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CCM and PASBET (GEF-7)-UNDP-PAK-00123744

B0424 - Pakistan - Islamabad

REPORTING PERIOD 2024- 2028

Narrative

REPORT DATE: 02-06-2026

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1. Executive Summary

2. Background

3. Key Results Achieved

- **Level of Reporting:**

  Output level results

  Project Outputs:

  Effective enforcement of policies and regulations on the sustainable production and use of woody biomass for energy generation and utilization in rural areas of Pakistan

  Contributing Outcomes:

  Outcome 2 By 2027, people in Pakistan, especially those most marginalized and at risk of being left behind, will benefit from sustained, inclusive and green economic growth, through catalysing the medium, small and micro-enterprise (MSME) sector, which drives progress, creates adequate decent jobs for youth, adolescent girls and women, people with disabilities, and other vulnerable segments of society; promotes innovative and responsible MSMEs where gender barriers are addressed; and protects workers, including vulnerable and marginalized workers, from all forms of exploitation.

  Contributing Outputs:

  PAK_OUTPUT_2.1 Enabling business environment and financing for development (including technical and financial ecosystem) for job-rich economic and regional connectivity and cross-border development

  Progress Note:

  Output 1.1: Completed comprehensive situational and feasibility analyses for mainstreaming woody biomass production in the agriculture and forestry sectors Activity 1.1.1: Conduct of Detailed Woody Biomass Resource Assessment This activity is under implementation through the engagement of national and provincial consultants conducting biomass resource assessments and environmental and social mapping. Field surveys, desk reviews, landscape profiling, and ESIA studies have been carried out across Layyah and

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Bhakkar (Punjab), Mansehra and Swat (KP), Sujawal and Badin (Sindh), and Sohbatpur (Balochistan). Draft biomass databases, GIS-based mapping, and district landscape profiles have been prepared for several locations. Activity 1.1.2: Determination of Potential of Woody Biomass-based Power Generation in Pakistan This activity progressed through engagement of technical and financial feasibility consultants who conducted site screening, supply-demand analysis, and preliminary power generation assessments. Priority sites have been identified in Layyah (Punjab), Swat and Mansehra (KP), Sujawal (Sindh), and Sohbatpur (Balochistan), while additional districts were included for comparative assessment. Draft feasibility studies and site justification reports have been prepared for selected locations. Activity 1.1.3: Conduct of Feasibility Studies for Mainstreaming Woody Biomass Production in the Agriculture and Forestry Sectors This activity is in progress, supported by consultants undertaking detailed technical, environmental, social, and financial feasibility studies for proposed demonstration and supply locations. ESIA and ESMP reports have been prepared for multiple districts, providing the evidence base for sustainable biomass production and utilization. Output 1.2: Developed and implemented policies and market-based regulatory framework for supporting woody biomass production and use Activity 1.2.1: Development of a tariff structure and policy for woody biomass-based power generation This activity is under implementation through the engagement of an international consultant tasked with reviewing existing biomass tariff structures, benchmarking regional practices, and developing an indicative woody biomass pricing model. Activity 1.2.2: Policy development at provincial level This activity progressed through establishment of Provincial Working Groups (PWGs) in provinces. Consultations with provincial forest and energy departments were initiated to support cascading of national biomass policy elements to provincial level. Activity 1.2.3: Development of national roadmap to promote sustainable biomass energy systems This activity is under implementation through the engagement of a national consultant responsible for preparing the National Biomass Energy Road Map (NBERM). An inception report and methodology have been submitted, and assessments of national electricity planning and biomass integration have been initiated. Draft roadmap development and stakeholder consultations are ongoing. Output 1.3: Formulated and approved technical, management and operational standards in biomass energy development and utilization Activity 1.3.1–1.3.3: Formulation and approval of technical, management and operational standards These activities are in progress, supported by a dedicated consultant developing draft standards for biomass fuel production and logistics, biomass energy conversion technologies, and comprehensive biomass energy management. Output 1.4: Formulated energy-integrated development plans of 8 pilot towns, two in each province of Punjab, KP, Sindh and Balochistan Activity 1.4.1: Development and implementation of energy-integrated development plans for 8 pilot towns, two in each province of Punjab, KP, Sindh and Balochistan This activity is under implementation and closely linked with the biomass resource assessments, feasibility studies, and demonstration site planning carried out under Output 1.1 and Component 2.

