1 SUMMARY

1.1 Current Political and Socio-Economic Condition
Nepal’s social economic is negatively impacted by the global economic fallout of COVID-19. Growth expected to fall between 1.5 to 2.8% (2020/21) due to lower remittances, higher trade deficit, lower tourism, and other disruptions. Economy dominated by agriculture, with 60% of population involved and 27.7% of GDP. Over 85% of energy sourced from traditional biomass, 14% from commercial sources, and only <1% from renewables. Agriculture sector consumes only 1% of total energy consumed in Nepal. Diesel (95%) and electricity are major energy sources for agriculture. Main energy used in agriculture for irrigation/pumping water. Agriculture depends largely on monsoon rains. Temperature and rainfall vary by location, but same wet season in all areas from June to September (when 75% of annual rainfall occurs).

1.2 Priorities and Resources for Innovators in the Water-Energy-Food Nexus
In 2020, the Ease of Doing Business (EODB) Index score for Nepal is 63.2 (out of 100); ranked 94th globally (from 110th in 2019) and 3rd within South Asia Region. To set up business in Nepal, one needs to obtain approval from relevant departments, registers at registrar and tax office. For foreign investments, foreign currency account must be opened at Nepal Rastra Bank. Various subsidy programs introduced by Government to lower end-user cost, at production and consumer levels. Total 34.8 NPR billion ($300 USD million) allocated to agriculture sector. Also, budget of 500 NPR million ($4.3 USD million) allocated for loan at 2% interest to encourage startup businesses with innovative ideas; utilizing opportunities generated due to COVID-19.

See Annex 1 for a policy SWOT in the water, energy, and food sectors.
See Annex 2 for the enabling environment and scenario of impact investing in Nepal.
See Annex 3 for a list of local enabling environment actors and stakeholders.
See Annex 4 for key policies and a regulatory summary.
See Annex 5 for specific tax policies and other related incentives to end-users, innovators, and investors.
See Annex 6 for a land cover map of Nepal.
2 MACRO-LEVEL: POLICIES AND TRENDS IN THE WATER-ENERGY-FOOD NEXUS

2.1 Economic Growth and Agriculture

- Nepal's social economy is negatively impacted by the global economic fallout of COVID-19. Growth expected to fall between 1.5 to 2.8% (2020/21) due to lower remittances, higher trade deficit, lower tourism, and other disruptions.²

- Small, landlocked, developing economy, bordering China North and India South/East/West. Three distinct ecological zones: mountains (15%), hills (68%) and Terai lowlands (17%). Population 28.6 million (2019), with 50% in Southern Terai, 43% in Central mid-hill region, and 7% in high-altitude mountainous region.

- Economy dominated by agriculture, with 60% of population involved and 27.7% of GDP.³ About 30% of Nepal's total land used for agricultural purposes. Major cash crops are oilseed, potato, tobacco, sugarcane, jute, cotton, and rubber; and major cereal crops are paddy, maize, millet, wheat, barley, and buckwheat. Cardamom, ginger, garlic, turmeric, silk cocoons, honey and mushroom also cultivated in large amounts.

- Overall policies and regulations governed by Constitution of Nepal (2015). According to constitution, agriculture, water and energy sector regulated by federal, state and local level government at different stages. Major objectives related to water, energy and agriculture are to: ensure reliable supply of energy in affordable/easy manner, proper use of energy for basic needs of citizens, generating and developing renewable energy; and develop sustainable and reliable irrigation by control of water-induced disasters, and river management.

- **Agriculture Development Strategy (ADS) (2015-2035)** a 20-year strategy by Ministry of Agriculture for self-reliant, sustainable, competitive, and inclusive agricultural sector, which drives economic growth and contributes to improved livelihoods, and food and nutrition security leading to food sovereignty. Four strategic components of ADS: (i) **Governance, productivity, profitable commercialization, competitiveness, inclusiveness** (social and geographic); (ii) **Sustainability** (natural resources and economic); (iii) **Development of private sector and cooperative sector, market infrastructure** (e.g., agriculture roads, collection centers, packing houses, market centers); (iv) **Information, infrastructure and ICT, power infrastructure** (e.g., rural electrification, renewable/alternative energy). Strategy emphasizes inclusion of ‘Gender and Social Inclusion’ (GESI) throughout design process to reduce gender, ethnic and caste-related disparities in agriculture. UN Women leads work on GESI strategy framework for ADS to address gender inequalities in agriculture.

- Irrigation is core program of ADS: 19% of total cost; key outcome is viable and equitable expansion of irrigated are agriculture, and improved irrigation efficiency and management.

- Nepal leads gender responsive budgeting (GRB) in sub-continent, ensuring needs and interests of women, men and children effectively addressed in annual budget. Gender responsive budgeting committee established within Ministry of Finance. Gender auditing module incorporated in budgeting process to analyze agriculture through gender perspective.⁴
2.2 Energy/Water
- Over 85% of energy sourced from traditional biomass (fuel wood, animal dung, and agriculture residue), 14% from commercial sources (petroleum products, coal and grid-electricity), and <1% from renewables (biogas, solar, wind and off-grid electricity). Agriculture sector consumes only 1% of total energy consumed in Nepal. Diesel (95%) and electricity are major energy sources for agriculture. Main energy used in agriculture for irrigation/pumping water.\(^5\)

- Agriculture depends largely on monsoon rains. Temperature and rainfall vary by location, but same wet season in all areas from June to September (when 75% of annual rainfall occurs)\(^6\). Regulated and controlled irrigation critical to maintain productivity and high yields. Of 2.6 million hectares (ha) under cultivation, 69% is irrigated (of which 78% irrigated areas in Terai, remaining in river/upland valleys and terraces on hills/mountains). Only 38% of irrigated land gets year-round irrigation.

