GOVERNMENT OF THE PUNJAB
PLANNING & DEVELOPMENT BOARD
(SHC&ME SECTION)

WORKING PAPER FOR THE PDWP

CONCEPT CLEARANCE

PART-A

Project Profile:

1.	**Project Title**	**Establishment of Rehabilitation Engineering Center for the Advancement of Rehabilitation Aids Services in Pakistan**
2.	**Location**	Lahore
3.	**Sponsoring Agency**	King Edward Medical University (KEMU), Specialized Healthcare & Medical Education Department
4.	**Implementing / Executing Agency**	✓ Punjab Information Technology Board (PITB) ✓ Mayo Hospital, Lahore.
5.	**Operating & Maintenance Agency**	King Edward Medical University (KEMU), Specialized Healthcare & Medical Education Department
6.	**Proposed Cost**	USD 4.00 million (PKR. 1,120.00 million) (ODA Grant by KOICA)
7.	**Cost in ADP 2024-25**	N.A
8.	**Total Funds Released**	N.A
9.	**Gestation Period**	01.07.2026 to 30.06.2029

10. Background:

i. The Concept paper of the project was cleared by the Provisional External Financial Assessment Committee (PEFAC) in its 24th meeting held on 27-01-2025 with the following directions:

   a. The King Edward Medical University (KEMU), SH&ME Department will act as the sponsoring agency whereas PITB will act as implementing agency and responsible for IT management system and Mayo Hospital / KEMU will establish Centre for Rehabilitation Engineering for Robotic Prostheses for the initiative.

   b. The SH&ME Department will initiate summary for seeking approval of Government of the Punjab for engaging with Government of Korea for grant.

   c. The KEMU / SH&ME Department will ensure recruitment and training of 40 master trainers, maintaining balanced mix of rehabilitation engineers, health

professionals, and IT specialists, in consultation with Korean partners to enhance the quality and relevance of the training program;

d. KEMU / SH&ME Department will ensure the long-term sustainability of the initiative to maximize the benefits of the technology transfer from the Korean government.

ii. The matter was placed before the Provincial Cabinet for consideration during its 23rd meeting held on 11.02.2025. Minutes of the meeting are awaited.

11. Rationale of the Project:

Punjab has a high number of industrial accident survivors, particularly those suffering from limb amputations. Despite existing rehabilitation services, the prostheses available in Pakistan are outdated, costly, and lack advanced functionality. Many injured workers are unable to afford modern prosthetic devices, limiting their mobility and reintegration into the workforce. The absence of a multidisciplinary rehabilitation approach further reduces the effectiveness of prosthetic interventions.

Pakistan has a significant population of Persons with Disabilities (PWDs), with Punjab alone having 417,000 registered PWDs, out of which 281,284 have physical impairments. The existing public healthcare facilities lack adequate resources to provide modern and effective prosthetic solutions. The Mayo Hospital Orthotics and Prosthetic Workshop, established in 1986 by UNDP, is now understaffed and outdated, with only one technical expert remaining.

Data from the past four years shows a steady increase in the number of registered Persons with Disabilities (PWDs), with registration figures growing consistently on both a daily and annual basis. This significant upward trend highlights the expanding PWD population, making it imperative for the government to take prompt action in implementing welfare and rehabilitation initiatives

In line with this, the Punjab Empowerment of Persons with Disabilities Act, 2022, mandates the Department to roll out projects aimed at the welfare and rehabilitation of PWDs. Section 3 of the Act emphasizes non-discrimination toward Persons with Disabilities, granting them the right to dignity and the opportunity to lead a decent life. Additionally, Subsection 4 of Section 6 of the same Act guarantees the accessibility and mobility of Persons with Disabilities

To address these challenges, this project aims to modernize the production of rehabilitation prostheses at Mayo Hospital, introduce pneumatic prosthesis technology, enhance rehabilitation services, and integrate financial sustainability through social security programs. For provision of prosthetics, target population for the Programme will be identified on the basis of PWDs, who have registered

themselves on Disabled Persons Management Information System (DPMIS) and decaled as a Person with Disabilities.

