



PULTE INSTITUTE
FOR GLOBAL DEVELOPMENT

A Framework For A Just Energy Transition In Tajikistan

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ABOUT THE AUTHORS

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As a visiting associate within the Pulte Institute for Global Development, Mubvuma utilized his insights and research from this project to prepare this report. His research drew from conversations with a wide range of stakeholders, community members, business owners, and non-profit organizations. He was supervised by Professor D. Desierto, Professor of Law and Global Affairs at the University of Notre Dame and the chair-rapporteur of the United Nations' (UN) Expert Group on the Right to Development. Simba also received support from Tom Purekal, Program Director of Innovation and Practice at the Pulte Institute. He also received support to implement this research from Edward Jurkovic and Heather Asiala from the Pulte Institute.

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A JUST TRANSITION FOR TAJIKISTAN

This policy brief presents research-based insights from Tajikistan with a particular emphasis on issues surrounding a just energy transition. While a large portion of the just transition discourse focuses on moving away from fossil fuels, Tajikistan will likely need to transition or diversify from hydroelectric power (hydroelectric power currently accounts for 95% of the country's energy needs) to other forms of renewable energy in order to combat the effects of climate change. This switch will be necessary due to how the effects of climate change may affect Tajikistan's hydroelectric power production. It is anticipated that several of Tajikistan's biggest dams will have decreased water levels and that rainfall patterns may shift. A regular decrease in the amount of water available for hydroelectric facilities due to melting glaciers is also predicted.

Even if a transition or diversification away from hydroelectric power is necessary, it will come at the expense of jobs in the hydroelectric sector, which also supports other industries such as agriculture. With the advent of other renewable energy sources, the relatively low price of hydroelectric power is unlikely to be matched by other sources such as wind and solar, resulting in higher energy prices.

A FRAMEWORK FOR POLICYMAKERS

To address these consequences, Tajik policymakers will need to think critically about how to implement a just transition. While existing climate policies have helped Tajikistan protect the environment, there is no specific policy framework in place to protect workers and livelihoods in the event of a massive transition or diversification of the energy sector. In this light, this brief provides policymakers with guidance on how to implement a just transition, including principles to consider as well as a mechanism to ensure a just transition in Tajikistan.

KEY POINTS

This brief is divided into sections, the majority of which are intertwined and interrelated. Part I provides an overview of Tajikistan's economy, information on food access, information on the energy value chain, Tajikistan's current energy policies, and frameworks for renewable energy adoption. This section also explores the demonstrable impact of climate change on Tajikistan's hydroelectric power, as well as the alternatives that Tajikistan is best positioned to implement given its resources and other considerations.

Part II provides a detailed overview of the key principles that Tajikistan must follow to ensure a just transition. These five pillars are availability, affordability, sustainability, a minimum core, and compliance with international environmental law. While these principles are already being considered in various sectors in Tajikistan, there is a need to specifically adopt and apply them to policy decisions aimed at achieving a just transition in Tajikistan.

Part III describes the proposed just transition mechanism, which includes a collaborative and multisectoral Just Transition council, a countrywide vulnerability assessment focusing on the communities most likely to be impacted by a transition, an open and transparent data platform to provide information on the risks and opportunities that a transition poses, grassroots dialogue and education, and a just transition fund to reskill and cushion those who will be affected by a transition. The current brief would be most useful to the Tajik government and the AKDN, both of which are heavily involved in Tajikistan's energy sector. Other Tajik organizations, such as environmental or social justice organizations, may also find it useful as a basis for advocacy, education, or grassroots action on Tajikistan's energy and environmental justice.

INTRODUCTION

Tajikistan has a lot of hydroelectric potential and has been identified as having more than 4% of the world's hydroelectric potential.¹ While hydroelectric power is widely regarded as a sustainable source of energy, climate change threatens to upend it,² with water levels in some of Tajikistan's most important water resources beginning to decline.³ As a result, the Tajik government has begun to consider new renewable energy sources such as solar and wind.⁴ As Tajikistan begins to adopt other renewable energy sources, the importance of hydroelectric power in the Tajikistan energy matrix will diminish.⁵ While many discussions about transitioning to renewable energy focus on transitioning from fossil fuels such as coal, Tajikistan's case is unique in that it involves a potential transition, or more appropriately, diversification to other forms of renewable energy. This transition, while critical to Tajikistan's energy security, will almost certainly be difficult, given Tajikistan's current reliance on hydroelectric power. For starters, a decline in the hydroelectric power generation model will reduce job opportunities in the sector, which currently employs a significant number of Tajiks. Second, renewable energy, such as solar or wind, will likely carry a green premium, raising energy prices for many Tajiks who are already suffering from high energy prices, inflation, and economic contraction.

To ensure that Tajikistan can transition or diversify to other renewable energy sources while minimizing the impact on jobs or higher energy prices, Tajikistan must directly address the issue of how a just energy transition can be achieved. In light of this, this policy brief highlights the challenges that Tajikistan faces in achieving a just transition, lays out policy considerations that can help achieve a just transition, and proposes a just energy

transition framework that the Government of Tajikistan and AKDN can implement. The brief specifically identifies five key principles that policymakers can use to help Tajikistan achieve a just transition, namely availability, affordability, sustainability, established minimum core access to energy, and respect for international environmental law. While the Tajik government already considers some of these factors in its energy policies, a greater emphasis on these principles is required to address existing barriers to achieving a just transition in Tajikistan. As a mechanism to achieve a just transition in accordance with the principles outlined, we will propose establishing the Tajikistan Just Transition Council, which will a) conduct an assessment of vulnerabilities within policies, laws, and communities, b) provide open and transparent data on the vulnerabilities that exist, c) facilitate dialogue and education on ways to achieve a just transition within Tajikistan, and d) administer a just transition fund to reskill Tajiks.

METHODOLOGY

We used a variety of methods to create this brief, including desk research and interviews with key stakeholders in Tajikistan. In developing the proposed framework, we primarily a) conducted field research on transition-related challenges in the Pamir region. b) evaluated Tajikistan's current energy policies c) investigated Tajikistan's international environmental law obligations; d) reviewed literature on the Public Private Partnership (PPP) between Aga Khan Development Network (AKDN) and the Tajik government; and d) triangulated this data to develop the proposed framework. The methodology was normative, descriptive, and empirical in general. It is normative in the sense that it identifies existing rules under international environmental law that bind Tajikistan; Descriptive in the sense that it outlines Tajikistan's energy policies;

¹Tajikistan Energy Situation - energypedia, https://energypedia.info/wiki/Tajikistan_Energy_Situation (last visited May 10, 2022).

²Hydroreviewcontentdirectors, Climate change-induced floods and droughts are threatening hydropower projects, HYDRO REVIEW (2022), <https://www.hydroreview.com/environmental/climate-change-induced-floods-and-droughts-are-threatening-hydropower-projects/> (last visited May 10, 2022).

³Tajikistan Limits Power Due To Low Water At Hydroelectric Dam, RADIO FREE EUROPE/RADIO LIBERTY, 19:11:44Z, <https://www.rferl.org/a/tajikistan-limits-power-due-to-low-water-at-hydroelectric-dam/30753912.html> (last visited May 10, 2022).