- Nepal’s policies focus on agriculture for all social groups. **Agriculture Mechanization Promotion Policy (2014)** aims to attract youth and women producers in mechanized agriculture and increase productivity. Identifies and promotes adoption of women and environment-friendly technologies/machines to reduce drudgery of women’s work through agriculture mechanization.

- Government provides up to 65% subsidy for solar photovoltaic systems in public institutions in rural areas and 60% subsidy for photovoltaic drinking water or irrigation pumping systems.\(^7\)

2.3 Investment and End-user Finance
- Agriculture programs and initiatives for development and management of public-private partnerships (PPP) include:
  - rights of water use, and water use association insured,
  - import duty exempted for users’ associations imports of heavy equipment for construction,
  - special subsidy allocated on tariff for electricity used in ground water and lift irrigation systems.

- Agriculture policy, Agriculture Development Strategy, Irrigation Policy, Renewable policy, Nepal Rastra Bank (NRB) directives and National Budget are key regulating policies and strategies from Government. Most policies conducive to businesses and investments included special provisions for marginalized and excluded groups, but only focused on supply side of commodities. Policies opened opportunities for private sector initiatives and special attention to access to finance; but threats include unfavorable business environment, numerous hassles and procedures for investments, political instability, and centralized economy.

- **Fourteenth plan (2016-2019)**: subsidized loans and credit for entrepreneurship development or starting business through self-employment, expansion of labor and time saving technology for women. Ensuring quality promotion and market access for products produced by women’s groups.\(^8\)

- Many banks in Nepal (e.g., Nabil bank, Bank of Kathmandu) provide loans for women-run micro enterprises in particular – for sectors including agriculture and forestry.
In 2015, Government of Nepal initiated Women Entrepreneurship Development Fund (WEF) to provide business loans for women entrepreneurs. In 2018, Nepal Rastra Bank implemented seven new business loans, including subsidized loan for women entrepreneurs.

Enterprises in frontier markets such as Nepal and Myanmar cite regulatory and other ecosystem challenges such as lack of technology support providers as their key barriers to scale. Enterprises in frontier markets such as Nepal and Myanmar cite regulatory and other ecosystem challenges such as lack of technology support providers as their key barriers to scale.9

Some investors such as a Netherlands based investor (One to Watch) investing in Nepal, has its own ‘Impact Program’, which helps WF and WEF enterprises.

There are some emerging WEF enterprises provide solutions to enhance shelf life and convert food waste to energy/bio-fertilizers build a pipeline some examples include Aeroroots and Gham Power.

2.4 Environmental, Social, and Governance (ESG)

Over 90% of water withdrawal for use in agriculture sector. Further population growth will exponentially increase agricultural output, requiring more water and energy through fertilizers, harvesting and processing.10

Rural Energy Policy (2006): subsidy of 4,000 NPR ($35 USD) per household provided for new mini/micro hydropower; Targeted beneficiary groups are “women-led households with dependent children, earthquake victims from earthquake affected districts, endangered indigenous community identified by Government and Dalit”.

Renewable Energy Subsidy Policy (2016): Subsidy covers 40% of the total cost for renewable energy technology (RET) and remaining 30% from credit and 30% from private sector investment or community or household in kind or cash. However, it differs according to technology and geographical region (accessibility and remoteness of the area).


For climate change, Nepal is the 44th most vulnerable and the 64th least-ready country. 13

80% of women are employed in agriculture; but female-headed households represent one-fifth of the agricultural landowners as of 2011. Yet women’s ownership of land is increasing. 14

Agricultural cooperative has enabled economies of scale in technology, marketing and access to finance for poor farmers, including women. Yet female leadership in cooperatives is low and fewer women can get paid employment opportunities.

Women and disadvantaged groups (Janjatis and Dalits) face additional barriers in access to applied learning skills, technologies for mechanization and other extension services. e.g., 69% of male farmers receive extension services compared with only 31% of female farmers. 15

National Climate Change Policy (2019)16: Building of climate resilient society through low carbon emission development and GESI into mitigation and adaptation of climate change programs.
- **National Environmental Policy (2019)**\(^{17}\): Pollution control, waste management, greenery protection for ensuring healthy environment.

- **Nepal Agroforestry Policy (2019)**\(^{18}\): Enhancing productivity of land with multipurpose use for increased agricultural, livestock and forest products. Promoting agroforestry-based industries by establishing value chains and market linkages.
3.1 Business Operations
- 2020 Ease of Doing Business (EODB) index score for Nepal is 63.2 (out of 100); ranked 94th globally (from 110th in 2019) and 3rd within South Asia Region. Nepal also 113th (out of 180) least corrupt nation with Corruption Perception Index score 34 (out of 100).

- To set up business in Nepal, need to obtain approval from relevant departments, register at registrar and tax office. For foreign investments, foreign currency account must be opened at Nepal Rastra Bank.

- Customs and duties applied in import and export. Service charge (0.5%) collected for export of goods; import tariffs assessed in ad valorem basis (ranges from 0-140%). Machinery and equipment for basic needs charged 5%, agricultural imports charged fixed (10%). (See Annex 5).

3.2 Tax Policy
- Micro Industries (As defined under the Industrial Enterprises Act 2073) receive 100% tax exemption for the first 5 years from operation. If such Industries are run by women, they will receive 100% exemption for further 2 years.

- Exemptions shall also be available for solar, wind and other alternative energy companies. (See Annex 5).

- Though Special Economic Zone Act and Industrial Enterprise Act have been enacted to provide tax incentives and relaxation on custom duties for export-oriented manufacturing firms.

- Small enterprises with annual turnovers of less than 2 million Rs ($17,241 USD) will be eligible for a tax exemption of 75% while those whose turnover is between 2 Rs million ($17,241 USD) and 50 Rs million ($431,034 USD) will be eligible for 50% tax exemption. Enterprises with an annual turnover between 5 Rs million ($43,103 USD) and 10 Rs million ($86,206 USD) will receive an exemption of 25%.