12. Objectives of the Project:

i. **Reinforce Modern Prosthesis Production Capacity**.
   - Localize and transfer Korean pneumatic rehabilitation prosthesis technology to Mayo Hospital.
   - Establish a modern workshop for cost-effective and high-functionality prosthesis production

ii. **Strengthen Human Resource Development**
   - Train and certify prosthetics, orthotics, and rehabilitation professionals.
   - Develop a sustainable training program for continuous skill development.

iii. **Establish Integrated Rehabilitation Services**
   - Implement a multidisciplinary rehabilitation model, including physical therapy, occupational therapy, and psychological support

iv. **Enhance Sustainability and Social Protection**
   - Develop policy recommendations to support the long-term accessibility of modern prosthetic solutions

13. Expected Outcomes:

i. **Improved Prosthesis Production Infrastructure (Establishment of a Rehabilitation Engineering Center)**
   - Modernized workshop at Mayo Hospital with enhanced production capacity.
   - Introduction of high-quality pneumatic prostheses to replace outdated mechanical models.

ii. **Enhanced Human Resource Capacity (Professional capacity building through specialized training (40 people) curricula for rehabilitation engineers and master trainer programs)**
   - Certified prosthetics and rehabilitation professionals trained in modern prosthesis production and rehabilitation techniques.
   - Sustainable training programs established within Mayo Hospital.

iii. **Integrated Rehabilitation Services for Social Reintegration (Provision of 800 robotic prostheses)**
   - Development of coordinated rehabilitation services for industrial accident survivors.
   - Strengthened return-to-work mechanisms through structured rehabilitation pathways.

iv. **Sustainability Through Policy Integration (Provision of comprehensive rehabilitation services, including clinical therapy and advanced rehabilitation exercises)**

- Increased financial accessibility of prostheses through social security and health insurance schemes.
- Policy recommendations to ensure long-term funding and support for rehabilitation services.

13.1 Direct Beneficiaries

- Physically Impaired (especially lower-limb amputees) in Punjab.
- Mayo Hospital staff, including prosthetics, rehabilitation professionals, and medical students.

13.2. Indirect Beneficiaries:

- Other hospitals and rehabilitation centers in Pakistan that may replicate the Mayo Hospital model.
- Families of amputees who benefit from improved economic stability and social inclusion.

13.3 Implementation Strategy

- **Technology Transfer & Infrastructure Development:** Equip Mayo Hospital with modern prosthesis production facilities and introduce Korean pneumatic prosthetic technology.
- **Capacity Building:** Conduct comprehensive training programs for prosthetics, orthotics, and rehabilitation specialists.
- **Multidisciplinary Rehabilitation Services:** Implement an integrated model combining physical therapy, psychological support, and vocational training.
- **Policy & Financial Integration:** Work with Punjab's social security institutions to ensure long-term sustainability of modern prosthetic devices.

13.4 Sustainability and Scalability

The project is designed for long-term impact by embedding prosthetic production and rehabilitation services within existing healthcare and social structures. By collaborating with key stakeholders such as Mayo Hospital, and the Punjab Social Welfare Department, the project aims to create a replicable model for other provinces in Pakistan.

13.5 Role & Responsibility:

- **Mayo Hospital**:
  - ✓ Oversee the rehabilitation workshop renovation, organize training for prosthetists / technicians, integrate multi-disciplinary rehab services (physical therapy, psychosocial support).

- ✓ Provide clinical environment for patient care, pilot testing of advanced pneumatic prostheses, and direct service delivery.

- **KEMU:**
  - ✓ Collaborate in the development and implementation of training curricula (e.g., certification courses, B.Sc. Orthotics & Prosthetics).
  - ✓ Mobilize academic expertise, faculty, and students for field-based learning and research.
- **PITB:**
  - ✓ Set up or refine digital platforms to track patient registrations, monitor rehab progress, and minimize duplication with other ongoing donor-funded health initiatives.
  - ✓ Share IT solutions help unify patient databases across multiple social welfare projects, improving overall service efficiency and transparency.