- **Level of Reporting:**

  Output level results

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Project Outputs:

Adequate amounts of financial resources available for woody biomass energy technology application projects in the country

Contributing Outcomes:

Outcome 3 By 2027, people living in the Indus River Basin, particularly the most vulnerable, including women, girls, boys, persons with special needs and senior citizens, will have their lives positively impacted by improved water access and utilization, economic development, livelihoods, climate-resilient settlements, and prosperity.

Contributing Outputs:

PAK_OUTPUT_3.2 Efficient and sustainable use of fresh marine and terrestrial ecosystems, including the Indus Basin, for resilient communities through interventions for improved health, livelihoods, green economy and clean energy

Progress Note:

During 2025, no activities were planned or implemented under Outcome 3, in line with the approved Project Document and Annual Work Plan. Activities under Outcome 3 are planned in 2026, as enlisted below: Output 3.1: Established and operational investment and financing mechanisms for supporting the commercial viability and operation of woody biomass energy production for power and non-power applications, and the development of biomass energy industries Activity 3.1.1: Development of Policy Recommendations State Bank of Pakistan (SBP) RE Refinancing Scheme. This activity is planned to provide technical assistance for reviewing existing renewable energy financing schemes and developing policy recommendations to enable inclusion of woody biomass-based energy projects within national refinancing frameworks, particularly the SBP RE Refinancing Scheme. Activity 3.1.2: Inclusion of Woody Biomass Technology Application Projects in the SBP RE Refinancing Scheme or in other Relevant Financial Schemes. This activity will focus on engaging financial institutions to support the formal inclusion of woody biomass-based power, non-power, and cogeneration projects within existing or modified renewable energy financing mechanisms. Activity 3.1.3: Orientation and Engagement of and Implementation by Selected Banks of the Approved Modified RE Refinancing Scheme. This activity is planned to operationalize approved financing mechanisms through structured engagement, orientation, and capacity building of selected banks to support lending for woody biomass energy projects. Output 3.2: Established and operational market-oriented mechanism for the enhanced development and utilization of biomass energy resources, energy efficiency and comprehensive biomass energy management systems for supporting sustainable rural socio-economic development Activity 3.2.1: Development and Adoption of Business Cases for Biomass-Based Rural Off-Grid Electrification Projects. This activity will support the development of bankable business cases for biomass-based rural electrification projects, informed by technical, social, environmental, and financial analyses. Activity 3.2.2: Conduct of Roadshow and

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Identification of Possible Financing Arrangements for Biomass-based Mini/micro-grids Power Projects for Rural Electrification. This activity is planned to promote investment-ready biomass energy projects through targeted roadshows and engagement with financial institutions and investors. Output 3.3: De-risked biomass-based power generation projects, decentralized biomass-based energy generation in rural areas, and business plans for the GoP and private sector to facilitate financing and implementation Activity 3.3.1: Development of Risk Portfolio and de-risking framework for biomass-based power generation projects and non-power applications in rural areas. This activity will focus on identifying and addressing financial and operational risks to improve bankability of woody biomass energy projects. Activity 3.3.2: Development and operationalization of a de-risking facility for biomass-based energy development projects. This activity is planned to support the establishment of a de-risking facility to catalyze private sector and institutional financing for biomass energy initiatives.

- **Level of Reporting:**

  Output level results

  Project Outputs:

  Enhanced local capacity, skills and knowledge in the development, installation, and operation of biomass energy technology systems in rural Pakistan

  Contributing Outcomes:

  Outcome 3 By 2027, people living in the Indus River Basin, particularly the most vulnerable, including women, girls, boys, persons with special needs and senior citizens, will have their lives positively impacted by improved water access and utilization, economic development, livelihoods, climate-resilient settlements, and prosperity.