- Duties and tariffs exempted for import of primary products (e.g., live animals and fish); all other imports charged tariffs and duties. Minimum tariffs (1%-5%) charged on import of equipment for agriculture.

3.3 Market Growth
- Various subsidy programs introduced by Government to lower end-user cost, at production and consumer levels. Total 34.8 NPR billion ($300 million USD) allocated to agriculture sector.

- Local Governance Act, 2017: local government responsible for constructing small irrigation, trainings, and information at local level. Innovations in alternative energy, technology transfer and promotion, also regulated and monitored by local government.

- In 2021, CDC Group, the UK’s development finance institution, FMO, the Dutch development bank and Swiss Agency for Development and Cooperation SDC have launched “Nepal Invests” platform.
that will drive increased investment into the country. The platform supports the promotion of entrepreneurs and private, innovative activities in Nepal.

### 3.4 End-User Access

- **Nepal Rastra Bank (NRB)** has facility up to 100 NPR billion ($860 USD million) for concessional loans at 5% interest to Micro, Small, and Medium-scale Enterprises (MSMEs) in agriculture, cottage, and production-based industries.

- Provision for commercial banks to invest at least 15% of total credit in agriculture sector (by mid-July 2023) to ensure food security and generate employment to become self-reliant on agriculture production.

- **Budget of 500 NPR million ($4.3 million USD)** allocated for loan at 2% interest to encourage startup businesses with innovative ideas; utilizing opportunities generated due to COVID-19.

- Small Farmers’ Cooperatives provide various financial/non-financial services including various forms of voluntary and compulsory savings products, variety of loan products, and livestock insurance scheme. Cooperative also has role in socio-cultural and political empowerment of Nepalese women.

- FAO’s COVID-19 Response and Recovery Programme in India and Nepal budgets 5 to 10 USD million to mitigate socioeconomic impacts of COVID-19 on rural women and girls, helping reduce gender inequalities in agriculture and food systems, by promoting measures and strategies to enhance rural women’s access to income generation, finance, and markets, with specific attention to agribusinesses and labor-saving technologies and practices.

- In response to COVID-19, government provides rebate on income tax: 75% for MSMEs with turnover of 2 million Rs ($17,241 USD), 50% for turnover between 2 – 5 million Rs ($17,241- 43,103 USD), 25% for turnover. 5-10 Rs million ($43,103 – 86,206 USD) and 20% for tourism industry related business.

### 3.5 Scale-up and Expansion Support

- **Agriculture Policy (2004)** includes special facilities to vulnerable class (Dalit and Utpidit) to build/install infrastructure for small irrigation (e.g., pedal pumps, rower pumps, sprinklers, drips, and water harvesting ponds).

- **Agriculture Development Strategy (ADS)** developed mechanisms for Gender Equality and Social and Geographic Inclusion.

- Private companies’ key stakeholders introducing/making technologies available in market. Irrigation technologies for agriculture, using alternative energies introduced (e.g., hydro-pumps, solar pumps, drip irrigation, micro sprinklers, etc.). Many innovator companies collaborated with development projects to promote products, conduct demos, and train farmers/user groups. Some companies providing pay-as-you-go financing to reduce initial cost borne by farmers.
## 4 WE4F INNOVATIONS MARKET READINESS: FACTORS INFLUENCING ADOPTION OF INNOVATIONS

<table>
<thead>
<tr>
<th>Factors</th>
<th>Opportunity</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital penetration</td>
<td>– Growing digital trend with 10.21 million internet users and Internet penetration in Nepal stood at 35% in January 2020. (^{26})</td>
<td>– Nepal’s chronic electricity shortages and bad infrastructure are hampering internet connectivity(^ {27}). The gender gap in mobile phone ownership is 24%. (^ {28})</td>
</tr>
<tr>
<td>Access to subsidies/incentives</td>
<td>– Government provides subsidy for solar energy and lift irrigation system.</td>
<td>– Subsidies also create more inefficiencies in the market and dependence.</td>
</tr>
<tr>
<td></td>
<td>– Government provides incentives on agriculture insurance.</td>
<td>– The absence of subsidy exit plan also discourage private firms from entering the renewable energy market. (^ {29})</td>
</tr>
<tr>
<td></td>
<td>– Government has subsidized credit on agricultural machinery to make it accessible to women and reduce their workload.</td>
<td>– Despite subsidized credit for agricultural technologies, the high costs of with technology, and limited knowledge and information about their application have caused many constraints in adoption.</td>
</tr>
<tr>
<td>Transaction cost to reach the farmers</td>
<td>– The presence of small farmers’ cooperatives that provide various financial/non-financial services and MFIs can facilitate the outreach.</td>
<td>– Most of the farmers live in the mountain and hills with limited road access that makes difficult and costly to reach.</td>
</tr>
<tr>
<td></td>
<td>– Innovative payment methods such as linking payment with harvest and full installment without upfront payment will help smallholder farmer to access the technology.</td>
<td>– The size of loan offered by MFIs are smaller, limiting access to larger loans for capacity addition.</td>
</tr>
<tr>
<td></td>
<td>– The microfinance interest rate in Nepal is relatively lower than the other countries</td>
<td>– 42.27 percent of the population lives in extreme poverty. (^ {30})</td>
</tr>
<tr>
<td></td>
<td>– About 71.6% of smallholders are dependent on informal sources of credit, such as private money lenders and relatives, for loans. (^ {31})</td>
<td></td>
</tr>
<tr>
<td>Access to finance for women</td>
<td>– Many banks in Nepal provide loans for women-run micro enterprises.</td>
<td>– Lack of land ownership rights for women limits their access to credit, renting of technology and purchasing of crucial inputs for crop production ultimately resulting in low production performance.</td>
</tr>
<tr>
<td></td>
<td>– Women’s farmers cooperatives improve their access to credit.</td>
<td>– Women, due to collateral constraints, are less likely than men to obtain a loan from formal financial institutions.</td>
</tr>
<tr>
<td></td>
<td>– Government initiated Women Entrepreneurship Development Fund (WEF) to provide collateral free loan to women entrepreneurs at 6% rate of interest.</td>
<td></td>
</tr>
</tbody>
</table>

