

NATIONAL ENERGY CONSERVATION  
CENTRE



**ENERCON**

**BRESL**

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COUNTRY REPORT:  
PAKISTAN

## **1. Introduction:**

The United Nations Development Program and the Government of Pakistan (through ENERCON, Ministry of Environment) entered into an Agreement in July, 2009 with a view to improve sustainable utilization and management of natural resources and environment at national and community levels. After the completion of work undertaken the expected outcome is the increased capacity of national focal points in addressing policy on removal of barriers in pursuing local sustainable management of natural resources and environment.

BRESL is aimed at rapidly accelerating the adoption and implementation of energy standards and labels (ES&L) in Asia, and in so doing bring about energy savings from the use of energy efficient appliances/equipment. The project also facilitates harmonization of test procedures, standards and labels among developing countries in Asia, when appropriate. The project is expected to cost-effectively deliver an average 10% reduction in total residential and commercial energy use in partner countries at the time of peak impact by the year 2030 compared to a baseline scenario, thereby contributing to more environmentally sustainable and economically efficient development. BRESL will facilitate the transformation of the manufacture and sale of energy-efficient appliances and equipment through:

- 1) A regional initiative in Asia, with provision for general information, tools and training to all interested developing countries in the region plus customized efforts, all with a focus on regional cooperation;
- 2) The project will focus largely on capacity building and assisting government, manufacturing, distributing, retail, consumer and environmental stakeholders throughout the Asian region to implement the most cost-effective energy efficiency measure available. In each participating country, priority activities will be carried out to help foster each country's preferred process for developing or expanding its ES&L program.

The activities under the project, namely, Barrier Removal to the Cost – effective Development and Implementation of Energy Efficiency Standards and Labeling (BRESL) are to span over a period of four years. Such activities shall be undertaken at community, national and regional levels. While ENERCON remains the implementing partner representing Government of Pakistan with UNDP and RPMU (China), other key players would be Pakistan Council of Science and Industrial Research, Pakistan Standards and Quality Control Authority, Federation of Pakistan Chambers of Commerce and Industry, Islamabad Chamber of Commerce and Industry and Network of Consumers, Pakistan. In addition to these, other institutions can play a pivotal role in achieving these objectives. Such institutions are the Engineering Development Board under Ministry of Industries and Production, Pakistan Electric Power Company under Ministry of Water and Power, Fan Development Institute and Higher Education Commission.

The BRESL Project would involve all the necessary stake holders at various levels during the life of the project wherever required. However, before the work plan and planned activities are rolled out, it is important to determine and establish current base line from where the work is to start. Achievement of mile stones through measurable performance in a given time scale can only be done once the base line is determined and established.

## **2. Institutional Formation, Policies, Operations, Roles and Responsibilities of the Key National Players:**

### **2.1. NATIONAL ENERGY CONSERVATION CENTER (ENERCON):**

National Energy Conservation Center (ENERCON) is an attached department of the Ministry of Environment, Government of Pakistan. It was established in 1987 and serves as the national focal point for energy conservation and energy efficiency activities in all sectors of the economy, including municipalities, manufacturing, agriculture, services, transport, commercial and domestic. ENERCON has a mission for cultivating a new energy culture focusing on achieving sustainable development through conservation and efficient use of energy resources. Its vision is to steer Pakistan towards an energy efficient and environment friendly tomorrow.

Pakistan's energy conservation policy supports the following initiatives to be taken at various levels during the short as well as long term:-

- i. Formulate and enact a comprehensive legislation on Energy Conservation and Management.
- ii. Development of energy conservation codes and standards.
- iii. Create Public Awareness through training, education, information dissemination and demonstration.
- iv. Participatory approaches and practices to be adopted to design and implement energy management demonstration and undertaking targeted services.
- v. Strengthening of institutional capacities and ensuring of resource availability to enable, develop and achieve sector specific targets on conservation of energy resources.
- vi. To declare energy conservation as an industry to allow fiscal and monetary incentives to be available for Energy Conservation pursuits.
- vii. Institution of National Awards for outstanding work on energy conservation.

For all the efforts towards the implementation of Energy Conservation/ Efficiency policies of the Government of Pakistan, ENERCON is to serve as the focal point. Such a focal point is needed so that efforts made by different departments of the Government remain harmonized and synchronized with each other. Coordination of efforts made, therefore, remains a major responsibility of ENERCON. Moreover, some major initiatives to achieve energy conservation and efficiency were initiated from within ENERCON. Some of them are listed below:

- i. Symposium on Energy Efficiency.
- ii. Development of Training Material for Energy Managers.
- iii. 99 reports on various aspects of energy conservation and efficiency.
- iv. Development of Building Energy Codes.
- v. Preparatory work on legislation for energy conservation.

