

Part 2 of 2

Part 1 of this article argued that there is a lot that needs fixing in Pakistan. The Covid pandemic underscored the inadequacy of the public health system. To safeguard the public from future disease outbreaks and to improve the quality of human capital, its reform deserves to be prioritized along with the needed infusion of resources¹. But there are at least six other crises two of which have been on the radar for some time: (i) rising public indebtedness, the result of long running fiscal deficits; and (ii) sluggish growth caused by the declining share of the manufacturing sector and of exports in GDP and weakening productivity. These were discussed in Part 1, the first installment of this article. Four crises are of the slow burning more recalcitrant kind have received less attention, however, continued neglect could bring the nation to its knees within the next two decades. These are: (i) income inequality and socio-political polarization; (ii) inadequate state planning, policymaking, administrative, and mobilizational capabilities; (iii) high fertility and population growth; and (iv) the mounting threat from climate change. This second installment of the article (part 2) addresses the longer festering crises. These have been slowly worsening over time and their damaging consequences are becoming more apparent. Deferring policy action on these will only add to their severity.

Inequality Crisis. There is accumulating evidence that growth is negatively correlated

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class is being squeezed by inflation and declining employment opportunities, much like its counterparts in the OECD countries⁸. Income inequality is paralleled by gender and health inequality and inevitably, social mobility is low - very few from the bottom quintile can transition into higher quintiles within a generation⁹. In other words, inequality in Pakistan is comparable to that in the Middle East, and some of the Latin American countries.

Figure 3: The economic cost of inequality



Although global inequality has diminished, inequality is trending upwards in many countries. Barack Obama identified income inequality as "the defining challenge of our time." In the aftermath of the Covid pandemic, there is a risk that it could rise in Pakistan as well. As Piketty (2020) and Ostry et al (2019)¹⁰ maintain, inequality is a political choice. It is what societies choose based on the ideology of the dominant elites and not necessarily dictated by either technology or globalization. Inequality appears to be feeding the upsurge of right-wing populism, civil unrest and political polarization in Latin America, Europe, and the United States threating democratic institutions and trust in government. It could also undercut growth potential and the capacity to garner widespread public support for needed reforms.

The challenge for Pakistan is how to introduce a spate of reforms affecting taxes, the financial sector, tariffs, participation in global supply chains, rule of law, the environment, and the incentive for entrepreneurs to make long term, productive investments, which would foster growth, while simultaneously improving the distribution of income¹¹. Some

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In the 1960s, Pakistan was in the front ranks of developing economies. It was viewed as having acquired the state capacity to set and to attain ambitious economic objectives. That was then. Barely three decades later, Pakistan was high on the list of fragile states swinging between 9th and 14th places on the Index of Fragile States. As of 2021, it was in 29th place¹⁵ sharing a neighborhood with countries such as Myanmar, Venezuela, Mozambique, and Cote d'Ivoire. A dubious distinction. On the Corruption Perception Index for 2020, Pakistan had the 31st spot flanked by Niger and Bolivia¹⁶. Pakistan was 108 ranked by the Doing Business Index for 2021¹⁷. The governance indicators computed by the World Bank which include government effectiveness, rule of law, regulatory guality, and absence of violence are all relatively low and show virtually no improvement between 1990 and 2020 (Figure 4).

Figure 4: Pakistan Governance Indicators Political Stability and Absence of Voice and Accountability Violence/Terrorism



with net income inequality². The level of inequality is correlated with mental and physical health, education, and economic security³. Rising inequality can also cause social instability, weaken trust in liberal democratic institutions, undermine the legitimacy of the state, lead to the emergence of deep political fissures, and entrench a plutocracy⁴. Ostry et al (2019; 2011) make the case that successful economies are ones **that** can both initiate a growth spurt but also sustain a high growth rate over several years if not decades. They maintain that the duration of growth spells is critical and income distribution is a primary determinant of duration, more important than trade openness, political institutions or FDI. This is because of high levels of income inequality results in vicious spirals identified by Sanchez-Ancochea (2020)⁵ (Figure 3).

