from the international community. Those countries who have no contribution in carbon emissions are suffering the same as the contributing countries. In our view, vulnerable countries like Afghanistan which has sustained two billion USD loss this year due to climate change should be compensated and supported to grow more trees and fight drought. As the current government has banned poppy cultivation, therefore, alternative means of cultivation are direly needed.

Despite such clearly pro-environment and anti-drugs claims, our findings below show that overall, the Taliban's policies on the ground do not seem aligned with their official stance and their green discourse, especially regarding the joint matters of climate protection and forestry.

5. Dynamics of deforestation and Land Use & Land Cover Changes (LULCC)

Afghanistan's loss of forestry at the national scale

Although forests are essential for the sequestration of carbon from the atmosphere and for climate regulation (Pikulicka-Wilczewska, 2019), over the past decades, deforestation has been widespread and continuous across Afghanistan. In a country with cold to very cold winters, trees are an affordable fuel for cooking and heating purposes, timber is a local construction material, and forest products offer lucrative trade opportunities, including illegal exports to South Asia. The culprits behind timber trafficking have long encompassed many different Afghan stakeholders, ranging from corrupt government officials to ordinary citizens, including the former Taliban insurgency and their associates (Bader *et al.*, 2013).

By 2013, the then official government of Afghanistan had estimated that around half of the country's original forests had vanished. The previous government, international organizations and foreign governments had proposed unilateral and multilateral plans to reforest vast areas of the country (Lobelog, 2019; Pikulicka-Wilczewska, 2019). The fate of these unfinished initiatives remains unknown following the Taliban's takeover.

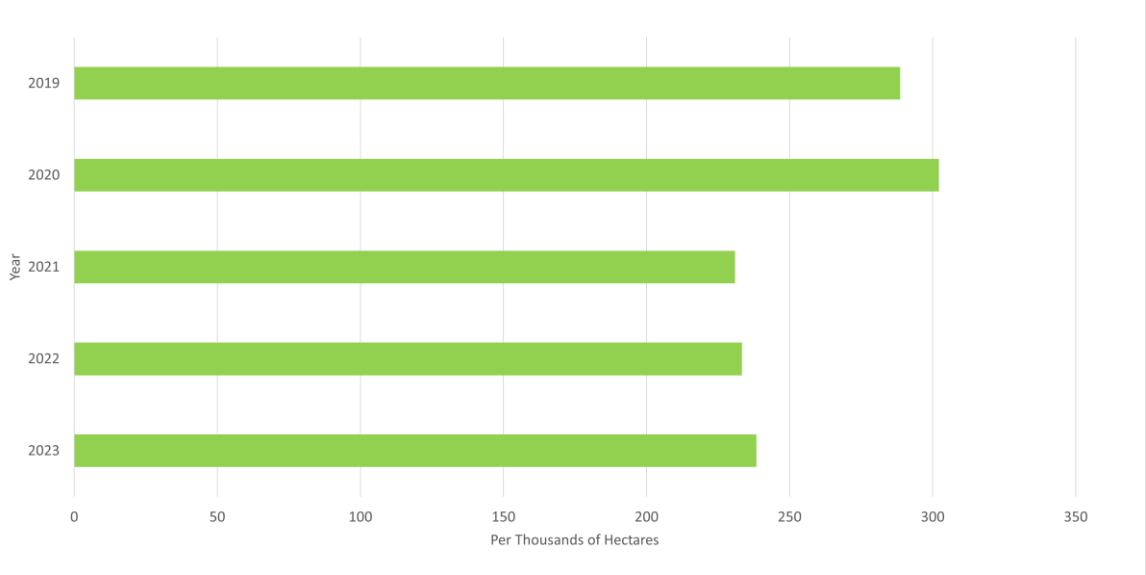
To better appreciate the magnitude of logging in recent years and following the takeover by the Taliban, we analyzed the variations in forest cover (trees above 15 feet, 4.6m) from 2019, 2020, 2021, 2022 and 2023 using the Esri Land Cover dataset, which is derived from ESA Sentinel-2 satellite imagery and has a 10 meter^2 spatial resolution.

