Examining the Pakistan Climate Change Act 2017 in the Context of the Contemporary International Legal Regime

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Introduction

Climate change is a burgeoning issue in Pakistan. As it stands now, the country has a population of 208 million according to the latest census.¹ It ranks third in the list of countries deeply affected by water shortage.² Freshwater reserves are projected to run out by 2025.³ The immediate *ad hoc* reforms need to be capacity building for water infrastructure, meaning that there should be more scientific water shortage technology and capital in order to bring immediate relief to the crisis affected. However, climate change legislation is a long-term foundation for any policy pertaining to mitigating the effects of the inevitable climate change. Whether the policy is to be used to deal with the long run causes of water shortage, droughts, submerging cities, ecological changes or agro-based crises; climate change legislation needs to meet international standards to ensure that these impending crises are being mitigated.⁴

All 197 signatories to the Paris Agreement⁵ currently have a climate change law or policy.⁶ While progress is being made internationally, Pakistan's climate change policy framework lacks behind the international standards and this has been pointed out by a statistical academic analysis.⁷ Furthermore, there is a lack of discussion about creating a link between international legislative trends and domestic ones. Consequently, there is a need for such a legislation to be passed by the Parliament of this age that ensures a scientific way of keeping pollutants and affected parties in check. While Pakistan is the 153rd most contributing country to climate change worldwide,⁸ it is 7th on the number of countries to be most affected by it.⁹ There

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¹ 'Pakistan population surges to 207 million: bureau' (*Reuters*, 25 August 2017)

https://www.reuters.com/article/us-pakistan-census-idUSKCN1B51AU accessed 17 October 2018.

² 'Pakistan ranks third among countries facing water shortage' (*The Express Tribune*, 23 March 2018) https://tribune.com.pk/story/1667420/1-pakistan-ranks-third-among-countries-facing-water-shortage accessed 17 October 2018.

³ 'Pakistan may run dry by 2025: study' (*The Express Tribune*, 30 May 2016) https://tribune.com.pk/story/1112704/pakistan-may-run-dry-2025-study accessed 17 October 2018.

⁴ Margot E. Salomon, 'Legal Cosmopolitanism and the Normative Contribution of the Right to Development' (2008) LSE Legal Studies Working Paper No. 16/2008, 13-14 https://papers.ssrn.com/sol3/papers.cfm?abstract id=1272582> accessed 17 October 2018.

⁵ 'The Paris Agreement' (*UN*, 2015) https://unfccc.int/sites/default/files/english_paris_agreement.pdf accessed 17 October 2018.

⁶ 'All countries in the Paris Agreement now have policies to fight climate change' (*Climate Action*, 30 April 2018) http://www.climateactionprogramme.org/news/all-countries-of-the-paris-agreement-now-have-policies-to-fight-climate-cha accessed 18 October 2018.

⁷ Joseph E. Aldy and William A. Pizer, 'Comparability of Effort in International Climate Policy Architecture' (2014) SSRN https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2449645 accessed 17 October 2018.

⁸ 'Pakistan passes climate change act, experts remain sceptical' (*The Third Pole*, 28 March 2017) https://www.thethirdpole.net/en/2017/03/28/pakistans-passes-climate-change-act-experts-remain-sceptical accessed 18 October 2018.

⁹ 'Pakistan 7th most vulnerable country to climate change, says Germanwatch' (*Dawn*, 9 November 2017) https://www.dawn.com/news/1369425> accessed 17 October 2018.

is a dire need to mitigate the effects of this exogenous pollution primarily through an effective legislation. Conversations such as these are vastly unheard of and underrepresented in the legal academic circles of Pakistan. This review is an attempt to catalyse a conversation in Pakistan pertaining to these modernised needs of legislation.

With this context in mind, the Parliament of Pakistan came forth with the first legislation regarding climate change in 2017, called the Pakistan Climate Change Act 2017 ('CCA'). This highlighted Pakistan's due diligence in the international climate regime, resulting in conformity with international legal norms in the contemporary time. The media circles appreciated the step as a start to the required degree of legislation for the long run. This legislative review will analyse the problems that can occur due to lack of implementation of a policy pertaining to the practical control of polluting entities in Pakistan and mitigation of the effects of international climate change in the country.