Using the Gini coefficient as a yardstick, inequality in Pakistan is in the middling range -31.6 percent $(2018)^6$ – but this is because income earners in upper tail of the distribution underreport their incomes. Other attempts to measure inequality suggest that the divergence in incomes is much greater. Using both national income and tax data, Ahmed $(2020)^7$ estimated that in 2015, the income share of the top 1% amounted to 30.2% with 13.4% accruing to the top 0.1% and 5.1% to the top 0.01%. The share of the bottom 50% was 11.6%. The share of the middle 40 percent was 30 percent however, more recent estimates indicate that the Pakistani middle

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of the reforms would be supported by Pakistan's moneyed elites; ones that ate into the rents they derive from current policies and institutions and redistributed income would be strenuously opposed. This opposition has stymied past efforts at achieving sustainable and inclusive growth. If it cannot be overcome, rising social turbulence could compound the threats from other sources. The World Bank's Pakistan at 100 report maintains that "to achieve its ambitious target of becoming one of the top 10 economies in the world by 2047, equity should be at the center of [Pakistan's] development process." (Redaelli 2019)¹².

State Capacity Crisis. Developing countries that have achieved durable economic success over the past seventy years have all benefitted from state capacity. Strong states planned and orchestrated the growth process in the successful East Asian economies and in a few other nations which rapidly ascended the income ladder. Such states were not necessarily authoritarian states - though some were - they were both effective and their legitimacy was beyond question. A strong state does not guarantee economic success, but arguably state capacity of a high order is a necessary condition albeit not a sufficient one for attaining the government's objectives. Most developing countries had to build state capacity as they began modernizing their economies¹³. In many cases this occurred once nations gained independence. States needed to establish law and order, put in place a system for extracting revenue, take steps to supply the public goods that meet the basic needs of the population, begin fostering an environment supportive of investment and business activity, which included measures to secure property rights, and create legal, administrative, regulatory, and political institutions that ideally were viewed as accountable and enjoyed the trust of the majority of the public¹⁴. Acquiring such capacity was and is a struggle for many countries. Progress tends to be uneven and is often not linear. A slide backward after years of solid advance across the board, is not uncommon and frequently associated with changing political circumstances.

Figure 5: Pakistan Revenue Collection % of GDP 17.3% 17.1% 13.9% 14.0%

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revenue				
	1980s	1990s	2000s	2010s
	Source: https	://macropakistan	i.com/taxes-in-pakistan/	
midd	le income c	ountrie	5.	

An assessment of instability and violence in Pakistan relative to other Asian countries by the Asia Foundation suggests that the state is struggling to hold the country together, instill a sense of nationhood, to provide security, contain terrorism¹⁹, and to protect property rights (Figure 6).

Although violence has subsided somewhat since 2019, the prevailing equilibrium is a precarious and turbulence lurks beneath the

Figure 6: Pakistan: Socio-political



https://asiafoundation.org/wp-content/uploads/2017/10/Pakistan-StateofConflictandViolence.pdf

surface. The composite picture of state capacity that emerges from these indicators is far from

Source: Asia Foundation: Pakistar

Mobilizing resources is central to the state's capacity. Hanson and Sigman (2019)¹⁸ are emphatic on this score. "Raising revenue is not only a critical function of the state, but it also encompasses a particular set of capacities that are foundational to state power... States must have the wherewithal to reach their populations, collect and manage information, possess trustworthy agents to manage the revenue, and ensure popular compliance with tax policy."

The Pakistani state's capacity falls short on this score as noted earlier. Revenue collections have declined since the 1980s from an average of 17.3 percent of GDP in the 1980s to 14 percent of GDP in the 2010s. (Figure 5). This is well below the global average of 26.6 percent and 19.6 percent for

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Figure 7: Trust in others		

60%					Swedan
50%					
40%					
30%					United Kingdom
20%					Pakistan
10%					Brazil
0%					Colombia
	1993 1995	2000	2005	2010	2014
		Source: Our Wo	rld in Data <u>https://o</u>	urworldindata.org/tr	ust