14. Summary of Project Cost:

(In Million)

Sr. No.	Output	Activity	Proposed budget (USD)	Proposed Budget (PKR)
A	Rehabilitation Prosthesis Technical Transfer & On-site Training	Expert Labor Costs, Administrative and Management Costs, Technology Cost, Local Operation Costs, ETC	1.419	397.320
B	Capacity Building (Overseas Training Sessions to Korea)	Medical and rehabilitation equipment, Workshop equipment and tools, Training center equipment	0.478	133.840
C	Renovation of Workshop	Prosthetic devices, Orthotic devices, Wheelchairs and mobility aids	0.413	115.640
D	Equipment & Materials for producing more than 500 assistive devices	Spare parts and tools, Tracking System Development	1.650	462.000
E	Contingency	Core Staff Development, Expanded Staff Training, Training in Korea, Training Materials, Workshops	0.040	11.200
	Total		**4.000**	**1120.000**
Above costing has been taken from Korean Government budget proposal. **Note: Exchange rate has been used USD 1$ = 280 PKR.**				

15. Indicative Logical Framework:

Project Objectives	Activities/ Actions	Outputs	Output Indicator	Timeline	Desired Outcomes	Outcome Indicator	Timeline	Impacts	Impact Indicator	Timeline
Sectoral Objective Strengthen the rehabilitation prosthesis manufacturing and integrated rehabilitation services in Punjab, Pakistan										

Project Objectives	Activities/ Actions	Outputs	Output Indicator	Timeline	Desired Outcomes	Outcome Indicator	Timeline	Impacts	Impact Indicator	Timeline
Sub-objective-1 **1**: Enhance Prosthesis Production Capacity	*Activity 1* Renovate Mayo Hospital prosthesis workshop *Activity 2:* Install modern prosthesis manufacturing machinery *Activity 3:* Develop quality assurance and maintenance system	*Output 1:* Upgraded prosthesis workshop with modern equipment *Output 2:* Installed equipment for pneumatic prostheses production *Output 3:* Standardized maintenance and quality control protocols	*Output 1 Indicator* Renovation completion rate (%) *Output 2 Indicator* Equipment installation and utilization rate (%) *Output 3 Indicator* Compliance with quality assurance standards	*By 2026 Quarterwise-1* By 2026 Q2 By 2026 Q3	*Outcome 1* Increased local production of pneumatic prostheses *Outcome 2*	*Outcome 1 Indicator* Number of prostheses produced annually (Target: 150+) *Outcome 2 Indicator*	By 2027 Q4	*Impact* Improved access to affordable and high-quality assistive devices	*Impact 1 Indicator* Percentage of industrial accident survivors receiving	By 2029 Q4
Sub-objective-2 **2**: Strengthen Human Resource Capacity	*Activity 1* Conduct training for prosthetists and technicians *Activity 2:* Implement Training-of-Trainers (ToT) program *Activity 3:* Develop formal prosthetics certification courses	*Output 1:* Trained prosthetists and technicians in pneumatic prosthesis manufacturing *Output 2:* Established Master Trainer program for prosthetists *Output 3:* Certified training curriculum and courses for prosthetics	*Output 1 Indicator* Number of trained prosthetics/technicians *Output 2 Indicator* Number of trained Master Trainers *Output 3 Indicator* Number of certification programs developed and approved	By 2027 Q2 By 2027 Q3 By 2028 Q2	*Outcome 1* Improved technical expertise in prosthetic rehabilitation	*Outcome 1 Indicator* Number of certified Master Trainers and specialists	By 2028 Q1	*Impact* Sustainable local expertise in prosthetic rehabilitation	*Impact 1 Indicator* Percentage of prosthetics retained in the healthcare system	By 2029 Q4
Economic Objective										
Sub-objective-1 Reduce financial burden on PWDs through improved prosthetic access	*Activity 1* Collaborate with Government funded assistive devices initiatives to subsidize prostheses	*Output 1:* Inclusion of modern prostheses in social security benefit package	*Output 1 Indicator* Policy inclusion of prostheses in insurance schemes	By 2027 Q4	*Outcome 1* Reduced financial barriers for prosthetic rehabilitation	*Outcome 1 Indicator* Percentage of amputees receiving subsidized prostheses	By 2028 Q3	*Impact* Enhanced financial and social security for injured workers	*Impact 1 Indicator* Reduction in out-of-pocket expenses for prostheses	By 2029 Q4
Social Objective										
Sub-objective-1 Ensure accidental survivors regain mobility and productivity	*Activity 1* Implement multi-disciplinary rehabilitation services (PT, OT, Psychological support)	*Output 1:* Established integrated rehabilitation services at Mayo Hospital	*Output 1 Indicator* Number of patients receiving	By 2027 Q3	*Outcome 1* Increased return-to-work (RTW) rates for amputees	*Outcome 1 Indicator* Percentage of rehabilitated workers returning to jobs	By 2028 Q2	*Impact* Improved quality of life and workforce reintegration	*Impact 1 Indicator* Percentage reduction in disability-related unemployment	By 2029 Q4
Climate Objective										
Sub-objective-1 Promote sustainable production and materials in prosthesis	*Activity 1* Develop eco-friendly materials for prosthesis production	*Output 1:* Adoption of sustainable materials in prosthesis manufacturing	*Output 1 Indicator* Percentage of prostheses made from sustainable materials	By 2028 Q2	*Outcome 1* Reduced environmental impact of prosthesis production	*Outcome 1 Indicator* Percentage reduction in non-biodegradable waste	By 2029 Q2	*Impact* Environmentally sustainable assistive technology sector	*Impact 1 Indicator* Long-term reduction in carbon footprint of prosthesis	By 2029 Q4