\(^ {26}\) Internet penetration in Nepal stood at 35% in January 2020.\(^ {26}\)

\(^ {27}\) The gender gap in mobile phone ownership is 24%.\(^ {28}\)

\(^ {29}\) The absence of subsidy exit plan also discourage private firms from entering the renewable energy market.\(^ {29}\)

\(^ {30}\) 42.27 percent of the population lives in extreme poverty.\(^ {30}\)

\(^ {31}\) About 71.6% of smallholders are dependent on informal sources of credit, such as private money lenders and relatives, for loans.\(^ {31}\)
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16. National Climate Change Policy, 2019
17. National Environmental Policy, 2019
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ANNEX 1: ENABLING ENVIRONMENT AND SCENARIO OF IMPACT INVESTING IN NEPAL

Nepal has been pursuing a liberal foreign investment policy with one of the lowest taxes slabs and striving to create an investment-friendly environment to attract investments into the country. According to the Ministry of foreign affairs, profitable areas of investment include hydropower, industrial manufacturing, services, tourism, construction, agriculture, minerals, and energy. However, the trends show that investor interests are high in tourism and hospitality, and hydropower.

Some of the policies and acts related to impact investment are:
1. Foreign Investment and Technology Transfer Act 2019
2. Foreign exchange Regulation Act 2019
4. VAT Act 1996

Some of the investment policies as per the constitution of Nepal are as follows:
- Foreign investors must bring at least $50,000 USD for investment, and the government is considering raising this threshold to $200,000 USD.
- Foreign investors must gain approval from the Department of Industries for all equity investments. For new equity investors, the process requires additional registration and approvals.
- A foreign investor providing debt must be registered with the appropriate officials as a bank in their country of origin, and the loan must also be approved by the Department of Industries.
- The Securities Registration and Issue Regulations Act requires that pre-IPO investors are locked in for a period of three years following a public listing. Upon public listing, no premium valuation of shares is allowed.

There is a range of different types of investors active in Nepal, but only a limited number of each type. While we see funds, Development Finance Institutions (DFIs), diversified financial institutions/banks, and family offices/high net-worth individuals (HNWIs) present as in other markets, most are still testing the market with a minimal number of investments. There have been some recent efforts by local fund managers to raise new funds, but these are largely not yet active or deploying capital.

<table>
<thead>
<tr>
<th>Type of Investor</th>
<th>Estimated Number</th>
<th>Details of Investors in Nepal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds and fund managers</td>
<td>7 (6 impact investors)</td>
<td>Small local funds are slowly emerging and have been critical in shaping the market, given the limited number of impact and commercial investors in the country, but many have been put on hold, shut, or delayed due to difficulties in raising capital and management issues.</td>
</tr>
<tr>
<td>Direct Foreign Investments (DFIs)</td>
<td>2 (2 additional ones are anchoring funds)</td>
<td>DFIs are making direct investments, anchoring two funds, providing guarantees and loans to banks to promote SME lending, and advocating regulatory changes on behalf of the investment community.</td>
</tr>
<tr>
<td>HNWIs/Family offices</td>
<td>Likely many informal ones</td>
<td>Friends and family are a significant source of seed capital, and HNWIs are starting to engage informally.</td>
</tr>
<tr>
<td>Diversified financial institutions/banks</td>
<td>8 providing loans with DFI backing</td>
<td>The large unbanked population implies that many SME owners cannot be reached through formal financial institutions; therefore, bank lending is limited, but eight banks are providing SME loans with funding from DFIs.</td>
</tr>
</tbody>
</table>

Though the possibility of investment in agriculture, and water and energy related to it due to the favorable environment of the country, practically, it seems that investors do not see much return from the sector. Agriculture in Nepal is highly subsistence-based with little commercialization. Most investable opportunities in this sector are small and thus, do not appeal to DFIs or larger funds moving into the market. However, the new trend of development encourages investment and share capital with national private businesses in promoting business practices and technologies in the sector.

**Challenges for Investment in Nepal**

Despite the efforts, investments are not as substantial in the country. Though there are policies that were designed to boost the investment climate with the first-generation reforms, the implementation has been poor. Inconsistencies in policies are also major constraints that have affected businesses by converting provisions/laws/acts in one's favor and had been misinterpreted. Implementation of policies has been a key constraint for attracting and increasing investments. Investors see that economic agendas are not being discussed at the political and bureaucratic levels which affected private sector interests. The issues relating to the protection of investors’ rights, market access of the products, institutional set up to facilitate investors and administrative mechanisms play a critical role in sending good message to investors. Strong legal provisions are required when it comes to encouraging investments. Besides, weak infrastructure (road, electricity) making it costly for the businesses to operate and access markets or build supply chains is another factor discouraging investments in the country.
## ANNEX 2: LOCAL ENABLING ENVIRONMENT ACTORS AND STAKEHOLDERS IN THE NEXUS