⁴Harald Zandler, T. Morche & Cyrus Samimi, Wind and solar power as possible energy alternatives in peripheral high mountains? Insights from the Eastern Pamirs of Tajikistan, 9 SUSTAINABLE DEVELOPMENT OF MOUNTAIN TERRITORIES 343–353 (2017); National Development Strategy of the Republic of Tajikistan for the Period up to 2030 | ESCAP Policy Documents Management, <https://policy.asiapacificenergy.org/node/3220> (last visited May 8, 2022).

⁵Robert Looney, Power Shortages in Central Asia's Lands of Abundant Energy, MILKEN INSTITUTE REVIEW, <https://www.milkenreview.org/articles/power-shortages-in-central-asias-lands-of-abundant-energy> (last visited May 10, 2022).

Empirical because it assesses the various quantitative energy indicators as they relate to Tajik communities. In terms of the interviews, I utilized three different research questionnaires, which focused on energy access, reliance on the energy sector for work, community energy use, the effect of climate change on hydroelectric power generation, and the implementation of renewable energy in Tajikistan. They included Pamir region community members, Pamir region development organizations, government officials, and AKDN officials. These interviews uncovered evidence of how Tajikistan's looming energy diversification will impact local communities in terms of agricultural productivity and energy prices.

CONTEXT ON TAJIKISTAN

ENERGY AND OTHER NATURAL RESOURCES

Hydroelectric power is the country's most well-documented resource. Tajikistan has energized investors for years with electricity export opportunities because it has two of the world's three largest dams and a massive hydropower potential. Tajikistan has drawn investment from two of the world's most productive hydroelectric countries, which also happen to be its neighbors: China and Russia. These countries, as well as global institutions such as the World Bank, have made significant investments in hydro projects throughout Tajikistan. Even so, only 4% of this potential is currently being realized, and the country has previously experienced energy shortages. Furthermore, it appears that the effects of climate change have wreaked havoc on many existing hydroelectric sites, with lower water levels and irregular rainfall patterns complicating the monetization of this resource.

GBAO AND THE PAMIR MOUNTAINS

The Pamir Mountains are mostly found in Tajikistan's

Gorno-Badakhshan Autonomous Province (GBAO), which has many glaciers, including the world's longest glacier outside of the polar regions.⁶ The Pamir Mountains are best known for connecting Central Asia, South Asia, and East Asia. Despite the fact that the Pamir Mountains cover nearly 45 percent of Tajikistan, only 3% of the population lives there, primarily in rural communities.⁷ The Pamirs have long, cold winters followed by short, cool summers and are covered in snow all year. As a result, access to energy for household purposes, including food preparation, is critical in the Pamir region. Due to the difficult terrain, energy transmission into the Pamirs has historically been limited.⁸ As a result, there were times when people in the Pamir region only had three hours of electricity per day,⁹ putting a heavy burden on populations, particularly women, who had to spend hours cooking over open fires.¹⁰ To address challenges of energy access with GBAO, the Aga Khan Development Network (AKDN) and the Tajik government formed a private-public partnership (PPP) in 2020.¹¹ Under the terms of this partnership, Pamir Energy, an AKDN subsidiary, invested in and built new hydropower plants in GBAO, as well as renewable energy plants such as wind and solar.¹²

THE ENERGY VALUE CHAIN IN TAJIKISTAN

GENERATION, TRANSMISSION AND CONSUMPTION

Tajikistan gets nearly all of its energy from hydroelectric power.¹³ The Vakhsh River is home to the majority of Tajikistan's major hydropower plants.¹⁴ An international initiative has helped to repair and install small-scale hydropower in Tajikistan's eastern Gorno-Badakhshan Autonomous Oblast (GBAO).¹⁵ As previously stated, a public-private partnership is in place to supply energy

⁶Fedchenko Glacier | glacier, Tajikistan | Britannica, <https://www.britannica.com/place/Fedchenko-Glacier> (last visited May 10, 2022).

⁷Pamirs | mountain region, Asia | Britannica, <https://www.britannica.com/place/Pamirs> (last visited May 10, 2022).

⁸Energy Crisis In The Pamir Mountains - Our World, <https://ourworld.unu.edu/en/highland-people-struggle-to-fuel-their-lives> (last visited May 10, 2022).

⁹Nevelina Pachova & Luis Patron, Energy Crisis In The Pamir Mountains, OUR WORLD - UNITED NATIONS UNIVERSITY (2010), <https://ourworld.unu.edu/en/highland-people-struggle-to-fuel-their-lives> (last visited Jan 22, 2022).

¹⁰Mphemelang J. Kethoilwe & Kennedy M. Kanene, Access to energy sources in the face of climate change: Challenges faced by women in rural communities, 10 JAMBA 375 (2018).

¹¹Pamir Energy, AGA KHAN FOUNDATION USA (2015), <https://www.akfusa.org/our-work/pamir-energy/> (last visited May 10, 2022).

¹²Id.

¹³Tajikistan Energy Situation - energypedia, supra note 1.

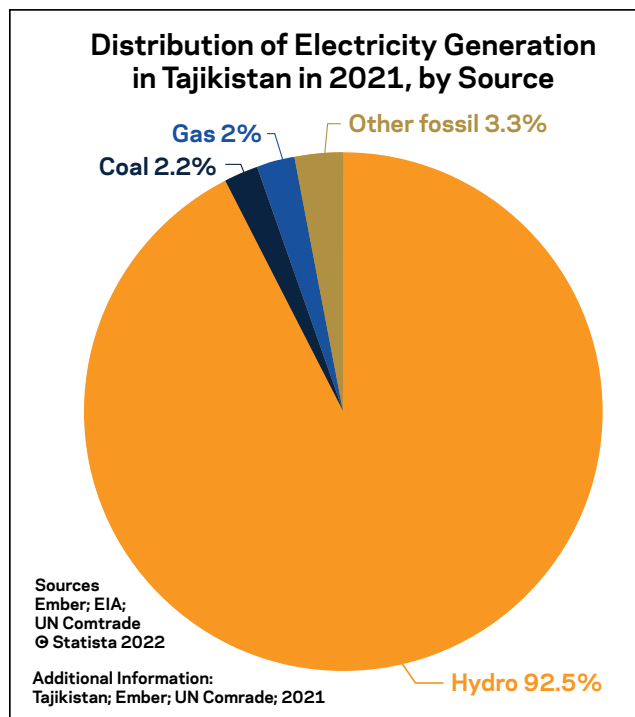
¹⁴Rogun Hydropower Project, Vakhsh River, Pamir Mountains, Tajikistan, <https://www.nenergybusiness.com/projects/rogun-hydropower-project/> (last visited May 10, 2022).