The LULCC results of the satellite imagery analysis show a non-linear yet dramatic cumulative decrease of 17.6% of forest cover at the national level, from 288,164 hectares in 2019 to 237,398 ha in 2023. Such a decrease over just five years is a very fast-paced deforestation trend, which has clearly not been interrupted by the Taliban at any moment when they were a conquering insurgency (2019-2021). As a ruling regime since the second half of 2021 though, the Taliban managed to stabilize net forest cover in 2022 and 2023, effectively balancing losses (both natural and anthropogenic in origin) with natural growth and plantations. In other words,

Afghanistan's forests under the complete rule of the Taliban have neither decreased in surface area, nor significantly increased as might naturally be expected in a country with a low density of population and ecosystems having previously featured much greater forested area. This is largely due to continuing logging, albeit at a reduced pace compared to prior to the takeover. After decades of deforestation, the ecosystems of Afghanistan require more than the status quo.

Qualitative interviews conducted with key experts on Afghan governance confirmed that prior to taking over the country, the Taliban movement funded its insurgency using all available resources, including the aggressive deforestation undertaken by private actors in the large areas the insurgency controlled, for timber exports and for the expansion of areas cultivated for opium. However, since taking control of the country, the former insurgents have obtained other government revenues (taxes on imports and household revenues, the selling of state-owned land, etc.) and do not need to rely as heavily on timber and opium trafficking.

When asked about the deforestation issue under Taliban rule at the beginning of this research, in November 2022, their spokesman, Mr. Suhail Shaheen, pointed out that the Taliban are aware of the issue and have established a new entity under the name of "Green Unit", which is in charge of protecting forests across the country. This may explain the halt in massive deforestation for the year 2022 as can be seen in Graph 1. However, the spokesman added, the [Taliban government's] "lack of resources is a big challenge and impediment in this regard." To investigate this with further precision, we conducted an analysis at the scale of a district in a province long under the control of the Taliban. The next section shows that logging to clear land for agriculture has been tolerated by the Taliban for several years, including under their most recent rule.



Graph 1: Forest Cover Changes in Afghanistan (2019-2023). Author, based on Esri Sentinel-2 10-Meter Land Use/Land Cover

Opium, deforestation and climate implications at the district scale: the Bar Kunar case

Poppy cultivation and associated land clearing have been driven by factors including persistent droughts and opium's higher profitability compared to legal crops. Over the past thirty years, poppy cultivation has become a vital element of Afghanistan's economy and agricultural landscape (Mansfield, 2016), offering a low-maintenance and drought-resistant economic opportunity to millions of poor rural households. In 2021, Afghanistan's opium industry made up 90% of global production and contributed between US$1.8 –2.7 billion

to the nation's GDP, reflecting 9-14% of its economic output (United Nations Office on Drugs and Crime [UNODC], 2022a). Despite the trade's detrimental effects, the opium trade's economic dimensions for women in particular cannot be ignored, as it has provided jobs, income, and a sense of economic security that the state has long been unable to offer in rural areas (UNODC, 2022b).

Since the US-led invasion of Afghanistan in 2001, and the toppling of the Taliban which had eradicated the controversial crop, the poppy trade has often played a destabilizing role for the central government. This involved corrupting and compromising Afghan government officials and police officers while simultaneously funding provincial warlords and supporting the Taliban insurgency (Peters, 2009). But according to Mansfield (2023) the former government was the main beneficiary, with the Taliban's role and narco-related levies being exaggerated in the media's narrative. In any case, the Taliban, the former government and private militias have all been actively involved in poppy cultivation, drug production and trafficking, primarily by providing security services in exchange for levies (Bak, 2019).