<table>
<thead>
<tr>
<th>Sector</th>
<th>Name</th>
<th>Relevance to WE4F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>National Federation of Irrigation Water User’s Association, Nepal (NFIWUAN)</td>
<td>NFIWUAN is to associate the irrigation water user’s groups, associations and farmers managed irrigation system existing in the country through inclusive mass participation and involving them in decision-making process for progress and self-dependency. The federation has its 74-district chapter, over 2900 user’s group and millions of irrigation farmers as unique water user’s federation.</td>
</tr>
<tr>
<td></td>
<td>Irrigation Water User Associations</td>
<td>These associations are formed by farmers using irrigation facilities, to manage the irrigation system. These associations are responsible in maintaining the system, managing the system and future planning of the system.</td>
</tr>
<tr>
<td><strong>Energy/ Water</strong></td>
<td>Nepal Biogas Promotion Association (NBPA)</td>
<td>NBPA is a leading organization in the biogas sector in Nepal, working for improvement of the sector and services to the biogas users. It works in developing and promoting biogas technologies in coordination with the Government of Nepal. It works in developing new technologies to modernize biogas, providing training and making the technology available to households and industries</td>
</tr>
<tr>
<td><strong>Environment/ Livelihoods</strong></td>
<td>Volunteer’s initiative Nepal</td>
<td>An NGO based in Kathmandu, working with rural communities. The Microcredit Cooperative Support project aims to provide women of underprivileged communities access to cost effective and sustainable financial services.</td>
</tr>
<tr>
<td><strong>Agriculture</strong></td>
<td>IDE Nepal</td>
<td>From irrigation and good-quality seeds to rural collection centers where farmers can sell their produce, IDE provides simple innovations that help rural communities get out of poverty and adapt to climate change. By focusing on women as customers and entrepreneurs, IDE strengthens their participation in rural value chains and increases their access to technology, know-how, finance and markets.</td>
</tr>
<tr>
<td><strong>Agriculture</strong></td>
<td>Sustainable Agriculture Development Program (SADP)</td>
<td>A non-profit NGO. established in 2004. SADP is committed to improving the livelihood of resource-poor farmers through research, development, and the promotion of sustainable agricultural systems in Nepal</td>
</tr>
<tr>
<td><strong>Agriculture</strong></td>
<td>Forum for Rural Welfare and Agricultural Reform for Development (FORWARD Nepal)</td>
<td>A non-profit, service-oriented national non-governmental organization established in 1997 to help disadvantaged groups and the rural poor.</td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>Renewable Energy Confederation of Nepal</td>
<td>A common forum of associations of private sector involved in supply and delivery of alternative energy systems and services and NGOs involved in promotion of alternative energy in Nepal.</td>
</tr>
<tr>
<td>Energy/ Water/ Food</td>
<td>The Nepal Trust</td>
<td>The Nepal Trust supports local communities in effective implementations of solar and micro-hydro power projects and creates linkages to renewable energy technologies.</td>
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</tr>
</tbody>
</table>

**Private Sector Led Initiatives**

<table>
<thead>
<tr>
<th>Energy/ Water/ Food</th>
<th>Barsha pump (The technology is developed by aQysta Nepal Private Limited and promoted by Practical Action.)</th>
<th>Barsha pump is a hydro-powered pump targeted to be used in agriculture to pump water from rivers and canals without requiring any fuel or electricity. It operates by utilizing the energy from flow of rivers and canals into its water wheel propeller. Barsha Pump can be used solely or in integration with the storage system and efficient water distribution techniques such as sprinkler system, drip system, mister etc. to help irrigate larger area.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy/ Water/ Food</td>
<td>Solar pumps: (Gham Power, SunFarmers, Futurepump.)</td>
<td>There are few companies in Nepal that manufacture and distribute solar pumps, such as the solar pumps are integrated with in-house built “Smart Meters”, which trace live data about the water and power usage patterns of farmers.</td>
</tr>
<tr>
<td>Water</td>
<td>Drip Irrigation (Sital Thopa Sichai Prabidhi Udhyog, Nepal Thopa Sichai and Nepal Agro Live Pvt. Ltd)</td>
<td>Several types of drip irrigation technologies have been promoted by companies in Nepal. Some of the private companies promoting drip irrigation are. Different development projects like SNV and IDE have also developed low-cost technologies of drip irrigation for rural farmers.</td>
</tr>
</tbody>
</table>

**Public Private Partnerships**

PPP is prominent only in the hydropower sector of Nepal. There are many hydropower projects in Nepal under PPP model with participation from local people. These projects are funded by the funds generated from public utilities and through the public. In sectors other than hydropower, PPP is close to negligible.

<table>
<thead>
<tr>
<th>Other business support</th>
<th>Enterprise/business support: (NABIC Shree Kisan Innovation Hub, Biruwa, and Blinc Ventures. SmartKrishi and KrishiGuru)</th>
<th>Various private business development services are available in the market through business development service firms. The services include skill-oriented training, facilitation to establish enterprises, identify sources of raw materials and other equipment, establish market linkages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Alternative Energy Promotion Centre (AEPC)</td>
<td>The AEPC is an independently functioning government institution established by the Government of Nepal with the objectives to popularize and promote the use of renewable energy technologies, raise the living standards of the rural people, protect the environment, and develop commercially viable renewable energy industries in the country. (Please elaborate what are they doing, since they are big players).</td>
</tr>
<tr>
<td>Energy</td>
<td>Nepal Biogas Promotion Association (NBPA);</td>
<td>NBPA is a leading organization in the biogas sector in Nepal, working for improvement of the sector and services to the biogas users. It works in developing and promoting biogas technologies in coordination with the Government of Nepal. It works in developing new technologies to modernize biogas, providing training and making the technology available to households and industries</td>
</tr>
<tr>
<td><strong>Agri-sector</strong></td>
<td><strong>Nepal Agri Business Innovation Centre (NABIC)</strong></td>
<td><strong>NABIC</strong> is Nepal’s first agri-focused business incubator and innovation platform. We provide holistic services to support and enhance innovation, growth and competitiveness of agribusinesses. We are a mission-driven enterprise incorporated as a “company not distributing profits” under the Nepal Companies Act, 2006</td>
</tr>
<tr>
<td><strong>Green Economy</strong></td>
<td><strong>Centre for Green Economy Development, Nepal (CGED)</strong></td>
<td><strong>CGED</strong> is a first of its kind joint private and civil society sector launched knowledge-based company registered in Nepal. It will provide technical assistance to interested Government, non-government and private sector agencies in Nepal and other developing and least developed countries to prepare, plan and program country driven, sustainable and inclusive green and low carbon growth strategies, policies and action plans.</td>
</tr>
</tbody>
</table>