Structurally, it is with the above-mentioned analytical lens that this legislative review will first point out the international and national background in which the CCA was passed. The second part will examine the changing nature of the national and international legal regime by 2018 and how the CCA is redundant in addressing the changed geopolitical conditions and the internal conditions. The review will then analyse the relevant provisions of the CCA and their possible outcomes. Further, by comparing the CCA with the international climate change legislative developments of the UK, Canada, and especially the US, I aim to bring in a nuanced conversation regarding the role of climate change legislation in mitigating future crisis pertaining to climate change.

International and National Context

As the literature review suggested, the void that the legislation hoped to fill was present in a need for the following factors – international image building, ¹¹ domestic need, ¹² and the legislative lag after the passing of the devolutionary-based 18th amendment. ¹³

The legal void in Pakistan's legislation was highlighted by the Paris Agreement, which Pakistan ratified in November 2016. It clearly highlights the need to have a domestic legislation in order to support the international climate related regime. ¹⁴ The CCA proved Pakistan as a country which placed importance upon climate change issue. Becoming the 104th country to ratify the treaty, Maleeha Lodhi, Pakistan's representative to the United Nations, formally

¹⁰ 'Pakistan passes climate change act, reviving hopes - and skepticism' (*Reuters*, 24 March 2017) https://www.reuters.com/article/us-pakistan-climatechange-lawmaking/pakistan-passes-climate-change-act-reviving-hopes-and-skepticism-idUSKBN16V19N accessed 17 October 2018.

¹¹ Myers S. McDougal, 'The Impact of International Law upon National Law: A Policy-Oriented Perspective' (1959) *South Dakota Law Review* 32-33.

¹² Cinnamon P. Carlarne, 'Rethinking a Failing Framework: Adaptation and Institutional Rebirth for the Global Climate Change Regime' (2012) *Georgetown Environmental International Law Review* 4.

¹³ 'Implementation of the 18th Constitutional Amendment, Briefing Paper on "Regulatory Authorities" (*Friedrich Erbert Stiftung and the Pakistan Institute for Parliamentary Services*, 2017) 10 http://library.fes.de/pdf-files/bueros/pakistan/14091.pdf accessed 17 October 2018.

¹⁴ (n 7).

presented the instrument of ratification at the United Nations General Assembly.¹⁵ Pakistan followed India with regards to the ratification of the agreement, with the former having ratified the treaty in 2002. Legislation with international connotations has geopolitical image building implications and Pakistan followed India to keep up the trend of reactionary policy building for Pakistan.

International image building aside, there was an actual need for the CCA, rather than fulfilling just a hollow obligation mandated by the international treaty and geopolitics. In 2008, a Gallup poll showed that merely 34% of Pakistanis knew about climate change issues, ¹⁶ while it was considered a serious threat by only 24%. The point of the CCA was to create awareness about the major root cause behind the crises happening in the country over the previous years. 18 million people were displaced in Pakistan, owing to floods due to climate change. ¹⁷ In tandem with this, Balochistan and Thar faced droughts ¹⁸ and more specifically with regards to Thar, rainfall had been extremely low in 2014 and 2015. This has resulted in the required water not being available for the region's dietary requirements. ¹⁹ More so, in 2015, Karachi, which is Pakistan's most important economic city, faced a heat wave that claimed the lives of at least a 1000 people. ²⁰ In comparison to what was seen as a meagre issue, a corresponding Gallup poll in 2015 showed that Pakistan was on the list of the 19 countries where climate change was seen as a major threat to the country's well-being. Additionally, with Pakistan's water reserves projected to run out by 2025, ²¹ the need of the hour was to have a modern and scientific legislative policy which mandated what type of technologies needed immediate investment.

With international obligations and national requirements in the foreground, another caveat worthy of importance is the status of the CCA *vis-à-vis* the 18th amendment. The 18th amendment to the Constitution provided provincial autonomy in matters, including climate change. Contrary to the spirit of the amendment to the constitution and rather than empowering provincial governments and the district commissioners on the ground, the CCA set up a federal level ministry which centrally provided funds and carried out tasks. Instead, if the district commissioners were ideally empowered then they would have been able to avoid the bottlenecks and time lags in the supply chain. This is because an effective legislative policy can be better mandated by the actors most proximate to the issues. This issue arose due to the time lag in the implementation of the 18th amendment in Pakistan, which was because of the overall restructuring which the constitutional amendment required, not only in terms of the structures of the federation but also in terms of the attitudes of the lawmakers.