  Contributing Outputs:

  PAK_OUTPUT_3.2 Efficient and sustainable use of fresh marine and terrestrial ecosystems, including the Indus Basin, for resilient communities through interventions for improved health, livelihoods, green economy and clean energy

  Progress Note:

  Output 4.1: Developed and implemented gender sensitive capacity development training programs for the design, construction, operation, and maintenance of woody biomass-based energy production systems both for power (e.g., decentralized power generation and distribution) and non-power (e.g., industrial energy efficient wood-fired equipment) applications, as well as for strengthening institutional capacity for supporting sustainable biomass energy production and utilization Activity 4.1.1: Village level needs assessment on different gender needs, social and cultural practices to ensure that the training is not affected by/caters to any gender gaps During 2025, progress under Outcome

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4 focused on initiating the foundational activity for gender-responsive capacity development, as defined in the Project Document. Under Activity 4.1.1, an individual consultant was engaged to carry out a village level needs assessment on different gender needs, social and cultural practices, ensuring that future training programs are inclusive and responsive to identified gender gaps. The consultant has formally commenced the assignment and submitted an inception report, outlining the assessment methodology, analytical framework, and implementation approach, along with detailed data collection tools aligned with the project's objectives and Gender Action Plan. The ongoing assessment is being conducted in selected project areas to establish and benchmark the baseline situation, identify areas for improvement, and enable effective monitoring of progress over time. In line with the ProDoc, the assessment is gathering data on the energy and related needs of both women and men, examining prevailing social and cultural practices, and documenting how these factors influence participation in biomass energy value chains. The assessment also captures perceptions of women and men regarding planned project interventions, including feedback on project setup, strategy, technology choices, and the potential roles of different genders in biomass energy production, operation, and enterprise development. This activity remains in progress, with field-level data collection underway. Findings from the needs assessment will directly inform the design and delivery of gender-sensitive training programs for stakeholders on biomass energy technologies, ensuring that future capacity development activities under this Output are tailored to local realities and do not inadvertently reinforce existing inequalities. As envisaged in the Project Document and reflected in the latest Project Steering Committee presentation, the outputs of Activity 4.1.1 will guide subsequent actions under Output 4.1, including the development of knowledge products such as manuals and case studies for dissemination (including inclusion of this renewable energy subject in UETs' curricula), organization of workshops and outreach activities to engage rural communities, and training of trainers to ensure widespread adoption and capacity building. Overall, Outcome 4 remained on track during 2025, with Activity 4.1.1 providing the critical evidence base required to operationalize gender-responsive capacity development and institutional strengthening in the next phase of PASBET implementation.

- **Level of Reporting:**

  Output level results

  Project Outputs:

  Increased investments in the application of technologies for the production, and energy efficient utilization of woody biomass energy.

  Contributing Outcomes:

  Outcome 3 By 2027, people living in the Indus River Basin, particularly the most vulnerable, including women, girls, boys, persons with special needs and senior citizens, will have their lives positively impacted by improved water access and utilization, economic development, livelihoods, climate-resilient settlements, and prosperity.

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Contributing Outputs:

PAK_OUTPUT_3.2 Efficient and sustainable use of fresh marine and terrestrial ecosystems, including the Indus Basin, for resilient communities through interventions for improved health, livelihoods, green economy and clean energy

Progress Note:

Output 2.2.1: Completed and operational woody biomass-based energy generation technology demonstrations in 4 selected sites, one in each province of Punjab KP, Sindh and Balochistan showcasing the cost-effective application of decentralized woody biomass-based electricity generation and distribution (through mini/micro-grids) Activity 2.2.1: Development and implementation of woody biomass-based energy generation technology demonstrations in four selected sites This activity advanced significantly during 2025 through the engagement of technical feasibility and design consultants and an international biomass energy expert. Detailed feasibility studies, site assessments, and environmental and social impact assessments were conducted across multiple districts. Based on this work, five demonstration sites have been identified for implementation readiness: Layyah (Punjab), Swat and Mansehra (KP), Sujawal (Sindh), and Sohbatpur (Balochistan). Additional districts, including Bhakkar (Punjab), Badin (Sindh), and Dera Bugti (Balochistan), were included in surveys and assessments to strengthen comparative analysis and risk screening. Technical layouts, hybrid system concepts, and preliminary operational planning are under development. Physical installation and commissioning are planned for 2026. Output 2.2.2: Completed and operational four (4) demonstrations of cost-effective production of woody biomass fuels such as wood chips, briquettes, and pellets for use in decentralized woody-biomass based power generation and distribution. Activity 2.2.2: Implementation of approved demonstrations of cost-effective production of woody biomass fuels such as wood chips, briquettes, and pellets This activity is under progress at the design and planning level. Consultants supporting the demonstration plants have integrated biomass fuel processing considerations into system design, including pelletization and feedstock handling options. The activity has not yet moved into physical installation, as it is sequenced with confirmation of biomass supply arrangements and commissioning of generation systems. Implementation of fuel production demonstrations is planned for 2026 Activity 2.2.3: Development and implementation of demonstrations of the applications of energy efficient woody biomass fired technologies and comprehensive energy management systems During 2025, this activity remained at the conceptual planning stage. Consultants engaged for feasibility and system design incorporated energy efficiency and management considerations into the overall demonstration framework. Practical demonstrations of energy efficient biomass-fired technologies are planned for 2026, once the primary biomass energy systems become operational. Activity 2.2.4: Published and disseminated information about the results and impacts of the completed demonstrations No implementation occurred under this activity during 2025, as it is dependent on completion and operation of demonstration plants. Planning for documentation, learning products, and dissemination has been embedded in consultant scopes of work. Overall Component 2 status Component 2 is actively under implementation, with consultants onboarded across all major technical streams and

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provinces. The year 2025 focused on assessments, feasibility, guideline development, and site identification, resulting in five priority sites and a strong analytical foundation. The component is well positioned to transition into physical implementation and demonstration delivery in 2026.

- **Level of Reporting:**

  Output level results

  Project Outputs:

  Enhanced woody biomass production on forested, non-forested, and on farmlands to cater local biomass energy needs, including for power generation and rural industry operations

  Contributing Outcomes:

  Outcome 3 By 2027, people living in the Indus River Basin, particularly the most vulnerable, including women, girls, boys, persons with special needs and senior citizens, will have their lives positively impacted by improved water access and utilization, economic development, livelihoods, climate-resilient settlements, and prosperity.

  Contributing Outputs:

  PAK_OUTPUT_3.1 In line with international conventions and national policy frameworks, implementation mechanisms are strengthened to promote, manage and conserve natural resources

  Progress Note:

  Output 2.1.1: Developed, disseminated, and applied guidelines for sustainable production and utilization of woody biomass Activity 2.1.1: Development of general guidelines for commercial production of sustainable biomass in forested, non-forested, and farmlands for energy and non-energy use This activity is under implementation through onboarding of provincial consultants in Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan. Draft biomass production guidelines, including hazard-free storage and safety measures aligned with forest, energy, and climate policies, have been prepared for Punjab, Sindh, and KP, while inception-level work is ongoing in Balochistan. Initial stakeholder consultations have been initiated. Finalization and provincial endorsement of guidelines are planned for 2026. Activity 2.1.2: Development of knowledge products and dissemination among project stakeholders for utilization of woody biomass for energy purposes, both for power and non-power applications in rural areas This activity is in progress. Consultants engaged under Activity 2.1.1 are developing inputs for training manuals, toolkits, diagrams, and visual materials. Development and dissemination of knowledge products are scheduled for 2026. Output 2.1.3. Established farmers/communal forest nurseries over at least 300 hectares to provide planting stock for raising woody biomass in rural areas in the provinces of Punjab, KP, Sindh and Balochistan, including energy plantations over 40,000 ha of fast-

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growing native tree species at nonforested lands in selected districts each of these provinces for woody biomass supply. Activity 2.1.3: Development of woody biomass supply network This activity progressed through engagement of supply chain and market analysis consultants, one for Punjab and KP, and another for Sindh and Balochistan. Biomass availability surveys, preliminary supply chain mapping, and environmental and social assessments were conducted across Layyah and Bhakkar (Punjab), Mansehra and Swat (KP), Sujawal and Badin (Sindh), and Sohbatpur and Dera Bugti (Balochistan). Based on this work, five priority sites have been identified: Layyah (Punjab), Mansehra and Swat (KP), Sujawal (Sindh), and Sohbatpur (Balochistan). The activity remains in progress, with detailed market analysis, nursery planning, and validation planned for 2026. Output 2.1.4: Established and operational fuelwood production from 4.5 million trees of common fuelwood plant species on farmlands for supply of woody biomass for production and utilization of biomass energy in rural areas Activity 2.1.4: Development and establishment of fuel production processes This activity is in progress at preparatory stage. No physical fuel production systems were established in 2025. Planning inputs related to fuelwood production, nursery siting, and plantation phasing have been initiated under Activities 2.1.1 and 2.1.3. Physical establishment of fuel production processes is planned for 2026, following confirmation of biomass supply and safeguards.