Demographic (and urbanization) Crisis. In 1971, the global population was growing at a 2.13 percent p.a. rate. By 2020, steady decline had reduced it to 1.01 percent p.a. During the same period, the total fertility rate (TFR) fell from 4.67 to 2.40. By comparison, Pakistan's population continues growing at 2.0 percent in 2020 and its TFR was a high 3.5 in 2019.²¹ Its population had risen from 60 million in 1971 to 221 million²² 2020 with a median age of 23 years. By 2050, the UN projects that the population will reach 380 million²³. The current population is already straining the country's resources²⁴. Although Pakistan's population is the world's fifth highest, the land area is only 0.59 percent of the global total and of this, about 40 percent is arable land down from 43 percent in 1982²⁵. Close to 60 percent of the population copes with food insecurity and this is one reason why 40 percent of young children are stunted, and 5 percent suffer from wasting²⁶.

Approximately 45 percent of Pakistanis live in urban areas – or about 100 million people²⁷. Assuming that urbanization continues its steep ascent (Figure 8), as many as 75 percent of the population could be living in cities by 2050²⁸, which would be the norm for an upper middle-income country²⁹. If so, cities would need to absorb another 185 million people requiring massive investment in housing and infrastructure on top of what is needed to upgrade and render resilient the existing infrastructure.



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registered the highest temperatures experienced anywhere³⁷. Such temperatures could begin affecting larger areas of the country. Once wet bulb temperatures exceed 35°C, survival is a losing battle – the body cannot cool itself. Countries lying in the tropical belt and Pakistan in particular, could experience average temperatures that are higher than the global average with a 4.9°C increase above the 1986-2005 baseline within the realm of possibility by the end of the century³⁸. Figure 10 presents forecasts of how many people could be affected by unbearable heat in India and elsewhere.

Pakistan faces increased risk of both meteorological (precipitation deficit) drought and hydrological (surface and sub-surface flows of water). And this risk is magnified because it can store only 10 percent of its annual river flow, well below the 40 percent global average. Already the annual losses from drought, floods, and poor-quality water and sanitation amount to at least \$12 billion annually (World Bank 2019)³⁹. Were conditions to worsen, agriculture, which currently uses over 90 percent of fresh water - although it contributes just 23 percent of GDP - would be the hardest hit. Shortages would also adversely affect manufacturing, power generation, and urban consumers⁴⁰. When all key sectors are hobbled by water scarcity and assailed by severe weather events, potential GDP growth will be reduced further.

Figure 10: Numbers affected by high heat within 50 years

600

800

1.000

1,200

400

200

	0
India 1.2bn	
Nigeria 4.85bn	
Pakistan 185m	
Indonesia 146m	
Sudan 103m	
Niger 100m	
Philippines 99m	
Bangladesh 98m	
Burkina Faso 64m	
Thailand 62m	

Source: https://www.theguardian.com/environment/2020/may/05/ one-billion-people-will-live-in-insufferable-heat-within-50-years-study

positive. There has been a definite deterioration since the 1960s, when Pakistan was riding high. After some ups and downs in the interim, state capacity appears weak and not up to the political, economic, and environmental challenges the country faces. Moreover, the public's trust in the organs of the state and others outside their extended family or kin network is weak and has declined since 2005 (Figure 7). Trust, according to Fukuyama (2020), "is the single most important commodity that will determine the fate of a society Citizens have to believe that [those at the helm of affairs] know what they are doing."20 Absent sustained improvement in capacity the prognosis for Pakistan is dire.

Rebuilding state capacity and trust can be a slow process. It needs to be taken up in earnest as the hour is late.

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A rapidly increasing and youthful population would also be in search of jobs. Currently Pakistan is adding almost 2 million new workers each year. Given the low overall elasticity of employment to GDP (0.2 between 2000 and 2018)³⁰, the number of entrants cannot be absorbed by an economy that averages a 4-5 percent per annum growth rate. The potential and actual growth rate would need to rise into the high single digit range for new entrants and the overhang from the past to be gainfully employed. With investment as a percent of GDP and growth of factor productivity trending downwards, such rates are moving beyond reach - the crisis discussed earlier (Figure 9). Should such trends persist, there is no demographic dividend in the offing only an expanding, increasingly disaffected and poverty ridden underclass³¹.