¹⁵Rural Communities in Tajikistan to Gain Greater Access to Electricity, with World Bank Support, WORLD BANK, <https://www.worldbank.org/en/news/press-release/2021/04/02/rural-communities-in-tajikistan-to-gain-greater-access-to-electricity-with-world-bank-support> (last visited May 10, 2022).

in the GBAO region,¹⁶ which includes repairing existing units and building new local power plants. These efforts have resulted in increased energy access in the GBAO region, with more than 90% of households now having access to reliable energy.¹⁷ The government has prioritized grid development alongside hydropower generation.¹⁸ Tajikistan reopened its transmission lines to Uzbekistan in 2018, allowing Tajikistan to export electricity to Uzbekistan.¹⁹ The government intends to reduce energy losses in power grids by up to 10% and thermal grids by up to 20% in the future.²⁰ While Tajikistan has made significant progress in expanding access to energy, the government still has a long way to go to ensure regular and reliable energy access in all regions of Tajikistan, particularly in GBAO.²¹ According to UNDP, the government's goal is to provide regular and reliable electricity to 5.6 million Tajiks living in rural areas by 2030.²² According to field research, investments in new plants have already raised the standard of living in many Tajik communities. This is significant because energy access is critical to Tajikistan's prosperity.

IMPACT OF CLIMATE CHANGE ON TAJIKISTAN HYDROELECTRIC POTENTIAL

Tajikistan is vulnerable to natural disasters and has a high score in international climate impact evaluations.²³ Climate change is producing several new difficulties in Tajikistan, including glacial melt, delays in precipitation cycles, and temperature increases.²⁴ Tajikistan's climate increased by more than 1°C between 1940 and 2000, causing significant damage to the country's glaciers. The total glacial area is expected to shrink by 20 percent within the next 40 years.²⁵ Tajikistan is anticipated to



see hotter days in the future, with significant changes in rainfall patterns.²⁶ This is significant because weather and water conditions are critical in hydropower generation, and climate change is posing new challenges for hydropower plant design and operation. Tajikistan gets 95 percent of its electricity from hydropower. The hydropower plants in Tajikistan rely on river basins fed by glacial melt water and snowmelt.²⁷ However, as the climate warms, most climate models predict significant changes in precipitation pattern dynamics, as well as changes to the country's glaciers. Changes in the quantity and timing of river runoff, as well as increased reservoir evaporation, will also have an impact on hydroelectric power production. These include system operation effects, financial effects, and effects

¹⁶Pamir Energy, supra note 23.

¹⁷Oxfam, Bringing Clean Energy and Co-Benefits to Remote Communities in Tajikistan and Afghanistan, RELIEF WORLD (2021), <https://reliefweb.int/report/tajikistan/bringing-clean-energy-and-co-benefits-remote-communities-tajikistan-and> (last visited Jan 22, 2022).

¹⁸IFC, Extending the Power Grid in Central Asia, INTERNATIONAL FINANCE COOPERATION (2022), https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/pamir+power+grid+in+tajikistan.

¹⁹Catherine Putz, Tajikistan Resumes Supplying Uzbekistan with Electricity, <https://thediplomat.com/2018/04/tajikistan-resumes-supplying-uzbekistan-with-electricity/> (last visited May 10, 2022).

²⁰Sustainable Energy for All Tajikistan 2013-2030 – Policies, IEA, <https://www.iea.org/policies/6099-sustainable-energy-for-all-tajikistan-2013-2030> (last visited May 8, 2022).

²¹Kethoilwe and Kanene, supra note 22.

²²Sustainable Energy for All Tajikistan 2013-2030 – Policies, supra note 40.

²³Tajikistan | UNDP Climate Change Adaptation, <https://www.adaptation-undp.org/explore/central-asia/tajikistan> (last visited May 10, 2022).

²⁴Tajikistan: what are the effects of climate change, <https://ca-climate.org/eng/news/ledniki-tadzhikistana-intervyu-s-ekspertom/> (last visited May 10, 2022).

²⁵Tajikistan: Melting glaciers pose growing threat in the Pamirs - Tajikistan, RELIEFWEB, <https://reliefweb.int/report/tajikistan/tajikistan-melting-glaciers-pose-growing-threat-pamirs> (last visited May 10, 2022).

²⁶Climate details in Tajikistan, WORLDDATA.INFO, <https://www.worlddata.info/asia/tajikistan/climate.php> (last visited May 10, 2022).

²⁷See summary of findings – Pamir Energy

on other energy sectors. In terms of financial impact, hydroelectric stations in Tajikistan generally have low operational costs but high upfront capital costs. The expectation is that these projects will recoup their costs through electricity sales both within and outside of Tajikistan. Based on this, a decrease in production caused by climate change can potentially jeopardize the viability of these projects.

RENEWABLE ENERGY – WIND & SOLAR

To counteract the effects of climate change on hydroelectricity, Tajikistan's government has prioritized energy efficiency and diversification of hydroelectricity with other renewable energy sources. The frontrunners are solar and wind energy, which have significant potential in Tajikistan. To begin, Tajikistan is located between 36°40' and 41°05' north latitude, which has been dubbed the "golden belt" in terms of sunshine.²⁸ Tajikistan has an annual sunshine duration of 2100-3166 hours, with 270 to 290 sunny days. This positions renewable energy, such as solar energy, as a potential energy source, particularly in mountainous regions where power transmission and distribution are limited. According to government data, solar energy could potentially cover the winter power shortage that exists in many parts of Tajikistan.²⁹ A recent solar project is the USAID Power the Future project, a three-way collaboration with the Tajikistan government and Pamir Energy that implemented the 200 kilowatt (kW) Murghab solar power plant, the largest in Tajikistan and the highest in Central Asia.³⁰ In addition to solar, wind energy has the potential to significantly contribute to Tajikistan's energy generation.³¹ Wind has the potential to generate 30 to 100 billion kWh per year in Tajikistan, which is comparable to the hydropower potential.³²

Regardless of the potential of solar and wind, there have not been many projects completed.³³

WHAT IS A JUST TRANSITION?

Tajikistan should continue to prioritize the well-being of its people as it transitions and diversifies from hydroelectric energy to other kinds of renewable energy. Tajikistan could do so by establishing a framework for a meaningful transition that protects hydroelectric workers while also ensuring reasonable energy costs for those who rely on electricity for agriculture and daily life. But, exactly, what is a just transition? A just transition is the concept and method of ensuring that the advantages of a green economy transition are equitably shared, including financial help for those who stand to lose financially as a result of the shift.³⁴ There are several conceptual frameworks that can be used to demonstrate the concept of a just transition in this regard. To begin with, the concept of a just transition encompasses broad components of energy justice, which is based on three key tenets: distribution, procedural, and recognition, all of which are implemented throughout the energy system.³⁵ Another way to consider a just transition and energy justice is via the lens of accessibility, affordability, due process, transparency, accountability, and sustainability.³⁶ From a normative standpoint, one of the core concepts of the Paris Agreement is in fact just transition, which calls upon countries to ensure that in transitioning to a cleaner energy future, no one is left behind.³⁷

A vital aspect to remember is that a just transition is a process that stresses discussion among various stakeholders such as labor, industry, and governments, rather than a set of rigid regulations.³⁸ Other recommendations, such

²⁸Renewable Energy of Tajikistan. Why is it important for the country, but not a priority?, CABAR.ASIA (2021), <https://cabar.asia/en/renewable-energy-of-tajikistan-why-is-it-important-for-the-country-but-not-a-priority> (last visited May 10, 2022).

²⁹Installing Solar Panels on the World's Rooftop | Success Stories | Tajikistan | U.S. Agency for International Development, (2020), <https://www.usaid.gov/tajikistan/success-stories/dec-2020-installing-solar-panels-world-rooftop> (last visited May 10, 2022).

³⁰Id.

