Concept Paper of

COMSTECH Expert Service for Technological Cooperation.

Introduction:

The member states of the Organization of Islamic Cooperation (OIC) possess abundant technical expertise and specialized human capacities across various developmental sectors. Field studies and survey reports reveal that these national competencies and local capacities are not consistently utilized to their fullest potential, both domestically and in terms of inter-regional and international cooperation. This underutilization of available human resources adversely impacts the sustainable development progress of these countries and exacerbates the issue of brain drain, as individuals struggle to find suitable environments to realize their aspirations.

The specialized landscape of human capacities within OIC member states, characterized by technical capabilities, also boasts diversity and complementarity. This collective pool of expertise covers a wide range of technical needs crucial for the development process. Hence, there is a growing need for an initiative that is practical, cost-effective, focused, regularly updated, and integrated into government structures and policy priorities. This initiative should prioritize the exchange of technical expertise among OIC member states, leveraging a voluntary and non-monetary approach to foster cooperation.

Through its COMSTECH Expert Service program, COMSTECH aims to create a platform comprising a robust network of technical experts, including engineers, technologists, technicians, and professionals. These experts will conduct hands-on training sessions and knowledge exchange in various technical fields within the OIC member states, catering to the functioning, maintenance and troubleshooting needs of high-end scientific and research equipment, as well as software tools. The provision of this service will be tailored to the specific requirements and needs assessment of the recipients, which may include universities, research institutions, private companies, or laboratories. This initiative aims to foster collaboration, promote sustainable development, and enhance the technical capabilities of OIC member states.

Objectives:

- Enable the transfer of technical expertise, best practices, and innovative solutions among OIC member countries
- Build and enhance the technical capacities of OIC member countries through hands-on training, capacity building programs, and technology transfer initiatives.
- Establish a network of experts, engineers, and technologists across OIC member countries to facilitate ongoing collaboration, knowledge sharing, and peer-to-peer learning.
- Address sectorial needs and strategic priorities within Member States via need assessment and offering specialized services accordingly.

- Facilitate access for Member States to specialized and advanced technical services not locally available, thereby reducing the costs associated with acquiring such services.
- Strengthen collaboration and partnerships between OIC member states by leveraging the expertise and resources within the OIC community for mutual benefit
- Strengthen the values of volunteering, philanthropy, and solidarity, emphasizing shared social and humanitarian responsibility.

Areas of cooperation:

The scope of inter-cooperation within this platform is defined by each country's priorities and its immediate and ongoing needs. Below, several areas are outlined that may serve as the initial focus of the platform.

- **Biomedical Engineering/Health:** Sophisticated medical equipment such as MRI machines, CT scanners, Health Monitoring Devices, Hospital Management Systems, Telemedicine/E-health, and laboratory instruments.
- **Manufacturing Industries:** High-tech manufacturing equipment including CNC machines, robotics, and automation systems.
- **Renewable Energy Sciences and Applications:** Equipment for renewable energy such as solar panels, wind turbines, and biomass reactors,
- **Engineering Sciences:** Advanced machinery in mechanical, electrical, chemical, and materials engineering that requires expert maintenance and troubleshooting.
  Automotive Engineering: Maintenance and repair of automotive systems, electric vehicles, and autonomous vehicle technology.
  Aerospace Engineering: Operation and maintenance of aircraft systems, drones, and space exploration equipment.
  Marine Engineering: Maintenance of ship systems, underwater robotics, and marine renewable energy installations.
  Mining and Metallurgy: Operation of mining equipment, ore processing machinery, and metal fabrication tools.
- **Information Technology (IT) Industry:** IT infrastructure including servers, networking equipment, and complex software systems.
- **Agricultural Sciences and Applications:** Specialized equipment for soil analysis, crop monitoring, and precision agriculture, waste Management, land preservation
- **Urbanization and Smart Cities:** Technologies such as IoT devices, sensor networks, and Sustainable Infrastructure
- **Architecture:** Advanced software and equipment like Building Information Modeling (BIM) and 3D printers.
- **Food Processing:** Machinery for packaging, preservation, and quality control in food processing.
- **Livestock:** Equipment for livestock farming including automated feeding systems, milking machines, and health monitoring devices.

- **Oil and Gas:** Operation and maintenance of drilling equipment, pipelines, and refining machinery.
- **Pharmaceutical Manufacturing:** Operation of pharmaceutical production machinery and quality control equipment.
- **Transportation Infrastructure:** Maintenance of railway systems, traffic management systems, and smart transportation technologies.
- **HVAC (Heating, Ventilation, and Air Conditioning):** Installation and maintenance of HVAC systems in residential, commercial, and industrial buildings.
- **Telecommunications:** Installation and maintenance of telecommunications infrastructure, including fiber optic cables, cellular towers, and satellite systems.

Modalities:

COMSTECH will identify an expert based on the need assessment of the recipient. The economy class air travel of the expert will be covered by COMSTECH whereas the recipient/host institution will provide complete local hospitality including hotel accommodation, internal transport and meals.

Procedure:

1. **Need Assessment:** Recipient organizations/institutions are invited to fill out the form to share their specific needs and requirements. This process will help us understand and prioritize the needs of the recipient organization. The form can be accessed at: https://form.jotform.com/241570978355467
2. **Portal of Experts:** Experts interested in voluntary participation are invited to register through the following form: https://form.jotform.com/242322308508450
   By joining our network, experts will be matched with organizations that need their specialized skills and knowledge.
   The pool of registered experts will also be available on COMSTECH website under the COMSTECH Expert Service Program.

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