Source: O. Siddique (2020) https://pide.org.pk/research/total-factor-productivity-and-economic-growth-in-pakistan-a-five-decade-overview/

India, Bangladesh, and several of the Southeast Asian countries have managed to check population growth bringing it down to 1.0 percent per annum or less (Thailand 0.3; Bangladesh 1.0 in 2020). Fertility management should clearly be a priority to head off an increase in unemployment, ease the burden on public services, contain the outlay on urban infrastructure, and to prepare for climate change, which is the great brewing crisis of the century.

Climate change crisis. Pakistan is in the eye of the storm³². It is the fifth most vulnerable country³³. Within the next three to four decades the habitable niche³⁴ will shrink because of rising temperatures, inundation of coastal areas, salinization of the groundwater, bouts of severe weather leading to floods³⁵, droughts and heat waves, and water scarcity, which is acute in some areas could worsen and become more widespread by 2025³⁶. Already a city in Pakistan has (Jacobabad)

Better water management, investment in storage and greater use of measures to minimize evaporation, changing the mix of agriculture crops to reduce water consumption⁴¹, effective use of pricing, recycling and reuse, attention to urban design, and upgrading the urban water infrastructure are some of the measures that could help survive the climate change induced pressures to come⁴². This is well trodden ground, but implementation has run into numerous obstacles and has languished like so many other policies.

The managed withdrawal of cities and concentration of populations to areas less exposed to severe climatic conditions will also become unavoidable. This will be an enormous challenge because as noted earlier, the urban population could be almost three times its current size. Greater use of energy frugal active and passive cooling technologies⁴³ could make summer months less unbearable and Pakistan could join other nations in scaling back carbon emissions⁴⁴. But COP 26 was a warning to countries like Pakistan⁴⁵: hope that leading emitters of GHGs will somehow live up to their promises and halve emissions by 2030⁴⁶, but prepare for the worst.

Any one of the six crises discussed in the two installments of the article are cause for serious concern. Together they have the making of a perfect storm.

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References

¹ Although the number of reported cases as of end 2021 (1.287 million, 29,000 deaths) did not reach the levels in some of the neighboring countries (35 million cases, 3.2 million deaths in India) and Europe, the threat from new variants of the virus remains. P. Jha et al (2022) Covid mortality in India.

https://www.science.org/doi/10.1126/science.abm5154

² A. Berg et al (2018). Redistribution, inequality, and growth. Journal of Economic Growth. https://link.springer.com/article/10.1007/s10887-017-9150-2; OECD (2014). Does income inequality hurt growth. https://www.oecd.org/social/Focus-Inequality-and-Growth-2014.pdf; However, the research to date is by no means conclusive and some of the findings are mixed. K. Mdingi and S-Y Ho (2021). Literature review on inequality and growth. https://pubmed.ncbi.nlm.nih.gov/34430298/ J. Furman (2019). Comment on Confronting Inequality. https://www.piie.com/system/files/documents/furman20190131post-ppt.pdf

³L. Chancel (2020). Unsustainable Inequalities. MIT Press.

⁴Lucas Chancel (2020 p.15,17) writes that "the inability of states to guarantee social justice and to narrow if not actually eliminate economic inequality undermines their very legitimacy...[Furthermore] with growing income inequality, the wealthiest have fewer objective reasons to support policies aimed at reducing it." L. Stoetzer (2021). Income inequality and support for populist parties.

https://blogs.lse.ac.uk/europpblog/2021/11/11/how-does-income-inequality-affect-support-forpopulist-parties/; L. Pastor and P. Veronesi (2018). Inequality aversion, populism, and the backlash against globalization.

https://www.nber.org/system/files/working_papers/w24900/w24900.pdf In a society marked by the spectacular inequalities of income and wealth... there is no meaningful sense in which all citizens, rich and poor alike, can nevertheless relate to one another on an equal footing. NYT (2020). https://www.nytimes.com/2020/07/01/opinion/economic-inequality-moralphilosophy.html