### Government Organizations and Regulatory Bodies

| **Finances** | **Nepal Rastra Bank (NRB)** | **NRB** is the Central Bank of Nepal that formulates necessary monetary and foreign exchange policies and supports access of the financial service. It announces an annual monetary policy which includes strategies and actions related to all the financial issues of the country. |
| **Relevant Ministries (Water, Energy, and Agriculture)** | **Departments (Water, Energy, Agriculture, Land, Irrigation)** | The administration of government projects is handled by respective departments under the Ministries. The relevant departments are:  
- Department of Agriculture  
- Department of Cottage and Small Industries  
- Department of Electricity Development  
- Department of Water Resources and Irrigation |
<p>| <strong>Water/Energy Agriculture</strong> | <strong>National Planning Commission (NPC)</strong> | <strong>NPC</strong> is the specialized and apex advisory body of the Government of Nepal for formulating a national vision, development policy, periodic plans and sectorial policies for overall development of the nation. |
| <strong>Water/Energy</strong> | <strong>Water and Energy Commission Secretariat (WECS)</strong> | <strong>WECS</strong> assists GoN and different ministries relating to Water Resources and other related agencies in the formulation of policies and planning of projects in the water and energy resources sector |
| <strong>Energy/Water</strong> | <strong>Groundwater Resources Development Board (GWRDB)</strong> | The board studies, conducts investigation activities, and defines potential area for groundwater irrigation development in Nepal. |
| <strong>Energy</strong> | <strong>Alternative Energy Promotion Centre</strong> | <strong>A Government institution established on November 3, 1996, under the Ministry of Science and Technology with the objective of developing and promoting renewable/alternative energy technologies in Nepal</strong> |
| <strong>Water</strong> | <strong>Water Resource Research and Development Centre (WRRDC)</strong> | The centre is an agency under MOEWRI that conducts studies and research in water resources. It has its own laboratory, and it supports the government in designing projects to expand irrigation areas |</p>
<table>
<thead>
<tr>
<th>Agriculture</th>
<th>Agricultural Development Bank (ADB)</th>
<th>ADB was established with the main objective of providing institutional credit for enhancing the production and productivity of the agricultural sector in the country. It extends credit to small farmers under group liability and provides financing to promote cottage industries.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Facilitation</td>
<td>Investment Board</td>
<td>With the view to attracting foreign as well as domestic investment to boost the economy, the Government of Nepal constituted a high-level Investment Board, chaired by the Prime Minister of Nepal. The main objective of this board is to facilitate investors in investing in the potential sectors in Nepal. It provides one window facilities to the investors.</td>
</tr>
</tbody>
</table>

**International Bodies and Agencies:**

Many international bodies and agencies are active in research, development, and promotion of technologies in water and energy for agriculture in Nepal. These International agencies functions either independently or funds national agencies or private companies in their projects. These agencies facilitate Nepal’s participation in global forum, networking and technology transfer. Some of the agencies includes World Energy Council
- Nepal Water Partnership: Global Water Partnership
- World Bank
- Asian Development Bank
- Network of Asian River Basin Organisation
- Water Environment Partnership in Asia
- The Commonwealth scientific industrial research organization
- Program for aquatic natural resources improvement
- The International Centre for Integrated Mountain Development (ICIMOD)
- International Water Management Institute (Solar Irrigation for Agricultural Resilience)
- International centre of excellence in water resources management (ICEWaRM)
- International Fund for Agricultural Development (IFAD)
### 15th National Development Plan (2019/20-2023/24)

- The National Planning Commission publishes five years plan whose 15th edition was published in 2019. This plan has taken agriculture as one of the key economic drivers of the country and has anticipated growth of the sector by 5.6 per cent. Intensive and dense improvement in irrigation facilities is one of the areas considered for development of agriculture in the country.

- 22% of the national budget is allocated to gender programming.

### Agriculture Development Strategy, ADS (2015–2035)

- Support increasing irrigation intensity by: a. Improve catchment management and restoration including the program of Churia areas conservation, under responsibility of the Ministry of Forests and Soil Conservation. b. Construct inter-basin transfer schemes (IBT) to move water from permanent to seasonal rivers to augment supply in water-short irrigation systems if economically justified by generation of hydropower.

- Provide support for better irrigation system and on-farm water management by: Build capacity of Water Users Association (WUAs) and provide advice and possibly funding to farmers to improve their irrigation systems and practices.

- Support a comprehensive package of infrastructure and capacity building for irrigation development. Pilot construction of medium pond/recharge basins. These are basins that store water and recharge groundwater, for use by both irrigation and water supply.

- Involving private sector in the provision of equipment, construction and technical advice for constructing new tube wells for irrigation. In addition to it, 98 incentive package such as cost-sharing, removal of VAT and duties on pump sets and pipes is planned.

- Provision of hydraulic rams to lift water to land above river level. Identifying government, donor, private sector, and beneficiary funding partners and mechanisms such as cost sharing, incentive package for private sector equipment suppliers and commercial bank financing.

- It is estimated that 170,000ha of irrigation schemes operate at less than 40% efficiency. Therefore, ADS will support the following measures (in relevance to the nexus), on a cost-sharing basis (e.g. farmers contribute labor). ADS will encourage WUAs and farmers to increase the efficiency of irrigation by support for: lining or upgrading canals to reduce transmission losses; control structures to improve water management and distribution; land leveling, better management, and constructing distribution networks (field channels); piped water conveyance in special need situation; and building capacity of WUAs in efficient irrigated agriculture management.