The Taliban's ban on opium cultivation, announced in April 2022, reminiscent of their previous ban issued in 2000-2001, has raised significant concerns (Mansfield, 2023; Byrd, 2022). For instance, Mansfield (2023) estimated that the ban on opium has cost Afghanistan's already failing economy around one billion US dollars or 6.74% of its 2021 GDP. The repercussions of the ban are not limited to the economic sphere but also extend to political, social and security domains (Beaud & Dagorn, 2023; Byrd, 2022). In 2022, earnings generated by farmers through opium sales surged threefold, escalating from US$425 million in 2021 to US$1.4 billion in 2022. This amount, constituting approximately 29% of the total value of the agricultural sector in 2021, remains a mere portion of the overall gains derived from manufacturing and trafficking. Notably, much larger sums continue to accumulate along the unlawful drug distribution network beyond Afghanistan's borders (UNODC, 2023). Mansfield (2023) highlights that the ban will have a disproportionate effect, with larger-scale farmers being able to cope better and even thrive from the ban. Larger landowners will have the infrastructure and financial capacity to stockpile significant amounts of poppy and sell them at a much higher price as supply drastically diminishes in the next harvesting season.

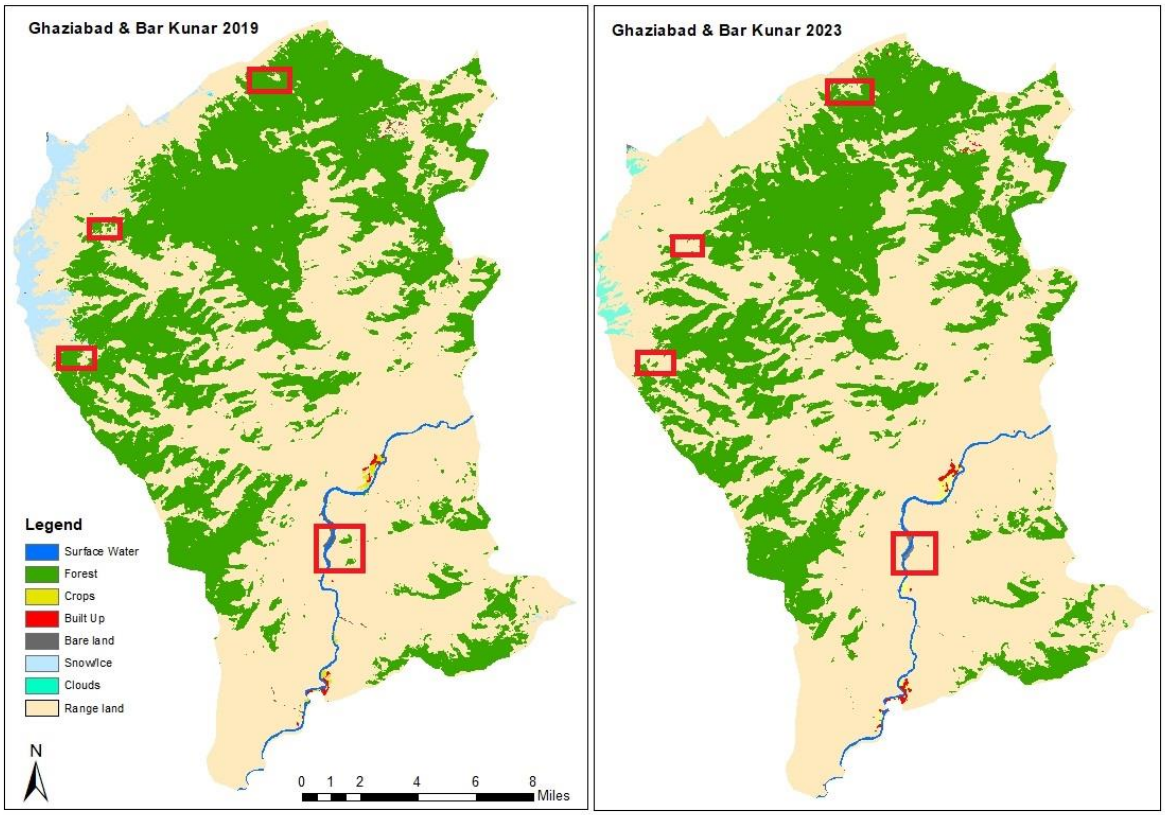
The case of the Bar Kunar district, in the country's northeastern Kunar Province, was selected by the authors because of the Taliban's long prominence in the district. Featuring mountains and forests, it was once dubbed "the most dangerous terrain for U.S. forces anywhere in the world."[11] This district's trajectory will therefore be used as a key indicator of the Taliban's de facto policies towards forest preservation.