⁵"Inequality has a statistically significant negative relationship with the duration of growth spells. A one-Gini-point increase in inequality is associated with a 6-percentage point higher risk that the spell will end the next year (or, equivalently, with a decrease in expected spell length of about 7 percent)." J. Ostry, A. Berg and C. Tsangarides (2014). Redistribution inequality and growth. IMF. https://www.imf.org/external/pubs/ft/sdn/2014/sdn1402.pdf; J. Ostry, et al (2019). Confronting Inequality. Columbia University Press; A. Berg and J. Ostry (2011). Inequality and unsustainable growth. IMF.

https://www.imf.org/external/pubs/ft/sdn/2011/sdn1108.pdf; J. Ostry (2019). Confronting inequality. https://www.piie.com/system/files/documents/ostry2019-01-31ppt.pdf; D. Sanchez-Ancochea (2020). The Costs of Inequality in Latin America. I.B Tauris. In Pakistan as in Latin America, the power of business and landed elites is responsible for favoring policies biased against exports, tax reform and redistribution. T. Fairfield (2015). Structural power in comparative political economy. LSE Research.

⁶https://data.worldbank.org/indicator/SI.POV.GINI?locations=PK

http://eprints.lse.ac.uk/62123/7/Fairfield_structural_power.pdf

⁷A. Ahmed (2020). Measuring income inequality in Pakistan

.https://www.econ.berkeley.edu/sites/default/files/Ahmed Ali thesis.pdf

⁸M. Haider (2021). Human Development Report 2020. The modified Palma ratio for Pakistan comes to 4.7 i.e., the richest quintile has 4.7 times the income of the lowest quintile. https://www.thenews.com.pk/print/816040-human-development-report-2020-massive-incomeinequality-among-rich-and-poor OECD (2019). Under Pressure: The Squeezed Middle Class. https://www.oecd.org/social/under-pressure-the-squeezed-middle-class-689afed1-en.htm

^bDawn (2015). 50 shades of inequality in Pakistan <u>https://www.dawn.com/news/1178703</u>

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¹⁰J. Ostry, et al (2019). Confronting Inequality. Columbia University Press. http://cup.columbia.edu/book/confronting-ineguality/9780231174695; Piketty, T (2020). Capital and Ideology. Harvard University Press.

¹¹J. Furman (2019). Comment on Confronting Inequality.

https://www.piie.com/system/files/documents/furman20190131post-ppt.pdf

¹²S. Redaelli, (2019). Pakistan @100: From poverty to equity. https://openknowledge.worldbank.org/bitstream/handle/10986/31409/135319.pdf?sequence= 4 kisAllowed = y

¹³J. Hanson and R. Sigman (2019) argue for a focus on three main attributes: the state's ability to protect against external threats and maintain order and enforce policy; mobilize revenue; and the administrative capacity to frame and implement policy, deliver services, and regulate activity. Leviathan's latent dimension. https://calhoun.nps.edu/bitstream/handle/10945/64717/Hanson-

Sigman Leviathans Latent%20Dimension.pdf?sequence=1&isAllowed=y

¹⁴N.D. Johnson and M. Koyama (2022). States and economic growth. https://mason.gmu.edu/~mkoyama2/About_files/StateCapacitySurvey.pdf

¹⁵https://fragilestatesindex.org

¹⁶https://www.transparency.org/en/cpi/2020/index/nzl

¹⁷https://www.doingbusiness.org/en/rankings. This Index has now been discontinued.