³¹M. Laldjebaev, R. Isaev & A. Saukhimov, Renewable energy in Central Asia: An overview of potentials, deployment, outlook, and barriers, 7 ENERGY REPORTS 3125–3136 (2021).

³²Id.

³³Renewable Energy of Tajikistan. Why is it important for the country, but not a priority?, supra note 47.

³⁴Diane Desierto, Just Transitions in Climate Change Actions: Are States Respecting, Promoting, and Considering Human Rights Obligations in Setting and Implementing NDCs?, BLOG OF THE EUROPEAN JOURNAL OF INTERNATIONAL LAW (2021), <https://www.ejiltalk.org/respecting-human-rights-obligations-in-climate-change-actions-are-states-evaluating-ndcs-human-rights-impacts/> (last visited Dec 12, 2021).

³⁵Darren McCauley & Raphael Heffron, Just transition: Integrating climate, energy and environmental justice, 119 ENERGY POLICY 1–7 (2018).

³⁶Energy justice: A conceptual review - ScienceDirect, <https://www.sciencedirect.com/science/article/abs/pii/S2214629615300669?via%3Dihub#> (last visited May 10, 2022).

³⁷Just Transition in the Paris Climate Agreement, <https://www.ituc-csi.org/just-transition-in-the-paris> (last visited May 10, 2022).

³⁸Just Transition, INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT, <https://www.iisd.org/topics/just-transition> (last visited May 10, 2022).

as the International Labour Organization's guidelines for a just transition, may be useful in achieving a just transition.³⁹ Various governmental conceptions of a just transition have manifested themselves in a number of locations around the world. In 15 years, Poland conducted a coal restructuring that reduced employment in the coal mining sector by more than 75%. In this case, the government collaborated with labor unions to create a mining social package as well as cushions for mining communities.⁴⁰ In Canada, a national commitment to phase out coal-fired electricity was accompanied by the formation of a national task force comprised of representatives from industry, labor, the environment, and the coal community, and this group travelled across the country to hear from people about the support and government policies they would require in the event of a transition.⁴¹ In Egypt's case, the government used the message of "shared sacrifice" to argue for much-needed fuel reforms. Other measures, such as increased minimum wages, food stipends, and progressive taxation, were also implemented to ensure that no one was left behind.⁴²

CURRENT GOVERNMENT POLICY AND STRATEGY ACROSS THE ENERGY VALUE CHAIN

Tajikistan's government has done an outstanding job in integrating climate resilience into the planning and renovation of major infrastructure as well as local adaptation strategies. In the past, agricultural adaptation techniques included growing a range of crops in greenhouses, planting frost and drought-resistant fruit trees, and providing shelter and shade for cattle to reduce the danger of heat stress.⁴³ Tajikistan's reliance on hydropower has also helped it maintain the lowest per capita emissions in Central Asia and one of the lowest internationally.⁴⁴ Specifically, the Tajik government

has a number of policies in place, the most notable of which being the Sustainable Energy for All framework, which outlines Tajikistan's long-term energy access development.⁴⁵ The policy's purpose is to provide regular and reliable power to 5.6 million people in rural Tajikistan by 2030. In addition, the policy intends to raise energy production from renewable energy sources by 20% over 2010 levels. The Tajik government intends to achieve these objectives through adequate policy implementation, institutional creation, private sector mobilization, and regional cooperation.

In addition to the policies mentioned above, the government also has a National Development Strategy for the period up to 2030. This strategy's vision is to ensure that all Tajik citizens have full access to sustainable, affordable, and high-quality services, including electricity.⁴⁶ Furthermore, the strategy addresses natural disaster risk management and natural resource management. Strengthening environmental protection incentives among the population and economic entities is a critical component of this strategy. In order to actualize this policy, it will be important for the Government of Tajikistan to have a specific focus on ensuring that there is intentional dialogue to ensure that workers and others who rely on the current energy structure are not left behind in the event that the structure is changed in line with this policy. For these reasons, Tajikistan will need a specific policy framework to address the issue of a just energy transition as it moves forward with its work to ensure sustainable energy for all.

KEY PRINCIPLES FOR ACHIEVING A JUST TRANSITION IN TAJIKISTAN

THE RATIONALE

While Tajikistan's current policies and strategies go a long

³⁹User's manual to the ILO's Guidelines for a just transition towards environmentally sustainable economies and societies for all, (2021), http://www.ilo.org/actrav/pubs/WCMS_826060/lang-en/index.htm (last visited May 10, 2022).

⁴⁰Supporting Energy Transition in Poland's Coal Regions Learning Series, WORLD BANK, <https://www.worldbank.org/en/events/2021/06/16/learning-workshops-supporting-energy-transition-in-poland-s-coal-regions> (last visited May 10, 2022).

⁴¹Environment and Climate Change Canada, Final Report by the Task Force on Just Transition for Canadian Coal Power Workers and Communities, (2022), <https://www.canada.ca/en/environment-climate-change/services/climate-change/task-force-just-transition/final-report.html> (last visited May 10, 2022).

⁴²Egypt: Acting Against Climate Change for a Healthier, More Prosperous Future, WORLD BANK, <https://www.worldbank.org/en/news/opinion/2022/04/19-egypt-acting-against-climate-change-for-a-healthier-more-prosperous-future> (last visited May 10, 2022).

⁴³Review of Current and Planned Adaptation Action in Tajikistan, INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT, <https://www.iisd.org/publications/report/review-current-and-planned-adaptation-action-tajikistan> (last visited May 10, 2022).

⁴⁴CO2 emissions (metric tons per capita) - Tajikistan | Data, <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=TJ> (last visited May 10, 2022).

⁴⁵Sustainable Energy for All Tajikistan 2013-2030 – Policies, supra note 40.