Map 3 illustrates deforestation in four sample areas within the Bar Kunar district, using red rectangles to compare the forest cover in 2019 and 2023. This district was controlled by the Taliban throughout the entire study period. These examples show a significant decrease in forest cover between 2019 and 2023, a trend that runs counter to the Taliban's stated policies on deforestation.

Furthermore, the total forest loss in the Bar Kunar and Ghaziabad districts of Kunar province was calculated to be 3,056 hectares between 2019 and 2023. The change detection findings also show an increase in bare land and rainfed agricultural land, whereas open and dense forest cover decreased over that period. The large drop in forest cover on the forest's outskirts in Afghanistan is frequently correlated with agricultural growth, which is often poppy related, especially during dryer periods. Poppy has proven to be the most lucrative crop in the country, and one of the most resistant to climatic variations and drought issues. During the ongoing very severe drought, the agricultural expansion in the South of the Bar Kunar district (as visible on Map 3) is most likely poppy related.

When asked about specific case of deforestation in Bar Kunar, the interviewed Taliban spokesperson pointed out that farmers are struggling due to their inability to adapt to extreme environmental events such as the ongoing drought. In 2022, his government claimed that Afghanistan had suffered a two-billion-dollar loss due to climate change.

[11] Williams, B. G. (2008). *Afghanistan's Heart of Darkness: Fighting the Taliban in Kunar Province*. CTC Sentinel, *1*(11).



Map 3: Examples of deforested areas in red squares, in the Bar Kunar district (2019-2023). Author: Hamed A. Adam, based on Esri Sentinel-2 10-Meter Land Use/Land Cover.

Overall, our findings indicate that the Taliban government will require a clearer and more resolute forest management policy, greater financial and human resources, and increased public awareness efforts to conserve the integrity of forests in places like Bar Kunar. This decline in forest cover is also linked to other pressures, particularly those originating from the energy sector.

6. Unsustainable changes in the energy sector

Changes in power generation

Due to political instability, ineffective public services, and an international freeze on certain Afghan assets, the Afghan government has struggled to pay for imported power since the Taliban's takeover in 2021. To compensate for some of the shortages in electricity provision, on April 25, 2022, the first Deputy Prime Minister, Mullah Abdul Ghani Baradar, ordered relevant departments to facilitate the local production of energy from coal (TOLOnews, 2022). This shift to coal for power generation and trade is expected to derail past Afghan and international efforts to upgrade Afghanistan's low-carbon energy production, especially as large projects, such as the The Green Climate Fund (GCF)'s US$20 million FP129 solar power plant (GCF, 2020), have been halted due to sanctions.

Coal-powered electricity not only contributes to the already significant air pollution problems in Kabul and other Afghan cities (IQAir, 2023), but it is also unsuitable for the country's demographic and geographic realities. As 80% of the population resides in rural and remote areas, centralized power plants fueled by coal

require costly transmission grids and substations that are currently lacking in the country and unlikely to be built for decades, as shown on Map 4. In contrast, renewable energy solutions such as solar panels could be installed off-grid, making them decentralized and versatile.

In another attempt to remedy power shortages, the Taliban have pursued discounted Russian oil, diesel and liquefied petroleum gas, all three polluting fossil fuels that generate greenhouse gases, fine particulate matter and other air pollutants (IPCC, 2021). For instance, the preliminary deal signed on September 28, 2022 with Russia, is equivalent to one million tons of gasoline, one million tons of diesel, 500,000 tons of liquefied petroleum gas (LPG) and involves an unspecified trial period, after which the two countries may engage in long-term contracts (Reuters, 2022).