¹⁵ 'Pakistan ratifies Paris climate change accord at UN ceremony' (*Dawn*, 11 November 2016) https://www.dawn.com/news/1295695 accessed 17 October 2018.

¹⁶ 'Pakistan's Big Threat Isn't Terrorism - It's Climate Change' (*Foreign Policy*, 4 March 2016) https://foreignpolicy.com/2016/03/04/pakistans-big-threat-isnt-terrorism-its-climate-change accessed 17 October 2018.

¹⁷ 'Pakistan Floods Facts and Figures' (*Disasters Emergency Committee*) https://www.dec.org.uk/articles/pakistan-floods-facts-and-figures accessed 17 October 2018.

¹⁸ 'Pakistan: Drought – 2014-2017' (*ReliefWeb*) https://reliefweb.int/disaster/dr-2014-000035-pak accessed 17 October 2018.

¹⁹ Ibid, 18.

²⁰ 'Looking for a Bit of Shade as Intense Heat Wave Hits Karachi' (*The New York Times*, 29 May 2018) https://www.nytimes.com/2018/05/29/world/asia/karachi-heat-ramadan.html accessed 17 October 2018. ²¹ (n 10).

Analysis of the CCA 2017

The Act set up three relevant institutions: Pakistan Climate Change Council, Pakistan Climate Change Authority, and Pakistan Climate Change Fund. This section shall evaluate the relevant provisions of the CCA, in light of these institutions. The focal point of the analysis shall be to determine the reasonability of the procedural norms of these institutions, the powers imbued to each of these institutions, their strength in achieving potency in terms of policy analysis, the social impact of the Act, and whether future policy made in light of the Act is actually representative of the major stakeholders of society. Lastly, the financial and social impact of the Act will be analysed.

Pakistan Climate Change Council

The institutional make-up of the council is highlighted under section 3,²² whereby it is provided that the council will have representations from the leadership of all avenues of the Federation. This representation includes relevant chief ministers, leaders, and if required, the leaders of the disputed territories, Azad Kashmir and Gilgit-Baltistan can also be included in the council meetings.²³ This is commendable as all avenues of the Federation can discuss the pertinent climate change policy and devise the common standards applicable to all. The council also provides for inclusion of members of the civil society,²⁴ which makes the outlook of future policies inclusive. However, as with the previous Pakistan Environmental Protection Act 1997 ('PEPA'), the council is mandated to meet at minimum twice a year with no cap on the upper bound of the meetings.²⁵ The issue with the council established under the PEPA was that it eventually became a dead letter regime, with two meetings held per year, and the sporadic nature of policy-making which was further exacerbated by the council's lack of political will in achieving its mandate. This was the main scepticism shown by the World Wildlife Fund's executive officer in Pakistan, on the passing of the CCA 2017 – highlighting the same ominous fate.²⁶

Moving on, section 4 highlights the functions and powers of the council, which extends to supervising the enforcement of the CCA. Moreover, it has the following prerogatives: the international treaties Pakistan is a part of, giving strategic direction for the implementation of the United Nations Sustainable Development Goals (SDGs), giving guidelines for the protection of ecology, and considering the National Climate Change Report. To analyse these functions, while the CCA gives the council the power to monitor the progress of climate change reports and policy outside the institution,²⁷ there is a dearth of punitive measures with regards to the progress of climate change legislation. This is equally true for the policy measures that come off this Act and other climate change relevant laws. Without an executive oversight, the main function of the

²² Pakistan Climate Change Act 2017, s.3.

²³ Pakistan Climate Change Act 2017, s. 3 (2).

²⁴ Pakistan Climate Change Act 2017, s. 3 (1) (d).

²⁵ Pakistan Climate Change Act 2017, s. 3 (5).

²⁶ 'Pakistan passes climate change act, reviving hopes - and skepticism' (*Reuters*, 24 March 2017) https://www.reuters.com/article/us-pakistan-climatechange-lawmaking/pakistan-passes-climate-change-act-reviving-hopes-and-skepticism-idUSKBN16V19N accessed 18 October 2018.