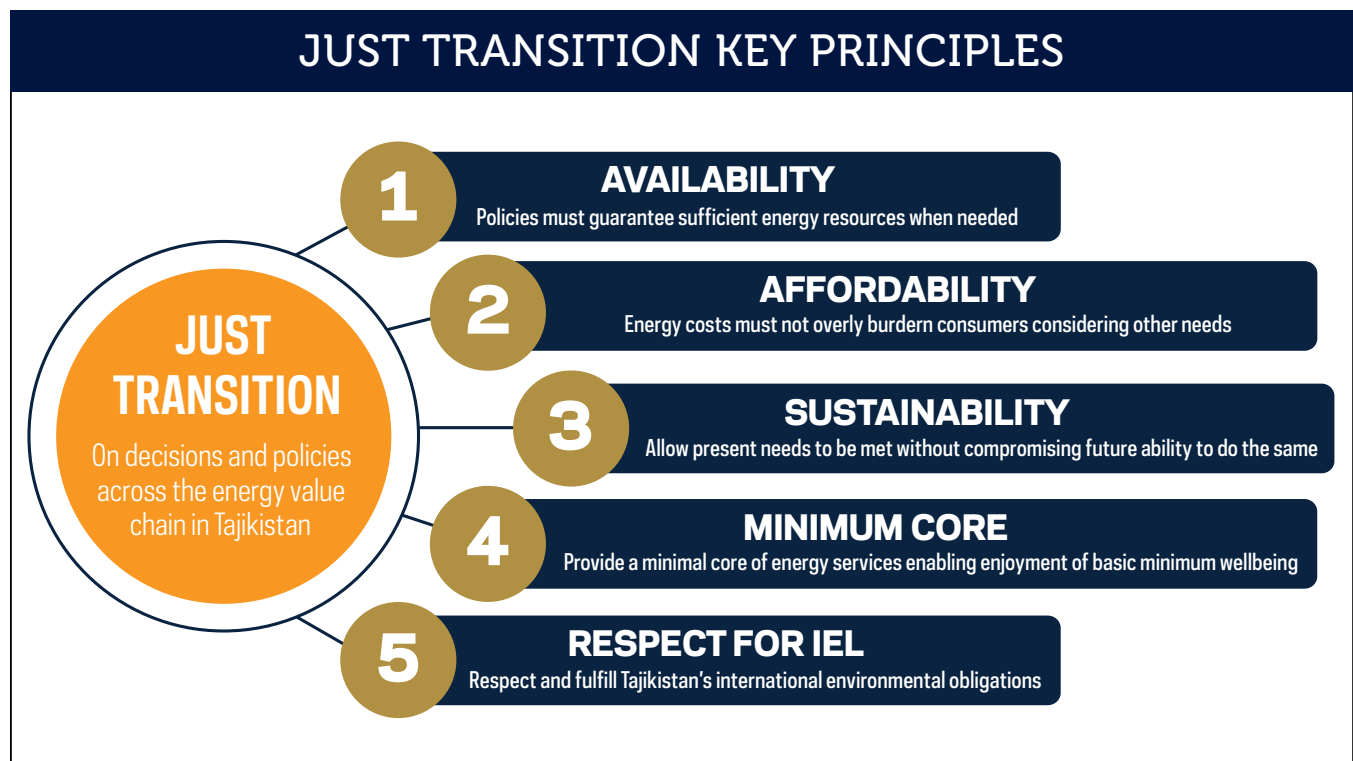
⁴⁶National Development Strategy of the Republic of Tajikistan for the Period up to 2030 | ESCAP Policy Documents Management, supra note 4.

way toward laying out an agenda to secure Tajikistan's energy future and to protect the environment,⁴⁷ a framework that can ensure an equitable transition in Tajikistan is needed. This will allow policy to go beyond concepts and analysis and into decision-making, which includes dialogue among policymakers, regulators, ordinary citizens, business owners, and investors. All these various stakeholders would play a key role in the case of a transition, which makes it important to have a clear guideline for how they will interact with one another in order to achieve their respective goals. In this regard, the key first step would be to agree on the principles that should guide the just transition framework in Tajikistan. Specifically, these principles should focus on energy availability, affordability, sustainability, as well as establishing minimum core energy access and compliance with international environmental law obligations. These guiding principles are addressed in turn below.

AVAILABILITY & AFFORDABILITY

Availability is a key component of ensuring a just transition for Tajikistan. Specifically, this relates to the ability of Tajikistan to guarantee sufficient energy resources across all regions, even as it diversifies from hydroelectric power.

As the evidence shows, there is a strong reliance on energy for agriculture and other activities in Tajikistan, most of which comes by hydroelectric power. This makes it imperative that in its effort to diversify the grid, availability in every region is guaranteed. Due to the nature of the GBAO region, for example, a practical application of the availability principle may necessitate the adoption of technological solutions like micro grids, that are suited to produce, transport, conserve, store, or distribute energy in these regions. The availability principle will also place emphasis on ensuring that the initial investment includes the investment required to keep the system operational, as well as the maintenance of a robustly diverse energy grid. The second key principle to consider is energy affordability, which entails not only lower prices, but energy bills that do not overburden consumers in relation to their earnings and income. In Tajikistan's case of grid diversification, the concept of a just transition would include stable prices as well as equitable prices that do not require lower-income households to spend a large portion of their income on energy. This is especially important in light of the fact that even if Tajikistan made significant advances in renewable energy, it would be meaningless unless households could afford to access and use it.



⁴⁷Tajikistan to Protect its Natural Resources and Increase Climate Resilience, with World Bank Support, WORLD BANK, <https://www.worldbank.org/en/news/press-release/2022/02/25/tajikistan-to-protect-its-natural-resources-and-increase-climate-resilience-with-world-bank-support> (last visited May 10, 2022).

SUSTAINABILITY

Another important principle to consider in this regard is sustainability, which requires development that meets the needs of the present without jeopardizing future generations' ability to meet their own needs.⁴⁸ In Tajikistan's case, key components of sustainability include debt sustainability and environmental sustainability, which means that while Tajikistan can seek investment to finance its grid diversification efforts, it also has a responsibility to do so without harming its natural environment or burdening itself with excessive debt.⁴⁹ Furthermore, upholding the principle would include a process component, which requires that for solutions to be sustainable, they must be developed with stakeholder participation in the policymaking process. This pillar would specifically call on the government to ensure that communities are involved in deciding on energy diversification projects that will affect them.⁵⁰ Furthermore, long-term sustainability will necessitate the government focusing on increasing transparency in the energy sector by ensuring that communities have access to energy and environmental information.⁵¹ Additionally, this principle also encapsulates the concept of intergenerational equity, which suggests that future Tajiks have a right to a good standard of living that is unaffected by any damage caused by current energy systems.⁵² Specifically, Tajikistan must ensure that future Tajiks inherit an environment that is not worse off than the one that exists today. Tajikistan can do this by seeking to expand hydro and to diversify to other renewable energy sources. This fosters a sense of responsibility, which extends to preventing climate change and incorporating these considerations into energy policy decisions.

MINIMUM CORE ACCESS TO ENERGY

In the case of diversification to other renewable energy

sources that might initially have a higher green premium, a critical component of a just transition for Tajikistan requires adopting the principle of minimum core access to energy. While this principle can trace its roots to international human rights law, it has a sound foundational grounding in the culture and context of Tajikistan, which emphasizes allowing every Tajik to enjoy a meaningful state of wellbeing.⁵³ In this regard, this principle would entail establishing minimum core access to energy,⁵⁴ which would result in a system that provides minimal energy services to all, allowing Tajiks to enjoy a basic minimum of wellbeing. As we have seen, many Tajiks rely on agriculture, which is extremely difficult to do in the winter.⁵⁵ While several organizations have funded greenhouses to alleviate the difficulties of winter farming,⁵⁶ the majority of these still require electricity. Many Tajiks will be unable to produce enough food for their families if they do not have access to basic energy. This is especially true for other renewable energy sources such as solar or wind, which are likely to be more expensive than hydroelectric power. In this regard, as Tajikistan moves forward with grid diversification, it must ensure that Tajiks have access to the energy they require to engage in economic activity such as greenhouse farming, regardless of the makeup of its energy generation system.

RESPECT FOR INTERNATIONAL ENVIRONMENTAL LAW OBLIGATIONS

Tajikistan has various obligations under international law, specifically international human rights law and international environmental law. In the case of international human rights law, Tajikistan is a party to the International Covenant on Economic, Social and Cultural Rights, which requires it to respect and fulfil rights as the right to an adequate standard of living and the right to work. Under the right to an adequate standard of living, Tajikistan has an obligation to ensure that Tajiks

⁴⁸Nishan Sakalasooriya, Conceptual Analysis of Sustainability and Sustainable Development, 9 OPEN JOURNAL OF SOCIAL SCIENCES 396–414 (2021).