## **2.2. Pakistan Council of Scientific and Industrial Research (PCSIR):**

The Pakistan Council of Scientific and Industrial Research (PCSIR) was established in 1953 through an Act of Parliament. The Prime objectives for setting up of PCSIR was to have research establishments in various parts of the country for undertaking scientific and industrial research for utilization of indigenous raw materials in manufacturing and to provide problem focused solutions to Pakistan's nascent industrial sector. PCSIR is recognized as an autonomous organization within the domain of Ministry of Science and Technology. The Council, headed by Chairman, leads the work of PCSIR by determining its policy. The Governing body performs the executive functions.

PCSIR has laboratory establishments in the Federal Capital and all the four provincial capitals. These are further organized as multi functional units. A wide range of science and technology disciplines are organized into quasi – independent Centers/ Divisions. Among others, environmental protection and instrumentation & electronics have their focused Centers/ Divisions. There are few mono-functional units which also include National Physical and Standard Laboratories, Solar Energy Research Center, Electrical Measurement and Test Laboratory, etc.

There is a whole plethora of roles played and activities undertaken by PCSIR. However, with reference to BRESL project a few can be taken as relevant roles and expertise. A list of such roles and expertise is as follow:

- i. Analytical and Testing services.
- ii. Quality Control Services.
- iii. ISO Certification.
- iv. Workshops, Seminars and Training Programs
- v. Pre-feasibility, Feasibility & Techno-economic studies.
- vi. Design and Development.

## **2.3. Pakistan Standards and Quality Control Authority (PSQCA):**

The Pakistan Standards and Quality Control Authority (PSQCA) was established in 1996 through an Act of Parliament. It works under the administrative control of Ministry of Science and Technology. This organization has the role and responsibility towards formulation, promulgation and enforcement of standards. The main function of the organization is to foster and promote standards and conformity thereof as a means of advancing the national economy, promoting industrial efficiency & development, ensuring the health and safety of the people, protection of consumers and furthering international cooperation in relation to standards & conformity assessment. PSQCA also provides advice to the Government of Pakistan on standardization, policies, programs and activities to promote industrial efficiency and development, as well as for consumer protection.

The PSQCA is a member of International Organization for Standardization (ISO), International Electro-technical Commission (IEC), and International Organization of Legal Metrology (OIML). With its headquarter at Karachi, the organization maintains regional

offices (in major cities?/ four provinces?). There are four main components of the organization as follow:-

- i. Standards Development Center.
- ii. Quality Control Center.
- iii. Technical Services Center.
- iv. System Certification Center.

#### **2.4. Engineering Development Board (EDB):**

The Engineering Development Board, established in 1994, is an organization established under the Ministry of Industries and Production. Its primary focus is to strengthen engineering base in Pakistan by supporting development of engineering goods and services sectors on modern lines enabling it to become technologically sound and globally integrated. It comprises various groups, as follow:

- i. Policy Development Group.
- ii. Sector Development Group.
- iii. Business Development Group.
- iv. Fiscal Incentives Group.

The Engineering Development Board has representation from Government as well as private sector. Therefore, it provides the meeting ground for government policy makers and private sector industrial manufacturers. In this manner private sector stake holders are able to give their inputs for formulation of governmental policies.

One important function of EDB with reference to BRESL Project is that the EDB has the data bank of manufacturers relating to most items of BRESL Project focus. Moreover, the private sector manufacturers have developed a considerable level of confidence in this organization.

#### **2.5. Pakistan Electric Power Company (PEPCO):**

Pakistan Electric Power Company (PEPCO) was established with the task of managing the transition of government run electricity supply structure from a bureaucratic one to a corporate, commercially viable and productive entity. Although it is an electric supply company, it becomes relevant to BRESL Project because of energy deficiency environment in Pakistan. In a stressed out situation of energy deficiency, PEPCO is already running awareness campaigns for a prudent and efficient use of electricity. They are running campaigns on all media i.e. TV, Radio, Newspapers. Because of energy deficiency in the country and their experience of media campaigns, PEPCO is considered an important stake holder.

#### **2.6. Higher Education Commission (HEC):**

The Higher Education Commission (HEC) was set up by the Government of Pakistan to facilitate the development of indigenous universities to be world class centers of education, research and development. Through facilitating this process, the HEC plays its

part in spearheading the building of a knowledge based economy in Pakistan. There are many functions the HEC performs. However, three of them are of importance with reference to the BRESL Project. These functions are as follows:

- i. Academia – industry linkages.
- ii. Research grants.
- iii. Approval of curriculum.
- iv. Accreditation of degree Programs