¹⁸https://calhoun.nps.edu/bitstream/handle/10945/64717/Hanson-Sigman_Leviathans_Latent%20Dimension.pdf?sequence=1&isAllowed=y

¹⁹As many as 40 terrorist organizations are believed to operate in and from Pakistan. Asia Foundation (2017) Pakistan. https://asiafoundation.org/wp-content/uploads/2017/10/Pakistan-StateofConflictandViolence.pdf

²⁰F. Fukuyama (2020) The thing that determines a country's resistance to Corona

https://www.theatlantic.com/ideas/archive/2020/03/thing-determines-how-well-countriesrespond-coronavirus/609025/; Regrettably, trust already low in governments and in most societal leaders, seems to be fading in all but a few countries. Almost no institution is believed

to be both competent and ethical. Interestingly, inequality affects trust more than economic growth. Edelman Trust Barometer (2020) https://cdn2.hubspot.net/hubfs/440941/Trust%20Barometer%202020/2020%20Edelman%20T rust%20Barometer%20Global%20Report-1.pdf

²¹https://data.worldbank.org/indicator/SP.DYN.TFRT.IN; https://data.worldbank.org/indicator/SP.POP.GROW

²²Possibly an underestimate. Numbers of 230 million and more have been aired. Refugees from Afghanistan, Bangladesh, and India number several million and the exodus from Afghanistan could add even more.

²³https://data.worldbank.org/indicator/SP.POP.TOTL?locations=PK

²⁴U. Jamal (2017). Pakistan's big new threat <u>https://thediplomat.com/2017/09/pakistans-new-</u> big-threat-a-bulging-population/; https://www.business-standard.com/article/international/pakmay-not-be-able-to-meet-needs-of-rapidly-increasing-population-experts-121071300063_1.html; https://www.washingtonpost.com/world/asia_pacific/a-disaster-in-themaking-pakistans-population-has-more-than-doubled-in-20-years/2017/09/08/4f434c58-926b-11e7-8482-8dc9a7af29f9_story.html

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²⁵<u>https://data.worldbank.org/indicator/AG.LND.ARBL.ZS?locations=PK</u> ²⁶<u>https://www.borgenmagazine.com/top-10-facts-about-overpopulation-in-pakistan/</u>; T. Mahmood et al (2020) Why under five children are stunted. https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-09110-9;A. Ali (2021). Current status of malnutrition. https://pubmed.ncbi.nlm.nih.gov/32275484/ ²⁷According to the World Development Indicators (accessed 2021), the urbanization rate in 2020 was 37.1 percent but casual empiricism suggests that it is higher. M. Kugelman ed. (2014). Pakistan's runaway urbanization. Wilson Center. https://www.wilsoncenter.org/sites/default/files/media/documents/publication/ASIA_140502_P akistan%27s%20Runaway%20Urbanization%20rpt_0530.pdf; The use of nightlights to assess the spread of urbanization and economic activity can improve the accuracy of urbanization rates. It has helped uncover the hidden (messy, informal) urbanization in Pakistan. World Bank (2015). Leveraging Urbanization in South Asia. https://openknowledge.worldbank.org/handle/10986/22549 https://news.climate.columbia.edu/2013/11/11/night-time-lights-illuminate-trends-inurbanization/ and Y. Liu et al (2020) Urban growth sustainability of Islamabad. https://link.springer.com/article/10.1007/s10708-020-10172-w ²⁸The numbers would be swelled by climate refugees. <u>https://www.climate-</u> refugees.org/spotlight/2021/7/30/pakistan ²⁹The average for upper middle-income countries in 2020 was 68 percent. https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=PK ³⁰J. Ahmed and G. Samad (2019) Employment in Pakistan. PIDE Research Brief. https://www.pide.org.pk/pdf/PIDE-Research-Brief-02-2019.pdf ³¹Z.A. Sathar et al eds. (2017). Capturing the Demographic Dividend in Pakistan. https://pakistan.unfpa.org/en/publications/capturing-demographic-dividend-pakistan The contributors suggest how Pakistan could accelerate its demographic transition. ³²M. Hussain et al (2019). A comprehensive review of climate change impacts in Pakistan. https://link.springer.com/article/10.1007/s10661-019-7956-4; The costs could range from between \$7 billion and \$14 billion per annum. A joint study by the ADB and the World Bank pegged the annual losses at close to \$4 billion. Climate Risk Country Profile (2021) https://openknowledge.worldbank.org/bitstream/handle/10986/36372/Pakistan-Climate-Risk-Country-Profile.pdf?sequence=1&isAllowed=y ³³Pakistan was 8th ranked by the Global Climate Risk Index in 2019. https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_1. pdf; https://www.nytimes.com/2020/09/27/opinion/pakistan-climate-change.html Insights for Change ³⁴Chi Xu et al (2020). Future of the climate niche. https://www.pnas.org/content/117/21/11350 "The majority of people have lived within areas where the annual average temperature ranges from 52-59 degrees Fahrenheit (11-15 degrees Celsius), while fewer have inhabited lands with temperatures ranging from 68-77 degrees F (20-25 degrees C). For comparison, the Sahara Desert, one of the hottest regions around the world, has an annual average temperature of 86 degrees F (or 30°C). Large areas of the Sahara are considered uninhabitable because of the hot and dry conditions. The area of Earth's land surface occupied by inhospitably hot temperatures greater than 84 degrees F (29 degrees C) on average can be expected to rise from a current level of 0.8% today to 19% in 2070." By 2070, as many as 3 billion people could be exposed to temperatures comparable to those prevailing in the hottest parts of the Sahara. https://earthsky.org/earth/global-warming-areas-of-earth-too-hot-for-people/; https://www.ft.com/content/072b5c87-7330-459b-a947-be6767a1099d ³⁵"People affected by flooding is projected, with a likely increase of around 5 million people exposed to extreme river floods by 2035–2044, and a potential increase of around 1 million annually exposed to coastal flooding by 2070–2100." World Bank/ADB (2021) https://openknowledge.worldbank.org/bitstream/handle/10986/36372/Pakistan-Climate-Risk-Country-Profile.pdf?sequence=1&isAllowed=y ³⁶<u>https://www.dawn.com/news/1593187</u>; Water availability per capita is 1,017 cubic meters per capita almost at the scarcity threshold which is 1,000 cu meters. https://www.thenews.com.pk/magazine/you/632412-making-every-drop-count ³⁷<u>https://www.telegraph.co.uk/global-health/climate-and-people/hotter-human-body-can-</u> handle-pakistan-city-broils-worlds-highest/ ³⁸ World Bank/ADB (2020) https://openknowledge.worldbank.org/bitstream/handle/10986/36372/Pakistan-Climate-Risk-Country-Profile.pdf?sequence=1&isAllowed=y