- Support in making renewable energy available to farmers as per its strategy on expanding rural energy and renewable energy.
| Muluki Ain (1963) | - Emphasis on Gender and Social Inclusion framework to reduce gender, caste and ethnic-related inequity in agriculture.  
- It sets out the order of priority of use of water for irrigation. It also regulates traditional farmer managed irrigation system. |
| National Agriculture Policy (2004) | - The policy is formulated with a vision to bring about an improvement in the standard of living through a sustainable agricultural development to be achieved by transforming the current subsistence-oriented farming system into a commercial and competitive farming system. Under this policy, following clauses are relevant.  
- Special facilities shall be provided to the target groups to build and install such infrastructures of small irrigation as pedal pumps, rower pumps, sprinklers, drips and water harvesting ponds.  
- Food safety nets shall be gradually developed for farmers with less than half a hectare of land farmers lacking year-long irrigation facilities, and landless and marginal farmers lacking other sources of income, in order to help them to cope with situations of climatic fluctuations and other calamities.  
- Irrigation facilities, agricultural roads, rural electrification and appropriate agricultural technologies shall be developed and expanded. In areas with irrigation, road and electricity facilities, arrangement shall be made to ensure both intensive and extensive use of the available technologies.  
- Encourages 50% participation of women in every possible agricultural activity for gender equality  
- Enhances management capacity of women in women’s cooperatives and women in farmers’ groups |
| Water Resource Act (1992) | - This is a governing act of all water resources of the country, and it declares the order of priority of water use as drinking, followed by irrigation, agriculture use such as and others. This act has established a system for licensing and formation of Water User Associations. Representation of women in Water Use Associations is mandated. |
| Irrigation Policy, 2070 | - Sustainable development of irrigation sector by utilizing national resources in order to increase agricultural productivity.  
- Proper management and maintenance of irrigation facilities, efficient utilization of resources and establishment of modernized new irrigation projects.  
- Collective utilization of surface and ground water for irrigation.  
- Equitable and balanced expansion of irrigation throughout the country as viable.  
- Irrigation technology advancement, and enhanced knowledge, skills, and institutional capability for all working in the subsector. |
| Rural energy policy (2006) | - The capacity of the local bodies will be improved for playing a leadership role in rural energy project planning, implementation, monitoring and |
evaluation at the local level and involvement of cooperatives, user groups, NGOs, private sector will be increased.

- Rural Energy Fund will be established at the central level to mobilize financial resources to be availed from various sources and fund will be expanded to the local level as per need.

- Alternative Energy Promotion Centre under Ministry of Environment, Science and Technology, Government of Nepal will provide necessary support to the local bodies to develop its capacity to formulate and implement rural energy programs.

- Private sector and non-governmental organizations will be involved in the rural energy development for development and expansion of new technologies. In this activity, the role of the Government of Nepal will be that of facilitator and promoter.

- Emphasis will be given to increase private sector participation by motivating the involvement of private sector in manufacturing of equipment related to rural energy.

- Mini and micro hydro projects will be integrated with irrigation, education, health, drinking water, small-scale industry & ropeways and the operation of the projects at community and institutional level will be encouraged.

- Emphasis will be given for the necessary study and research for reducing cost of solar energy technology and its efficient use.

- Arrangement shall be made to operate solar energy technology at community and institutional level by integrating it with irrigation, health, education and drinking water.

- The emphasis will be given for development and management of new technology to increase efficiency of use of traditional energy. Similarly, the emphasis will be given for Research and Development of rural energy technology. Necessary financial support will be made available for research and development of new technology.


- Maximum subsidy amount of up to 60% of the total costs but not exceeding 2,000,000 Rs per system will be provided for PV pumping system for irrigation of agricultural land managed by community or private company.

- Maximum subsidy amount of up to 60% of the total investment cost for necessary 14 equipment and hardware but not exceeding Rs. 1,000,000 will be provided for the lift irrigation projects in micro hydro catchment areas.

- To replace the use of fossil fuel by electricity from mini/micro hydropower in productive applications particularly in sectors like tourism, mining, marble cutting, stone crushing, cement manufacturing, irrigation, pumping and large-scale agro-processing, generation – equipment subsidy as given in the table below will be provided. A detailed business plan with local employment opportunities has to be prepared by the developer to be eligible for subsidy.
Subsidy Category

- Humla, Dolpa and Mugu districts where goods transport is only possible by air: Rs. 125,000 per kW
- Category “A” Regions except Humla, Dolpa and Mugu Districts: Rs. 95,000 per kW
- Category “B” Regions: Rs. 85,000 per kW
- Category “C” Regions: Rs. 80,000 per kW

The strategy of this policy is to:
- Reduce the initial upfront cost thereby increasing the access to the renewable energy services.
- Maximize service delivery and efficiency in the use of renewable energy resources and technologies in rural areas and to use renewable energy solutions thereby reducing regional disparity, creating rural employment and enhancing livelihood of rural people particularly households from single women, low income, natural disaster victims and socio-economically disadvantaged group.
- Support development and growth of the renewable energy market by mobilizing commercial credit, attracting private sector/entrepreneurs and reducing their investments risks.
- Encourage public-private sector participation in the renewable energy technologies.

The Industrial Enterprises Act (1992)

- This act provides financial incentives to industries and enterprises that help minimize harmful effect in the environment that includes enterprises on renewable energy.
- Permission shall be granted for a reduction of up to 50% from the taxable income for the investment of an industry on process or equipment, which has the objective of controlling pollution or which may have minimum effect on the environment. Such remission may be deducted on a lump sum or on an installment basis within a period of three years.
- After an industry comes into operation, 10% of the gross profit shall be allowed as a deduction against taxable income on account of expenses related with technology, product development and efficiency improvement.


- Review government expenditure to ensure resources are directed to priority areas.
- Review government expenditures to ensure sufficient resource allocation for environment protection.
- Expand use of economic incentives to encourage more environment friendly activities.
- Ensure adequate drainage for surface irrigation.
- Develop ground water resources for irrigation in Terai
- Ensure use of EIA for irrigation projects

Sustainable Development Goals (2016-2030)

- Sustainable Development Goals 2016-2030 were developed by the National Planning Commission in line with the UN’s Sustainable development goals (SDG).
Highlights the relevance of the SDGs in Nepal’s context and sets the country’s goal to achieve it. SDG 2 proposes ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture.