⁴⁹Back to Basics: What is Debt Sustainability? – IMF F&D, <https://www.imf.org/external/pubs/ft/fandd/2020/09/what-is-debt-sustainability-basics.htm> (last visited May 10, 2022).

⁵⁰Opinion: Dialogue as a driver of sustainable development | Devex, <https://www.devex.com/news/sponsored/opinion-dialogue-as-a-driver-of-sustainable-development-92762> (last visited May 10, 2022).

⁵¹Transparency in Sustainability: The Good, the Bad & the Ugly, (2021), <https://www.unsustainablemagazine.com/transparency-in-sustainability/> (last visited May 10, 2022).

⁵²J. K. Summers & L. M. Smith, The Role of Social and Intergenerational Equity in Making Changes in Human Well-Being Sustainable, 43 AMBIO 718–728 (2014).

⁵³(PDF) The Minimum Core Obligations of Economic, Social, and Cultural Rights: The Rights to Health and Education, https://www.researchgate.net/publication/323787361_The_Minimum_Core_Obligations_of_Economic_Social_and_Cultural_Rights_The_Rights_to_Health_and_Education (last visited May 10, 2022).

⁵⁴Joel Millward-Hopkins et al., Providing decent living with minimum energy: A global scenario, 65 GLOBAL ENVIRONMENTAL CHANGE 102168 (2020).

⁵⁵See Summary of Findings and Insights

⁵⁶Geothermal energy helps year-round farming in Tajikistan | Aga Khan Development Network, <https://www.akdn.org/project/geothermal-energy-helps-year-round-farming-tajikistan> (last visited May 10, 2022).

have access to services such as energy, which are a key component of an adequate standard of living. Under the right to work, the Government has the obligation to ensure access to decent work, which would be particularly pertinent in the case of a decrease in hydroelectric power jobs. In relation to environmental law, the Paris Agreement is the foremost legally binding international agreement on climate change that creates obligations for Tajikistan. Under the Paris Agreement, Tajikistan communicated its Intended Nationally Determined Contribution (INDC) in 2015, and it became its Nationally Determined Contribution (NDC) in 2017. Since then, Tajikistan has taken commendable steps to strengthen the national regulatory framework and implement various projects and interventions. Tajikistan has set an emission cap limit of 17.76 to 21.32 MtCO₂e emitted by 2030. In addition to this commendable work, Tajikistan's government must incorporate the need to respect and fulfill its international environmental law obligations into its approach to energy growth and diversification in order to ensure a just transition. This includes its own actions as well as the regulation of a much broader range of actors, such as individuals, non-governmental organizations, and businesses. Overall, Tajikistan has the primary obligation to protect the natural environment and minimize the production of negative externalities, as well as energy-related social and environmental costs.

THE PROPOSED JUST TRANSITION MECHANISM

TIMING OF THE JUST TRANSITION MECHANISM

Governments frequently wait until an industry has begun to decline before providing assistance. This has been a common criticism levelled at policies aimed at assisting coal communities, which appear to have begun after the transition had already started. In this regard, Tajikistan should begin transition or diversification planning now, before the effects of climate change have an impact on hydropower.

AKDN MUST LEVERAGE ITS PRESENCE IN GBAO TO DRIVE A JUST TRANSITION

In addition to the above, AKDN must help farmers to implement and harness renewable energy to power green houses in places where the growing season is short due to climatic conditions. AKDN must invest in education programs aimed at reskilling people in the Pamir region and provide professional training to offer new job opportunities in the renewable energy sector. AKDN must use its Accelerate Prosperity small business incubator to inspire and support entrepreneurs to create businesses that can pay competitive rates for electricity in order to lower costs for the rest of the communities in the Pamir.

STEPS TO IMPLEMENT JUST TRANSITION MECHANISM

IMPLEMENTATION - JUST TRANSITION TAJIKISTAN

Just Transition Council

A coordinated and collaborative effort to lead the just transition effort in Tajikistan

1

Transparent Data

Transparent and publicly available data on vulnerabilities and intended steps to mitigate them

3

Just Transition Fund

Build a fund to re-skill workers and to provide a cushion for identified vulnerabilities

5

Country-wide assessment of the most vulnerable communities in Tajikistan

Take Stock

Utilize local structures and leaders to start dialogue and education within communities

Education & Dialogue

DETAILS OF THE MECHANISM

Tajikistan Justice Transition Council

Recommendation	Explanation	Result
Tajikistan must launch a just transition council under the Ministry of Energy	A coordinated effort is necessary to tackle the important issue of achieving just transition. This council should be representative regionally, and should have representation from business, local communities and non-profit organizations. The terms of reference should be to carry out the steps detailed below.	This will create accountability and ownership on the issue of a just transition, allowing Tajikistan to start the process of incorporating a just transition early.

Taking Stock – Just Transition Vulnerabilities Assessment

Recommendation	Explanation	Result
The Just Transition Council must conduct an assessment of policies, laws and communities to ascertain vulnerabilities and community needs	Taking stock of community vulnerabilities in the event of transition or diversification is an important part of implementation. The Just Transition Council must commission surveys, community visits, interviews and conduct research on the current vulnerabilities in Tajikistan in the context of achieving a just transition.	The result of this process would be to show where Tajikistan currently stands in terms of achieving a just transition, as well as threats and opportunities that exist in policies, laws and communities.

Open and Transparent Data

Recommendation	Explanation	Result
Launch a publicly accessible report and platform detailing the results of the just transition vulnerabilities assessment	In order to foster community dialogue and education, it is important to make public all the results of vulnerabilities and threats to a just transition that exist within Tajikistan.	Spark public discussion and awareness on the subject of just transition within Tajikistan

Education & Dialogue

Recommendation	Explanation	Result
Embed just transition discourse into high school and University curriculum and engage in regular consultative town-halls	Evidence shows that just transition policies work best if implemented with wide consultation and dialogue with all affected stakeholders. To be able to participate, education is key, and teaching young people will help catalyze and include the wider society.	Come up with short term and long-term recommendations on how to handle just transition or diversification in Tajikistan.

Tajikistan Justice Transition Fund

Recommendation	Explanation	Result
Launch the Just Transition Fund to support vulnerable communities	In the event of a transition and diversification, those who lose their jobs or have to deal with higher energy prices will need support. Through this fund, the government or AKDN can reskill workers or provide energy subsidies to communities that need them the most.	This fund will cushion the blow of transition or diversification on workers and consumers that currently rely on hydro.

BENEFITS FOR IMPLEMENTATION OF THIS FRAMEWORK

Tajikistan's National Strategy emphasizes Tajik advancements in all aspects of life.⁵⁷ In this regard, what is lacking is a strategic policy direction that will tilt the playing field in order to provide broad-based societal benefits to ordinary Tajiks. The proposed just transition framework is highly persuasive, with the potential to result in a new positive sum game for all in the long run. A policy intervention to deliver a just transition, in particular, can make a significant difference in Tajikistan, with research indicating that strong policies that prioritize a just transition can create over 65 million additional jobs per 100 million people by 2030.⁵⁸ In this sense, the Government of Tajikistan can in fact utilize the just transition framework as a strategy for job creation, in addition to job transformation. However, this is only possible if the government can start thinking about this transition now, rather than deferring it until later. The just transition framework, to the extent that it aligns with the objectives of job creation in Tajikistan, can assist the Tajik government in accelerating the process of meeting these goals.