²⁷ Pakistan Climate Change Act 2017, ss. 4 (f) and (g).

council is rendered to mere strategic decision-making. Additionally, apart from the lack of clarity on how the council shall hold those not observing the Act liable, there is a lack of policy with regards to punitive measures that may be taken against the internal constituents of the Council. Succinctly put, no self-accountability measures have been drawn up.

Furthermore, contradictory to the implementation of the SDGs,²⁸ there is an overall lack of youth representation in the council. This is specifically contradictory to SDG 10,²⁹ which aims to integrate youth voices in policy framework - recognising that the legislators consider the demographic that shall be at the receiving end of their policies in the times to come.

Pakistan Climate Change Authority

Section 5 (2)³⁰ establishes the Pakistan Climate Change Authority (PCCA), with the prerogative of being a corporate body, which is capable of being sued and can pursue a suo moto case, acquire assets, loans, and can enter into contracts whenever required. The establishment of a corporate body is a positive development in Pakistan's climate regime, as it highlights that such a body that is responsible for mitigating climate-related disasters and taking preventive measures. With regards to the pursuance of suo moto, this will result in Pakistan following a global trend of climate change litigation in courts. Aggrieved parties, which in the past may not be able to get due compensation on account of gross negligence by the state in terms of climate-related policy will now be able to pursue charges and get due justice.

Moving on, section 8 defines the function of the authority. The main ones include formulation of mitigation policies and programmes, in order to curb the crisis of climate change in the country.³¹ The technical aspects of compliance to the Paris Agreement³² also fall within this body's ambit, as it is responsible for the submission of the Nationally Determined Contributions to the United Nations Framework Convention on Climate.³³ This aspect raises a question of accountability, as upper Pakistan Climate Change Council members do not have a mandate to check the findings and technical aspects of the Nationally Determined Contributions as compiled by the PCCA.

While sections 8(e) to (u) provide the authority along with the responsibility of not only research and development but also of ensuring effective marketing and awareness drives for the public. These activities and plans that are mandated for the PCCA are further emboldened by the status of section 10, which gives the council its powers. Most notably in section (10) (2) (b),³⁴ the PCCA is given the prerogative of establishing partnerships within the private and public sector. The provision has one added caveat that in order to establish a partnership with organisations and governments of a foreign region, executive permission needs to be taken by

²⁸ Pakistan Climate Change Act 2017, s. 4 (d).

^{&#}x27;United Development (UNDP, 2018) Nations Sustainable Goals'

https://sustainabledevelopment.un.org/sdgs accessed 17 October 2018. ³⁰ Pakistan Climate Change Act 2017, s. 5 (2).

³¹ Pakistan Climate Change Act 2017, s. 8 (a).

³² (n 7).

³³ Pakistan Climate Change Act 2017, s. 8 (d).

³⁴ Pakistan Climate Change Act 2017, s. 10 (2) (b).

the government. This is a major issue as it highlights potential blocks in the smooth functioning of the organisation, owing to bureaucratic red tape in administering climate change emergencies. Moreover, this case of bureaucratic lag is further aggravated by the lack of heed paid to the 18th amendment and its case of provincial devolution.³⁵

In obtaining partnerships with foreign development organisations that are present in different provinces and the prospective hurdles, there exists a lack of efficiency. This would have been counteracted if the Authority could follow a devolved model of forming a corporate body with different branches all over the federation, rather than one centralised branch present in Islamabad. Several branches are due to be opened when required and their construction will take more time.³⁶

Pakistan Climate Change Fund

Section 12 ordains the formation of a fund pertaining to climate change to be established, in order to provide a financial base by which the PCCA shall undertake its functioning. Section $(12)(2)^{37}$ highlights that 'donations, endowments, grants and gifts' may be used as a pool for the fund to draw its funding. However, an important question to consider is section (12)(b)'s relationship with section (10)(2)(b), which requires permission from higher officials of the government before accepting any sort of foreign-based aid from organisations and governments. A key feature of the major revenue that comes for developmental projects is that they are foreign in nature, highlighting an issue with bureaucratic bottlenecks.