- Goal targets to double productivity and income of small-scale food producers. Importance of agricultural transformation to Nepal’s sustained economic growth, social inclusion, poverty reduction, and socioeconomic modernization. Increasing productivity and reducing underemployment in agriculture requires large investments in irrigation, road, rural energy and market infrastructure. Highlights need of government and development partners to allocate more resources to agriculture; in Nepal agriculture not only source of food security, jobs, and poverty reduction but also means of socioeconomic transformation.

- SGD 5 is about achieving gender equality and empowering all women and girls, SDG 7 aspires to access to affordable, reliable, sustainable, and modern energy for all, and SDG 10 is about reducing inequality within and among countries.

| **Agribusiness Promotion Policy (2007), MoAD** | Ensures special programs for the poor, women and Dalits for establishing agricultural entrepreneurs |
| **Gender Mainstreaming Strategy** | Commits to achieve 50/50 women-men participation in all administrative mechanisms including MoAD divisions, program, committees and boards |
ANNEX 4: TAX POLICIES AND OTHER RELATED INCENTIVES FOR END-USERS, INNOVATORS, AND INVESTORS

| Tax incentives | - 100% exempt up to ten years and 50% rebate on subsequent 5 years, exemptions shall also be available for solar, wind and other alternative energy companies.  
- Zero percent facility shall be provided to battery manufactured and supplied through domestic industry to be used in machinery and equipment generating solar energy with on the recommendation of Alternative Energy Promotion Centre.  
- 100% exempt on Dividend Distribution Tax in case of Special Industry, Industry based in Agriculture and Tourism sector capitalizing profit for expansion of capacity of industry.  
- Special Provision for waiver of Tax, Fines, Penalties and Interest up to Fiscal Year 2075/76 for business started with innovative thinking, Skill, entrepreneurship and technology : Any person or institution involved in the business with innovative thinking, skill, entrepreneurship and technology who have not come under the purview of tax, if takes PAN and gets registered to VAT within Poush End 2076, then all the tax, fine, additional amount, fee and interest prior to FY 2075/76 shall be exempted.  
- 20% tax concession on taxable income generated by any entity from construction, operation and handover of public physical infrastructure project and construction of powerhouse, production, and transmission of electricity.  
- Nepal Rastra Bank (NRB) will provide refinance facility up to 100 Rs billion to provide concessional loan at 5% interest to the Medium and Small Micro Enterprises (MSMEs), agriculture, cottage, and production-based industries.  
- Provision has been made for commercial banks to invest at least 15% of their total credit in agriculture sector by mid-July 2023 so as to ensure food security and generate employment while becoming self-reliant on agriculture production.  
- Development banks and finance companies will be required to disburse at least 20% and 15% loan respectively to the specified sectors such as agriculture, MSMEs, energy and tourism by mid-July 2024.  
- The ADBL will be allowed to issue agricultural bond to ensure availability of long-term financing in agriculture sector. It has been stated that ‘Kisan Credit Card’ will be provided through the ADBL, to provide agricultural information along with financial means to farmers.  
- A provision for collateral of lease assets will be introduced to enhance credit to commercial agriculture, industry and other businesses through leasing or integrating land.  
- .15 Rs million credit limit for business projects with acceptable collateral provided to deprived low-income individuals, firms/group for agriculture, micro enterprises, businesses  
- Monetary policy directed that maximum interest rate on MFIs lending fixed at 15%. |
- The monetary policy stipulates that commercial bank should invest at least 10% of their total loan in the energy sector by mid July 2024 to support the target of generating 5,000 MW of hydropower during the 15th Plan for achieve self-reliance in energy.

- 0.5 Rs. Billion allocated for loans at 2% interest for funding initial capital to encourage startup businesses with innovative ideas; utilizing opportunities generated due to COVID-19.

<table>
<thead>
<tr>
<th>Facilities on Custom Duty</th>
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<tr>
<td>- Reduction of applicable custom duty on import of equipment imported by agricultural firms.</td>
</tr>
<tr>
<td>- Reduction in custom duty on import of separator used in Agriculture factory from 5% to 1%.</td>
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</tbody>
</table>

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<tr>
<th>Subsidy and grants</th>
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<tbody>
<tr>
<td>- 34.80 Rs billion has been allocated to the agriculture sector with 8.10 billion to Prime Minister Agriculture Program to encourage the people returned from foreign employment to enter into organic agriculture business.</td>
</tr>
<tr>
<td>- National Budget 2020/21 established 50 NPR billion to provide MSMEs loans at 5% interest.</td>
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</table>
## ANNEX 5: KEY DEMOGRAPHIC INDICATORS FOR NEPAL

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (Million)</td>
<td>28.5</td>
</tr>
<tr>
<td>Urban Population (% of total population)</td>
<td>19%</td>
</tr>
<tr>
<td>Agriculture land Areas (000ha)</td>
<td>2,113.7</td>
</tr>
<tr>
<td>Land under cereal production (000ha)</td>
<td>3480</td>
</tr>
<tr>
<td>Agriculture irrigated land (% of total agriculture land)</td>
<td>30</td>
</tr>
<tr>
<td>Economically active population in Agriculture</td>
<td>66</td>
</tr>
<tr>
<td>Poverty headcount (%)</td>
<td>25.2</td>
</tr>
<tr>
<td>Undernourished population (%)</td>
<td>15</td>
</tr>
<tr>
<td>Annual freshwater withdrawal in agriculture (% of total freshwater withdrawal)</td>
<td>98.14</td>
</tr>
<tr>
<td>Decade growth in livestock population (2001-2011) %</td>
<td>52</td>
</tr>
</tbody>
</table>

ANNEX 6: NEPAL LAND COVER MAP

Source: Retrieving from Mapping major crops using Sentinel Images for Nepal