Within a year of coming to power, the new government ramped up fossil fuel imports by 57% in the first quarter of 2022 compared to the previous year, with the sources being primarily Iran and Pakistan (Oxford Analytica, 2022). In the case of neighboring Iran, the Taliban have managed to maintain the relatively stable regional diplomatic relations that the previous government held, despite a few incidents. On July 23, 2022, less than a year in power, the Taliban announced that they had signed a deal with Iran to import 350,000 tons of oil with provisions for larger quantities being traded later with the creation of a joint committee linking the two countries (Reuters, 2022).

With Central Asian Tajikistan, long held disputes between the Taliban (who are mostly ethnic Pashtun Afghans) and the Tajik minority in Afghanistan (mostly located in the north of the country and traditionally leading anti-Taliban politics) have rendered bilateral relations difficult. Consequently, only limited bilateral trade occurs at the border, a situation exacerbated by dangerous mountain roads on the Afghan side that the Taliban government does not maintain, according to interviewees.

With neighboring Uzbekistan however, the Taliban authorities signed at the time of writing this article a major agreement worth over US$2.5 billion in trade and investment deals, including in energy and other sectors. As explained by interviewee Dr. Farkhad Ali Muhammedov, the new policy of good diplomatic relations of the (secular) Republic of Uzbekistan with all its neighbors is also reinforced by the region's water crisis and Afghanistan's capacity to affect the upstream resources of the Amu Darya River basin if it fully develops the above-mentioned Qosh Tapa canal.

Similarly, the Afghan authorities have established diplomatic dialogues around their water resources with drought-suffering neighboring Iran, despite the ideological divides and a difficult past between the Sunni Islamic Emirate of Afghanistan and the Shiite Islamic Republics of Iran. It is as if, because of the climate and water crisis affecting the region, the Taliban's water diplomacy (i.e. reassuring their neighbors that they will not monopolize their rivers' water resources) have played a regional role in decreasing their diplomatic isolation and enabling deals to import energy from water-poor but energy-rich neighboring countries. But having effective water and energy regional diplomacy is one thing; deploying environmentally friendly policies at home and at scale is another.

The surging Afghan mining industry and influence of regional actors

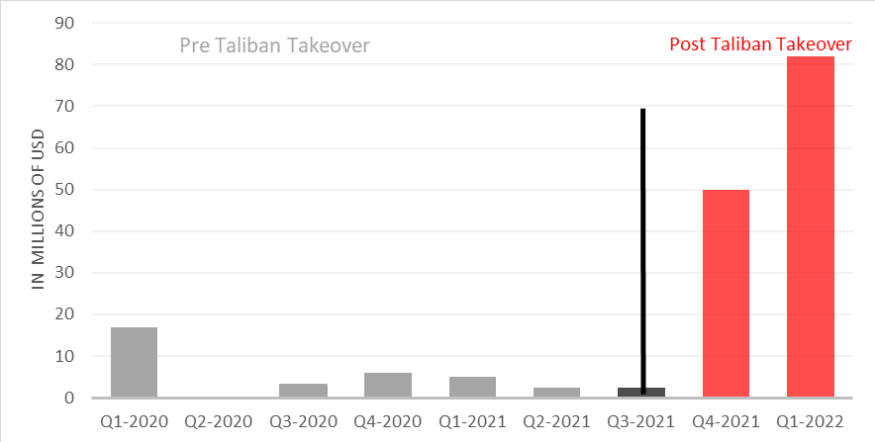
Various mining explorations were undertaken in Afghanistan over the past 70 years in collaboration with foreign investors to exploit gold, oil, gas, copper, coal, and other minerals. Afghanistan's mineral resources have been valued between US$1 trillion and US$3 trillion (Akbar, 2021; Vorotnikov, 2021). However, despite this significant potential, and despite many announcements, Afghanistan's mineral production (chromite, coal, crushed stone, fluorspar, gypsum, marble, salt, sand and gravel, precious and semiprecious stones, and talc) has always remained largely artisanal and small-scale (DeWitt *et al.*, 2021). The transition to large-scale mining production, beyond a few sites, would require significant changes to the country's infrastructure, particularly in the logistics, transportation, and energy sectors. Additionally, the Afghan mining sector currently faces daunting challenges: the risk of international secondary sanctions by the US State Department over entities trading with the Taliban, the dearth of expertise at the Afghan Ministry of Mines and Petroleum, the absence of clear mining regulations, and poor infrastructure quality and coverage, among other factors (Nero *et al*., 2022). However, some foreign statements have suggested that this status quo is poised to change significantly.