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4. Key Challenges Encountered

- **Level of Reporting:**

  Output level results

  Project Outputs:

  Enhanced woody biomass production on forested, non-forested, and on farmlands to cater local biomass energy needs, including for power generation and rural industry operations

  Contributing Outcomes:

  Outcome 3 By 2027, people living in the Indus River Basin, particularly the most vulnerable, including women, girls, boys, persons with special needs and senior citizens, will have their lives positively impacted by improved water access and utilization, economic development, livelihoods, climate-resilient settlements, and prosperity.

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Contributing Outputs:

PAK_OUTPUT_3.1 In line with international conventions and national policy frameworks, implementation mechanisms are strengthened to promote, manage and conserve natural resources

Progress Note:

actions remain embedded in workplans. During deliberations with the provincial Climate Change and Forest Department of Khyber Pakhtunkhwa, a major challenge emerged regarding the initially proposed demonstration locations in Kalam and Kaghan. It was identified that the selected locations in districts Kalam and Kaghan fall under protected temperate pine forests (Alpine forest) which could be the only primary source of woody biomass in the area. As a result, the project has shifted its focus to alternative sites within the districts of Swat and Mansehra, where Kalam and Kaghan are located, and where feasible and sustainable options for the demonstration activities can be identified.

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5. Project Risks and Issues

Implementation of selected activities under Outcome 1 and Component 2 in Balochistan experienced delays due to security risks and access restrictions in parts of the province. Owing to prevailing security conditions, movement of UN staff and consultants was restricted, limiting the ability to conduct continuous field visits, stakeholder consultations, and on-site validations in districts such as Sohbatpur and Dera Bugti. As a result, some assessments and validation steps required additional time or alternative implementation arrangements. The project adjusted timelines accordingly and prioritized staff safety while maintaining progress through phased and adaptive implementation approaches, in line with UNDP security protocols.

6. Lessons Learned

- Early ESIA and ESMP work across Punjab, KP, Sindh, and Balochistan highlighted key environmental sensitivities (e.g., protected forest areas in KP) and social considerations. Incorporating safeguards early prevented unsuitable site selection and ensured more durable choices.

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- Work in Balochistan experienced delays due to security restrictions on UN staff and consultants, limiting field access in Sohbatpur and Dera Bugti. Security-sensitive areas require adaptive and flexible implementation approaches.
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7. Conclusions and Way Forward

The Annual Workplan (AWP) and the project brief have been shared with the Provinces (Environment and Forest Departments) Energy plantation plans, Surveys & biomass assessment studies conducted in consultation with the forest departments will be presented in the four-validation workshops (Mid February 2026) Provincial forest departments have been requested to provide 2-3 acres of land for establishment of the PASBET pilot demonstrations as requested(vide letter# D.O. No.F 3(10)/2019/GEF-7 UNDP-CS dated 01 January 2026)

8. Other Reporting Requirements

- **Reporting Requirements**

  Gender Related Progress 2025

  During 2025, the project initiated its core gender activity under Outcome 4 through the recruitment of a dedicated consultant to conduct the village-level gender and social needs assessment. The consultant submitted the inception report and detailed assessment tools, and the assessment process formally began during the reporting period. Initial consultations and tool refinement were completed, and preparatory coordination was undertaken with provincial departments to facilitate fieldwork across the selected districts. This foundational work has established the evidence base necessary for designing gender-responsive capacity-building programs, training curricula, and community engagement approaches planned for 2026. The activity is progressing as scheduled and remains fully aligned with the Gender Action Plan included in the ProDoc

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