There is also an advantage to using a just transition framework for businesses. This is because the businesses that can implement the most rapid and comprehensive

transformation in terms of climate action are expected to benefit significantly from the commercial opportunities that a new economy will bring.⁵⁹ A just transition framework brings people closer to this goal by involving workers in the change process, which ensures that the business, workforce, and community have the skills, investments, and capabilities necessary to thrive in the face of rapid climate and commercial change. This means that, from a commercial standpoint, implementing a just transition enables businesses to manage and optimize the change process.

CONCLUSION

Tajikistan can position itself for a transition and diversification to other forms of renewable energy. To do so, a just transition framework is necessary. Through the proposals detailed above, Tajikistan can begin the dialogue necessary to create a community oriented just transition framework. As we saw above, there are key principles that will be necessary to create a just transition, including availability, affordability, sustainability, establishing minimum core access to energy and respect for international law obligations. These principles, if applied, can help shape policy that can achieve a just transition in Tajikistan.

⁵⁷National Development Strategy of the Republic of Tajikistan for the Period up to 2030 | ESCAP Policy Documents Management, supra note 4.

⁵⁸Taking Ambition to the Next Level | UN Global Compact, <https://www.unglobalcompact.org/take-action/events/climate-action-summit-2019/taking-ambition-to-the-next-level> (last visited May 10, 2022).

⁵⁹The B Team | Just Transition: A Business Guide, THE B TEAM, <https://bteam.org/our-thinking/reports/just-transition-a-business-guide> (last visited May 10, 2022).

APPENDIX: SUMMARY OF INSIGHTS AND FINDINGS

USAID Tajikistan

Category: International Organization

Objective: Learn about the general landscape for energy and agriculture in Tajikistan

Insights:

- Investments - USAID has co-invested significantly into entrepreneurs, some of them interviewed.
- Most investments go to buying equipment for cold storage, drying or canning.
- Over the past few years, energy access has increased significantly. Also invested in other projects in energy, including solar energy in Murghab and a joint investment with the Aga Khan Foundation for a 450-kilowatt hydropower plant in Rushan.
- Also works in multiple sector programs like Agriculture, Civil Society, Civil-military cooperation/ civil affairs

World Bank Tajikistan

Category: International Organization

Objective: Interviewed World Bank to learn about its energy work in Tajikistan and to learn about general landscape

Insights:

- Multiple investments into Tajikistan – currently has 23 projects, totalling \$1.2 billion. Since 1996, the World Bank has provided over \$2 billion in grants, highly concessional IDA credits, and trust fund resources to the country.
- Funded the Second Phase of the Nurek Hydropower Rehabilitation Project, which will generate about 50 percent of total annual energy demand in Tajikistan.
- Also funded the Tajikistan Rural Electrification Project in GBAO, focusing on the construction of renewable energy infrastructure for over 11k people. This includes solar PV, wind, micro-hydro, and battery energy storage systems
- They have a positive outlook of the success of hydroelectric power in Tajikistan
- Challenges arising from water levels can be addressed using storage technology and diversification to other renewable sources.
- Tajikistan government has shown willingness to engage and collaborate with international organizations
- Has not engaged with the government on applying its just transition framework, which they typically apply to countries transitioning from fossil fuels. There is a need to seriously think about a decrease in hydro caused by climate change and the effects of this.
- Lack of transparency and consultation in the public sector is still a challenge, but the government is taking strong steps to address it.

IFAD

Category: International Organization

Objective: Interviewed IFAD in Tajikistan to learn about the general landscape

Insights:

- Has been investing in the rural areas of Tajikistan since 2008 in areas including strengthening local institutions through natural resource management and implementing land reform programs.
- Currently has the Community-Based Agricultural Support Project (CBASP) which is designed to reduce poverty reduction in poor rural communities by improving access to productive infrastructure. Currently supports over 225 villages in Khatlon and Soghd.
- Previously done projects on livestock and pasture development.
- Does not work in energy, but has seen the importance of energy in the agriculture sector, where many rely on cold storage or drying.

Accelerate Prosperity (AKDN)

Category: International Organization

Objective: Interviewed to learn about the general landscape and its work in Tajikistan

Insights:

- Aga Khan Foundation's mission is dedicated to the flourishing of Ismaili Shia and their neighbors. AKDN significant partners are USAID Germany, Sweden
- Significant investments, T-cell mobile network in Tajikistan, Pamir hydroelectric power ~\$1 billion investment. Accelerated Prosperity Program
- Process "IDEATION" Step 1: AKDN visits provincial governors. Asks for nominations for entrepreneurs (Governors suggest their own contacts, frequently men of the same age and socioeconomic background)
- Process "INCUBATION" Step 2: AKDN invites 30 entrepreneurs to Incubation week in a hip resort. They play games and brainstorm ideas. Step 3: AKDN sends out interns/consultants to due diligence. Are those people who they say they are? Are they running a business?
- Step 4: AKDN assigns consultant to each entrepreneurs to help them write a "pitch presentation" about eight weeks
- Process "ACCELERATION" Step 5: Entrepreneurs return to hip off site and deliver "pitch presentations" AKDN chooses 10-15 to proceed. Step 6: AKDN assigns consultants to help entrepreneurs write proper business plans. Process "INVESTMENT" Step 7: Five entrepreneurs chosen for investment. Investment = Loan up to \$50K. 18% interest – Tajik regulatory requirement (with 12% concessions = 6%)

On green

- Unlike other countries, no support or expertise for "green" in Tajikistan
- AKDN believes "world should know Pamir as green and preserver of culture/history"
- Already working on electric taxi system in Khorog but difficult to import the vehicles

On agriculture

- Biggest challenges: lack of land / lack of market
- Basic food security > profit-driving operation
- Pamiris need to establish a local system for growing/storing own food

On agriculture / food security...

- Key issues: climate, land, labor-intensity, youth exodus, access to markets, transport. Import "almost everything," except some milks, meats and cheeses. Jan-May is worst period, though past years have seen abundance of food. Availability of food is not the only issue; quality of nutrition is also a consideration. Agriculture is considered a non-economic activity; more lucrative opportunities exist. Opportunities: more efficient use of resources, sharing of expertise, market creation

On greenhouses

- Household level (size: 3/10). 60 provided last year, 71 additional to be provided this year. Problems: poor management, not cultivating diverse crops, poor access to quality inputs, distributing outputs free of charge to neighbors. Opportunities: sharing of best practices and economic incentive to scale

Government of Tajikistan

Category: Government

Objective: Interviewed Ministry of Energy officials to learn about energy policy in Tajikistan

Insights:

- The main energy policy is the Sustainable Energy for All Tajikistan 2013-2030 which targets access to regular and reliable electricity to 5.6 million people, reducing energy losses up to 10% in power grids and up to 20% in thermal grids and increasing energy production from renewable energy sources up to 20%. Also targets an increase in local energy sources from 59 percent in 2010 to 80 percent in 2030.