China, a direct neighbor of Afghanistan, has been seeking to leverage its diplomatic channels with the Taliban – who in return have pledged to protect Chinese stakeholders – to exploit Afghanistan's rich mineral base which is estimated to be worth around three trillion US dollars by the Afghan government. The East Asian nation could become the main actor in exploiting Afghanistan's geological riches. On January 4, 2022, Afghanistan's Taliban-led government struck an agreement with a Chinese firm to extract oil from the Amu Darya basin and develop an oil deposit in the country's northern Sar-e Pul district.

China considers Afghanistan a channel to extend its massive Belt and Road initiative comprising transportation infrastructure development across Eurasia. Afghanistan joined the initiative in 2013 and the Chinese government does not consider the Taliban takeover an obstacle to pursuing their bilateral and multilateral cooperation with Kabul. Following a meeting between the foreign ministers of the Taliban, China, and Pakistan on March 31st, 2022, Chinese foreign minister Wang Yi stated that, "We should jointly advance Belt and Road cooperation and extend the China-Pakistan Economic Corridor to Afghanistan, and help Afghanistan participate in regional connectivity" (Ministry of Foreign Affairs of the People's Republic of China, 2022). However, if carried out without minimum safe mining practices, as exemplified by certain previous Chinese initiatives (Bosshard, 2008; Osondu-Oti, 2016; Wang, 2020), extensive mining operations in Afghanistan run the risk of generating important negative social and environmental consequences.

Coal mining and the influence of Pakistan's market

Coal exploitation is a key component of Afghanistan's mining repertoire and carries significant environmental repercussions. Coal is the most polluting of the fossil fuels and the international community has agreed to phase it down during the COP26 climate negotiations in Glasgow, in 2021. Amid the 2022 international surge in demand for coal following the Russian invasion of Ukraine and related disruptions of energy trade patterns (Lambert *et al.* 2022), the Taliban have been supporting massive coal production and exports, at an unprecedented scale (Graph 2), to fund their treasury, fuel their power generation plants, and meet household needs for heating during the country's harsh winters.



Graph 2: Increase in coal exports after Taliban takeover (exports in USD millions, Q1-2020 - Q1-2022). Source: Authors based on National Statistics and Information Authority (2022)

Coal exports under the Taliban are estimated to have more than doubled from 2.1 million metric tons per annum (under the previous government) to around 5 million metric tons per annum a year after their ascent to power. Total revenues from coal increased to around US$1.8bn in 2022 from US$1.2bn in 2019 and Pakistan has been the favored destination of coal exports, though more countries are involved (Parkin & Qazizai, 2022). Nooruddin Azizi, the Taliban's commerce minister, declared in an interview that the new government was

negotiating with investors from China, Russia and elsewhere to strike mining and fossil fuel trade deals (Siddique, 2022; Reuters, 2023). Pakistan in particular has announced that it was planning to quadruple its domestic coal-fired power generation at the cost of natural gas, the cost of which had skyrocketed since the war in Ukraine and related sanctions being imposed on Russia, to meet domestic needs at lower costs.