³⁹ World Bank (2019). Pakistan: Getting more from water. https://openknowledge.worldbank.org/handle/10986/31160

⁴⁰ A. Salman (2021) Pakistan's looming water crisis. https://www.eastasiaforum.org/2021/11/13/pakistans-looming-water-crisis/

⁴¹ Pakistan exports virtual water through its overseas sales of rice, wheat, and fruit. https://oec.world/en/profile/country/pak

⁴²W. Yu et al (2013) The Indus Basin of Pakistan: The impact of climate risks on water and agriculture. https://openknowledge.worldbank.org/bitstream/handle/10986/13834/770220PUB0REPL0te04

Insights for Change

0180130EPI019874.pdf?sequence=1&isAllowed=y

⁴³S. Yusuf (2021) Staying cool as the climate warms. https://www.cgdev.org/publication/staying-cool-climate-warms

⁴⁴M. Sugathan and G. Varela (2021) Pakistan's policy options to make trade work for environmental sustainability. "[By] encouraging Pakistani firms (as well as government entities and households) [to] access to EGS at world prices to achieve environmental benefits, and make sure that firms that use EGS to 'green' their production process can show it to the world through efficient accreditation services. Secondly, it needs to promote competitive production and exports of some EGS themselves. The two objectives require different policy instruments." https://blogs.worldbank.org/endpovertyinsouthasia/pakistans-policy-options-make-trade-workenvironmental-sustainability

⁴⁵https://thehill.com/opinion/energy-environment/582110-cop26-was-a-cop-out-heres-why-itgets-a-failing-grade

⁴⁶K. Levin et al (2019) <u>https://www.wri.org/insights/net-zero-ghg-emissions-guestions-</u> answered; https://www.bbc.com/future/article/20211028-why-not-all-net-zero-emissionstargets-are-equal; IPCC (2018) https://www.ipcc.ch/sr15/chapter/spm/spm-c/spm3a/