- Government works with many different development partners who share the values of “non-intervention” and solidarity with Tajikistan.
- Government has not engaged with the concept of just transition, but believes many of the policies it has already addressed some of its key concepts.
- Would be happy to look at any policy brief from this exercise

Local Government

Category: Government

Objective: Interviewed and researched on local government to learn about the general landscape

Insights:

- Tajikistan is divided into four administrative divisions, namely Sughdand Khatlon, GBAO, and the region of Republican Subordination. These regions have 58 districts and 367 communes which are led by local government officials.
- Legislation is silent on local self-government activity below the level of villages and towns.
- Besides formal legislative recognition, there are community organizations called Makhallias that are founded on traditional Islamic concepts of social justice. They are governed by a council of elders called a shura that helps resolve social problems and conflicts within the community.
- These groups have in the past discussed key societal issues including new power projects and energy prices.
- For interest sake, they would be interested to read the brief if translated to Tajik or Russian.

Pamir Energy

Category: Energy

Objective: Interviewed Pamir Energy to learn about energy sector in Tajikistan members Tajikistan to learn about the general landscape

Insights:

- Formed in 2002 to address the situation. The company has invested around \$37 million to repair the electrical infrastructure of GBAO and expand capacity.
- Today, Tajikistan gets most of its energy from hydro, although efforts to utilize other sources are underway.
- Over 86 percent of the region’s inhabitants and 96% of households in Eastern Tajikistan now have access to electricity. Subsidies ensure that even the poorest households can access power.
- In the past, low water levels have been experienced at hydro plants, leading to rationing

Private Business/Entrepreneurs

Category: Private businesses

Objective: Interviewed businesses to understand reliance on energy in Tajikistan

Insights:

- IZZATOV RUSTAM- local monopolist middleman for vegetables/carrots with cold storage. Utilized USAID grant of \$50,000 to buy fans for cold storage and then processing, canning. 125 local farmers sell to him. Energy costs him the equivalent of \$900 per month, and he is connected to the local energy plant using hydro energy. There were 4 hour power cuts in 2019, they have stopped.
- RAHMATULLO SHARINOV, Vakhsh district local Vegetable/fruits/nuts processor. USAID grant \$50,000 drying equipment. He built the local marketplace and kept the best stalls for himself. He does not sell to the cold storage monopolist next door “as he gives me too low prices.” Tried to use solar energy to save on his energy costs, but it was hard to import reliable panels.
- PISTAROZI KHRORON, Pistachio cooperative. 150 manual workers eliminated through sorting equipment.

Uses energy from the local power plant. Afghan traders came to buy these pistachios. Since the Afghans did not return, trying to sell to Turkey.

- UGULOY COOPERATIVE “MUHAMMEDJON”. Affectionately known as the Cheese lady. Aggregates milk from many farmers by going to the farm to pick it up, stores it and sells it to the capital. Cold storage uses energy from local power plant.
- LOGISTICS CENTER (Cold Storage and Wood Boxes). Works with USAID. Sells to local markets, Dushanbe and individual supermarkets. 126 villages supply him with the produce (all of the farms in the village). 20 days can sell half of one cold storage unit. Employees 200 people in season, 86 not in season. Access to electricity 24/7 is key in his business. No complaints in the last 2 years.
- ORCHARD/FARM & DRYING FACILITY. Works with USAID. Has 31 hectares with 60 shareholders although he owns 60%+. Plants Onions, garlic, strawberries, plums and apricots. Has a green house --- 65m x 12m for winter where he does potatoes, cucumber, tomato. Removes cover April to October. Uses a coal heater in the winter for 90-120 coldest days. His greenhouse is 12 years old - \$10k to build at the time. Sells 50% to traders for Merghun market in Dushanbe. Gives the other 50% to friends (local government officials). Yield down 10% in winter compared to summer months but on average sells for 5x price. Had a feast for lunch here - we were shown excellent hospitality!
- UGULOY in Khatlon. The only maker of cheese in this district. Woman-owned business. Has set her daughter up to take over the business by educating her on the cheesemaking process and business lessons. Built the building her business is located in. Originally started the business in her home. Sought out the funding from USAID and used the money to buy commercial equipment and move the business out of her home. 32 households supply her with milk every day. 40-50 days aging
- “ZARDOLU” in Ayni district. “All my neighbors are excited to sell me their apricots”. 50+ year old business. Government gave his father the land when they demolished his home to build road. June to September harvest. Sell to Tajikistan traders. Ships to Dushanbe by taxi. Drying equipment consumes a lot of energy, costs of energy lower margins. Applying for \$50,000 to buy new apricot washing, drying and packaging line. An apricot farmer opened his home to us. He served us a beautiful Tajik lunch in his home. His ceiling was painted in the traditional style. He has 4 daughters and 1 son.
- SHAFIEV RUSTAM. “The best rice in Tajikistan is grown in Panjakent.” Started rice processing business in 2017. Father and grandfather also processed rice. Has 5 farmers working for him. Rice season: May/June start, gets rice in September. Has a greenhouse built in 2017 for \$70,000 TJS, grows onion, other products, sells at market/bazaar in Panjakent. Greenhouse uses a coal powered heater.
- “ZARAFSHON FRUITS” in Panjakent district. Currently his facilities are being used as a storage facility for bottled sodas. Once the bottles are removed, he will begin washing and drying fruit. Purchases his fruit from Panjakent, Anyi and other mountain areas. Wants to vacuum pack and change package design so he can export his dried goods. Then he can enter the Isfahan and Khujand markets allowing him to export to Russia, Germany, England and Poland. 2 tons of fruit makes 400 kg of dried fruits. 26 villages in the valley and each village brings him fresh fruit. 1 big fresh apple costs 1 somoni. 5-6 kg of fresh fruit makes 1 kg of dried fruit. Workers' salary, electricity, rent, transportation and tax cost 8 somoni. Sells dried fruit for 10-12 somonis in local markets. Can sell dried fruit in Russia for 35-40 somoni. Currently can dry 5 tons a day, with new equipment, they can dry 15-20 tons a day. \$50,000 from AP and will find an additional 200,000 somonis from another source (57% AP/43% the business owner). Will purchase dryers, 4 cutting machines, 4 peeling machines, 20 hand use machines, Porter, crates and a packing machine, this will create 50 more jobs, in the Autumn, they will work night and day to process all of the fruit, wants to expand to drying grapes, rosehip, pears and mushrooms. Had previously received money from the EU, but they are no longer operating in this region. Only quality dryer in Zarafshan Valley

Students (Central Asia University)

Category: School

Objective: Interviewed students to understand current curriculum and job prospects

Insights:

- Most only learnt about the environment in high school or through independent research.
- Most see future jobs in energy, or starting a business, or working for an NGO.
- None has ever heard of just transition
- Concept sounds important and “hope” it comes to Tajikistan

Community Members

Category: Community members – random conversation

Objective: Interviewed community members Tajikistan to learn about the general landscape

Insights:

- Most important topic that came up was land. There is a high premium on land, especially because the government technically “owns” the land and there is no market for it. Every successful entrepreneur has an “origin story” on how he got the land. The governor gave it (chicken farmer). The collective farm broke up and he got it (USAID farmer). Oligarchies divided land when a road was built through his house. “Land?” the chicken farmer just smiled and waved his hand.