International Legislative Trends

A survey into the legislative trends shows a potency of the United Kingdom and the United States in creating an effective legislative regime within the confines of their domestic spaces, despite Trump administration's decision³⁹ to remove itself from the Paris Agreement.⁴⁰ In this section, two models shall be elucidated and their prospects for implementation in Pakistan shall be evaluated. The feasibility will be assessed in light of the institutional infrastructure under the CCA, through the council, authority, and the fund. It is interesting to note that the legislative regimes in these countries not only show a modern climate change legislation, as in the United Kingdom but also civic culture as exhibited by the United States. This ultimately raises the question whether a bottom-up civic culture⁴¹ helps in enacting law more effectively or a case of a

The Constitution of the Islamic Republic of Pakistan 1973 [as amended till 31 May 2018] http://www.na.gov.pk/uploads/documents/1528789763 684.pdf> accessed on 18 October 2018.

³⁶ Pakistan Climate Change Act 2017, s. 5 (3).

³⁷ Pakistan Climate Change Act 2017, s. 12 (2).

³⁸ Pakistan Climate Change Act 2017, s. 10 (2) (b).

³⁹ 'Trump's withdrawal from the Paris agreement means other countries will spend less to fight climate change' (*The Washington Post*, 21 November 2017) accessed 18 October 2018.

⁴¹ A type of social change strategy in which actors independent of any governmental figure creates change within the confines of a society's functioning.

top-down legislation instils change more effectively. This section explores the hypothesis of the three models based on international case studies.

The first model pertains to a revised climate change act being enacted in Pakistan, modelled by UK's Climate Change Act 2008. The salient features of this Act include a scientifically calculated five-year carbon budget, continuous adaptation vis-à-vis ad hoc policy measures and mandatory progress monitoring and accountability. With the PCCA fulfilling its legislative mandate, there is ample room to create data-driven legislation in Pakistan, which works towards reducing carbon emissions in the coming years. A caveat that needs to be explored is the nuance of enacting climate change policies in Pakistan, modelled after legislation, which is more suited to the conditions of the developed industrialised countries. Therefore, the derivative legislation in the country requires a more nuanced approach suited to the requirement of the developing country it is set in, with its own unique challenges. This requires a more holistic view of ecology in the developing terrain when setting carbon limits. It is also required that exogenous pollution (outside of the country's jurisdiction) be taken into account to mitigate and anticipate any climate change disaster in advance. There is also a challenge of balancing long-term policy goals in other arenas to the climate change regime, especially in the energy sector. A grave challenge is the energy crisis that Pakistan is currently experiencing, with a deficit owing to 4000MW.⁴² The incumbent government currently struck a deal with their Chinese counterparts to set up four coal power plants to meet this deficit within the country, exemplifying the need.

Another model is to enact a 'public vigilance' system as exhibited by the strategic climate litigation in the United States. 43 There is a plethora of typography of litigation done by the public to counteract the major climate change relevant issues in the country. First, there are a dozen lawsuits to counter the Trump regime's legislative deregulation towards climate change⁴⁴ – showing that the public can be a watchdog, given the proper civic culture. Another type includes a push for more federal government transparency into the issue of climate change policy coupled with more environmental cost-benefit analysis into government project funding.⁴⁵ This would ensure that the government's activities are more cognizant of the climate requirements of the country, rather than climate concerns being side-lined on the basis of monetary cost-cutting for other priorities such as defence spending.⁴⁶

⁴² 'Will energy shortage be overcome?' (Dawn, 3 April 2017) https://www.dawn.com/news/1324565> accessed 17 October 2018.

⁴³ 'Global trends in climate change legislation and litigation: 2018 snapshot' (Grantham Research Institute on Climate Change and the Environment and Center for Climate Change and the Environment, LSE, 2018) 6 http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2018/04/Global-trends-in-climate-change-legislation- and-litigation-2018-snapshot.pdf> accessed 17 October 2018.

^{44 &#}x27;U.S. Climate Change Litigation in the Age of Trump: Year One' (Sabin Center for Climate Change Law, Columbia University, 2018) ii http://columbiaclimatelaw.com/files/2018/02/Adler-2018-02-U.S.-Climate-Change-theory. Litigation-in-the-Age-of-Trump-Year-One.pdf> accessed 17 October 2018.

government 'Promoting transparency' (Environment Fund, 2018) https://www.edf.org/climate/promoting-government-transparency accessed 17 October 2018.