Project Objectives	Activities/ Actions	Outputs	Output Indicator	Timeline	Desired Outcomes	Outcome Indicator	Timeline	Impacts	Impact Indicator	Timeline
manufacturing									manufacturing	

16. Monitoring Framework

16.1: Outcome-Level Indicators

Sr. No.	Outcome	Indicator	Target
1	Improved Prosthesis Production Infrastructure	Completion of Mayo Hospital Prosthesis Center renovation	Yes (100%)
		Number of modern pneumatic prostheses produced annually	≥ 150 per year
2	Enhanced Human Resource Capacity	Number of prosthetics and rehab professionals trained	≥ 40 professionals
3	Integrated Rehabilitation Services for Social Reintegration	Percentage of prosthesis recipients successfully returning to work (RTW) within 1 year	≥ 60% RTW rate
		Patient satisfaction with rehabilitation services (Survey Score)	≥ 4.0
4	Sustainability Through Policy Integration	Inclusion of modern prostheses	Yes (Implemented)

16.2: Output-Level Indicators

Sr. No.	Output	Indicator	Target
1.1	Renovation & Equipment Installation	Completion of Mayo Hospital prosthesis workshop renovation	Yes (100%)
		Procurement and installation of modern prosthetic equipment	Yes (100%)
1.2	Prosthesis Production Capacity	Number of functional pneumatic prostheses produced	≥ 150 per year
2.1	Training & Capacity Building	Development of standardized prosthetics training curriculum	Yes (Approved)
		Number of professionals completing prosthetics training	≥ 50 professionals
3.1	Rehabilitation Services	Establishment of multidisciplinary rehabilitation team (PT, OT, Psych)	Yes (Implemented)
		Number of rehabilitation patients receiving therapy post-prosthesis	≥ 500 patients

17. Recommendation:

The Concept Paper at a total cost of USD 4.000 million (Rs. 1,120.00 million) is placed before the PDWP for consideration and clearance for the CDWP.

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