When asked how the Taliban was dealing with the current energy crisis and the growing reliance on coal, Taliban spokesperson Suhail Shaheen pointed to the country's generous potential in generating energy and that the current government "…has focused towards a neutral and balanced policy and is trying to establish trade with all countries while also trying to attract foreign investment in Afghanistan's energy sector." When asked by the authors if coal specifically should be part of the long-term economic plans of Afghanistan, the Taliban representative wrote that:

> Coal production has grown because of the energy crisis across the world as many countries have switched to coal plants again. Natural resources of Afghanistan are national assets. The current government is encouraging foreign investment in natural resources, so that it will create job opportunities for the people of Afghanistan and also contribute and alleviate the energy crisis in the region and the world.

The Taliban official did not elaborate as to how this position partly contradicted the previous statements about his government's policy efforts against climate change as a responsible partner supporting international climate agreements, including the Glasgow Climate Pact of 2021 and the Paris Agreement on Climate Change of 2015.

7. Conclusions from a former ANSA's post-war environmental and energy governance

This article investigated the energy and environmental policies of a victorious armed insurgency turned government, with the case of the Taliban in Afghanistan. We triangulated remote sensing data, qualitative interviews, and a broad scoping review of gray literature to critically analyze the Taliban's policies on these matters. Despite publicly declared intentions to fight climate change, including with an afforestation *fatwa* from the Taliban supreme authority, and despite some stabilization of the overall forest cover, some localized deforestation in areas long under their military control was observed in the two years following their military takeover (most likely for locals to obtain firewood or timber, or for opium poppy cultivation). Also, the post-war era witnessed a strong rise in artisanal and government-encouraged coal mining activities. This is of particular concern because coal is the most carbon-intensive of fossil fuels and because the artisanal miners of Afghanistan operate without safety and environmental standards required to preserve the environment from e.g., large amounts of coal ash and coal slurry being released during and after mining operations. These activities de facto in conflict with the authorities' discourse of good environmental stewardship and care for the climate. They also conflict with international diplomatic agreements to mitigate climate change that the Taliban have expressed support for, including the Glasgow Climate Pact of 2021 (and its explicit goal of "phasing down" the use of coal) and the 2015 Paris Agreement on Climate Change, which requires an energy transition away from fossil fuels.

In line with the literature on the drivers of conflicts worldwide, the Afghan case shows that resources, including energy resources like coal or timber, have not been the initial drivers of the previous armed conflict as a Malthusian perspective would suggest, but have served as ways to finance the already existing conflict through the taxation or extortion of the stakeholders involved in the exploitation and trade of natural resources. In Afghanistan, the war was always primarily driven by what the literature calls "system and ideology conflicts" within society (see HIIK, 2020). Since the 2021 end of the Afghan war, the production and export of Afghan timber and coal have continued and even increased, despite their negative environmental externalities. In a pragmatic fashion, the new Afghan government has used newfound peace to benefit the regional trade of Afghan coal and timber, especially for exports toward Pakistan.

Following this logic of natural resource *laissez faire*, the need for energy fuels and electricity in Afghanistan has made the Taliban and neighboring Iran, Russia and Uzbekistan engage in trade and pragmatic diplomacy, despite the Taliban government's international pariah status and its particularly puritan Sunni

Islamist ideology. For Iran and Russia, equally sanctioned internationally and by the US, the Afghanistan of the Taliban represents first and foremost an interesting and rare trade outlet willing to purchase their oil products. Meanwhile, the development of post-war relations with Uzbekistan and China show a greater level of diplomatic sophistication and pragmatism.

These elements indicate that a former ANSA, and even an Islamist one under US sanctions, can skillfully navigate a post-war regional political landscape and trade resources with countries it has no ideological affinities with: wars may well be for ideological purposes, but when war is over, the relatively free trade of commodities among US-sanctioned states then suffers no ideological barriers. The sanctions against Afghanistan make it impossible for a regime like the Taliban to avoid trading with Iran (a Shiite Islamist regime), China (a communist regime), Russia (once an invading nation), and Central Asian Republics (nationalist, secular republics) as it simply cannot trade with other countries. It may also make the case for climate protection and environmental sustainability irrelevant in Afghanistan. Resources like coal and timber from taxed resources fueling the economy of war during the armed conflict period become opportunities for direly needed economic revenues via regional trade in a cash-strapped Afghanistan.