⁴⁶ 'Combat vs Climate, The Military and Climate Security Budgets Compared' (Institute for Policy Studies, 2016) 7 https://ips-dc.org/wp-content/uploads/2016/09/CvsC-Report-1.pdf accessed 17 October 2018>

Third, the states are also pushing to 'decarbonise' their electricity production as shown by the States of California, New York, Illinois, and Connecticut.⁴⁷ The means to achieve this would be done by public interest litigation and a push by civil society to ensure that the government does not act in a way counter-intuitive to climate change control. Another interesting means to achieve a culture of public vigilance is to carry out litigation against the government by seeking compensation for climate-related damage. This would be done in circumstances where damages would be sustained due to events that could have been predicted by effective climate change policy. To understand the feasibility of enacting a 'public vigilance' based model in Pakistan, there is a need to create awareness about the root causes of the major calamities here, which include flooding, drought, water shortages, among others. The Pakistan Climate Change Authority and Fund are responsible for creating advocacy pertaining to the issue. However, government oversight is perhaps not the most effective way to build a public vigilance culture, if the neoliberal school of public policy is to be taken into account given the economic inefficiency and top-down nature.⁴⁸

There is a need for external development partners such as the EU, US-AID, and Oxfam, among others to create a culture and the domestic NGOs within the country to take initiative.

Conclusion

Section 14 of CCA 2017 provides immunity from prosecution if the action was done "with the intention of good faith." This indemnity clause severely hampers the entire climate change bureaucratic accountability as no definition of good faith has been provided in the CCA. This may even lead to actions of gross negligence being condoned on account of them being done in 'good faith'. With the absence of this section, the Act is a skeletal outline for the bureaucratic machinery that can effectively deal with the issue of climate change in Pakistan in the long run.

In addition to this, apart from setting up institutions and increasing the government machinery, the main focus now has to be on policy implementation. There is much more that needs to be done in terms of the implementation of the CCA 2017. Firstly, it has to be ensured that there is regulatory grit in the institutions that are made. Most importantly, it should be made clear that the CCA is not there simply for having an 'external value' in the form of international semantics. It is also important that we generate political will for funding of the domestic climate change regime and maintain a collective pressure to ensure that the stakeholders are forced to give climate policy a central stake. Furthermore, there is indeed a chance for misappropriation in the CCA fund and financial audits need to be instilled in future annexes of the Act to ensure that such is not the case.

In Pakistan, a domestic legal regime has been enacted through a three-tiered institutional process consisting of a council of stakeholders, an executive corporate styled authority, and a fund to ensure that activities are financially feasible.⁴⁹ However, to become complacent to the

⁴⁷ 'Electrification & Decarbonization: Exploring U.S. Energy Use and Greenhouse Gas Emissions in Scenarios with Widespread Electrification and Power Sector Decarbonization' (*National Renewable Energy Laboratory*, 2017) 2-7 https://www.nrel.gov/docs/fy17osti/68214.pdf accessed 17 October 2018.

⁴⁸ Julio H. Cole, 'Milton Friedman on Income Inequality' (2008) (11) (2) *Journal of Markets and Morality* 244. ⁴⁹ (n 15).

possibility of an effective climate policy regime in Pakistan would be highly erroneous at this point. Equally important is the glaring nuance in Pakistan of balancing the energy crisis to climate change policy. The major concern in the last issue is to balance the impact of causal avenues. While electricity is imperative for the daily functioning of human life in the contemporary time, by carbonising its production *vis-à-vis* coal-powered plants is a death sentence to climate change mitigation albeit less public candour exists for the latter. Lots of work needs to be done to mitigate these concerns, but public pressure with regards to the issue of climate change is the most impactful factor in the regime's success. It will sustain the enactment of a more potent domestic legal framework as pointed out in the paper and enforce it, not just let it wither out as a dead letter regime.

As it stands now, there is currently an internal negotiation with regards to the creation of the bureaucracy in order to implement the provisions of the Act through the three institutions. A project of 250 small-scale structures including check dams, mini dams, ponds, spillways, and slope stabilisation are being established.⁵⁰ These are auspicious signs with regards to building the foundations of the institutional matrices of climate change institutions in Pakistan.

⁵⁰ 'Ministry of Climate Change to start Glacial Lake Outburst Flood project' (*The Nation*, 4 September 2018) https://nation.com.pk/04-Sep-2018/ministry-of-climate-change-to-start-glacial-lake-outburst-flood-project accessed 17 October 2018.