In Afghanistan as in other countries marked by high levels of absolute poverty, despite the changes in regimes and their allies, economic considerations seem to generally trump environmental protection, unless governmental anomalies temporarily disrupt that status quo. During most of Afghanistan's modern history, there had been no regulatory framework that specifically addressed environmental matters and climate-related policies. Although climate change-related casualties and economic costs (chiefly due to storm flooding and drought spells) had generated some public awareness in recent decades, there was only a legal framework and policies for environmental and climate matters during the US and NATO occupation of the country. The foreign governments responsible for the occupation and some NGOs provided most of the funding for aid programs in Afghanistan (as noted, foreign aid reaching at one point 75% of Afghanistan's total public spending), which was at the core of the nation's climate change adaptation and mitigation strategies (SIGAR, 2021). Without this input of foreign funding for green renewable energy projects and measures to counter deforestation, Afghanistan might never have developed the environmental laws and policies it has featured, but which did not seem to be significantly implemented by 2022 and 2023.

When foreign funding stopped due to the Taliban's national takeover and the US and international sanctions affected the economy, society suffered from a sharp increase in absolute poverty, including energy poverty, which also crippled the Taliban government's capacities to contribute to the protection of the climate and to reforestation, as they had announced. Instead, satellite imagery has shown that forests have continued to be treated as a resource to be exploited, though at a slower pace, rather than as a precious public good to be carefully rehabilitated. We should note here that Afghanistan's forests in the two years following the war (2022 and 2023) were not as aggressively deforested as during the final year of the conflict (2021), when the internationally supported Afghan republic's state capacities were at their lowest and when the insurgency reached its peak in profiteering from the racket (or "taxation") of illegal deforestation. The acceleration of the previous regime's collapse in 2021 enabled totally uncontrolled predatory practices of forest exploitation.

During that critical year, the war-embattled Afghan state's ability to finance necessary conservation measures (or to monitor and police the exploitation of forests) was even further constrained than usual, plunging it into a negative cycle that the literature has already documented for other countries facing joint environmental and national security crises (see e.g., IPCC, 2022, p.15; IPCC, 2023, p.17 & p.37; Mavrakou *et al.*, 2022; Lambert *et al.*, 2021). However, the Taliban regime managed to make this double crisis less extreme when it eventually filled the power vacuum. But this end of the most extreme *laissez faire* period under the fog of war has not meant that the population of Afghanistan has benefited from sufficient peace dividends regarding the environment when we also take into account all the post-war loss in foreign funding for renewables, for reforestation projects, and for qualified human resources to implement environmental and energy policies.

The Taliban, as a theologian-led former insurgency, lack even more than the previous war-constrained governments. They lack the expertise, know-how and experience to take on a task as daunting as governing a country suffering from a full-blown climate crisis. This endeavor has certainly become significantly harder without foreign technical assistance and economic support, and with the exclusion of all women from the

workforce and, the dearth of qualified professionals in the Afghan public service and companies in charge of these sectors. This was explained by interviewees, from both the Taliban government and the opposition. Many people with talent and tradable skills fled Afghanistan when the Taliban took over, out of fear or for economic reasons, and the post-war governance is handicapped by this human resource issue, as explicitly recognized by the Taliban.

At the level of qualified human resources at least, the Taliban governance of energy and environmental matters seems to face a difficult transition from the relatively loosely organized insurgency that it was, with a relatively flexible local governance structure, to a full state administration tasked with defining, deciding, communicating, and implementing what should be finely calibrated public policies in the technical fields of power generation and distribution, sustainable land management, and afforestation programs. This suggests that it can be very difficult for a victorious former ANSA, and especially a financially poor and isolated one, to have access to the necessary human resources to do so. At least since the end of the Cold War, there is no record of such a governance transformation having ever been achieved by a newly governing ANSA in the post-war period. And the acute economic crisis in Afghanistan makes it unlikely that a complete ban on deforestation or a shift away from coal mining will become priorities for the new regime in the years to come.

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