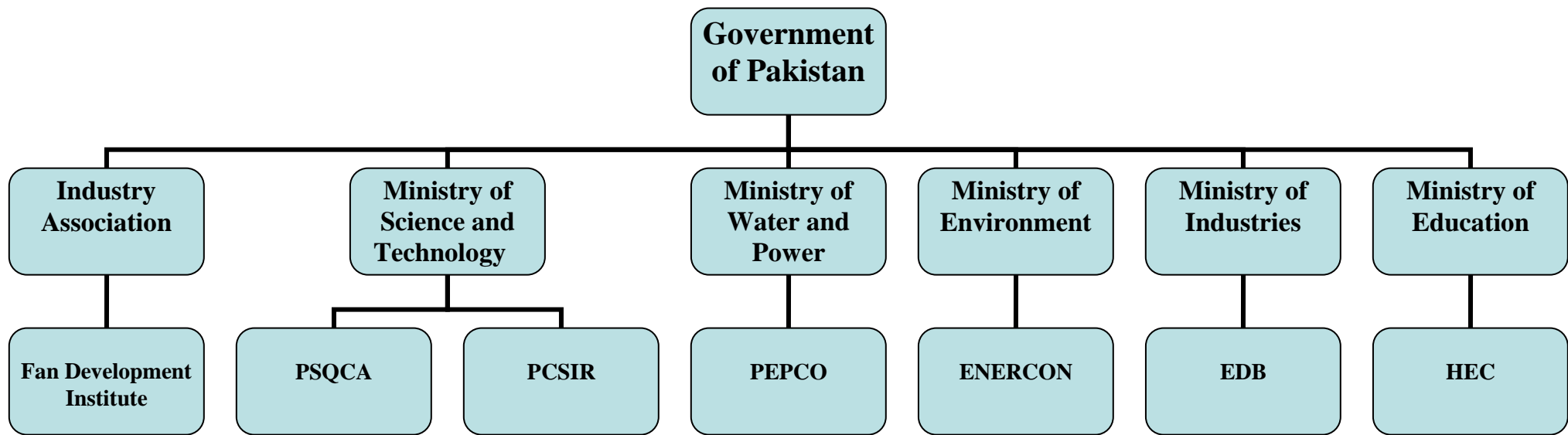
## **2.7. Fan Development Institute (FDI):**

A “Fan Development Institute” was established by the Government of Pakistan and is being run by the Fan Manufacturers Association. The institute is located in Gujrat where most of the fan manufacturers are also located. The Institute was established with the following objectives:

- i. To facilitate the fan manufacturers in testing of fans.
- ii. To provide facilities for materials testing.
- iii. To provide technical training to existing manpower and new entrants in fan industry.
- iv. To provide technical support to manufacturers in production, management, material control, management and marketing.

## **2.8. Capacity of Institutions to Support BRESL Project:**

Out of the seven institutions listed above, only ENERCON has the mandate and focus on energy conservation and efficiency. The rest of the six institutions have organizational strengths, technical expertise, needed knowledge and a general direction towards fostering activities of interest to us. These strengths can be channelized towards achieving the BRESL Project objectives. On the other hand, ENERCON, although having the mandate and focus on energy conservation and efficiency, may lack the much-needed technical expertise. Therefore, the institutional capacity of all these agencies would need to be pooled together for achieving desired results. ENERCON, shall be playing the lead role in coordinating and organizing the efforts of all these institutions within the scope of this project.



### **3. EE Challenges and Barriers:**

Pakistan needs to traverse vast grounds before reaching the point where energy conservation and efficiency are endorsed as a culture. Of course, the first step towards this aim is the adoption of Energy Standards and Labeling framework. In achieving this first milestone, the underlying challenges and barriers which have been identified so far are as follows:-

- i. A weak policy context by the Government of Pakistan, Provincial Governments and Local Governments.
- ii. Existing Laws, Regulations and Procedures that do not provide enough legal backing for enforcement of Energy Standards and Labeling requirements.
- iii. Capacity constraints for testing the energy consumption and efficiency performance of appliances.
- iv. A general lack of awareness about the importance of energy standards in the public at large.
- v. Unavailability of statistics on population of energy consuming appliances and their level of efficiency.
- vi. Low level of per capita income, thus non-affordability of comparatively expensive energy efficient appliances.
- vii. No awareness regarding “first cost versus recurring cost” concepts in the public at large.
- viii. Low level of product development and design capabilities with appliance manufacturers.
- ix. A non-supportive educational curriculum of engineering universities and institutes.
- x. Low level of awareness regarding international best practices.
- xi. Absence of monetary incentives and governmental patronage to drive the transformation.
- xii. Unregulated market and trade practices.
- xiii. Lack of co-ordination among various governmental agencies.
- xiv. Lack of human resource and technical expertise.



#### **4. Laws and Regulations:**

**The Pakistan Standards and Quality Control Authority Act, 1996** provides for the establishment of Pakistan Standards and Quality Control Authority (PSQCA). The PSQCA has defined powers and functions which among other things also include, -

- i. designing, measuring and testing instruments and test procedures;
- ii. inspection and testing of products and services for their quality, specification and characteristics, during use and for import and export purposes;
- iii. providing for the quality labeling standards which shall specify ingredients, performance, specification, usage, methods and other relevant quality control matters;
- iv. inspection and sampling of any material or product for examination as to whether any article of process in relation to which any of Authority mark has been used conforms to the Pakistan standard or a standard of any other country recognized by the Authority or whether any of the Authority mark has been improperly used in relation to any article or process with or without license or certificate;
- v. framing and publishing, amending, revising or withdrawal of the Pakistan Standards in relation to any article, product, process;
- vi. determination of Pakistan Standards for the measurement of length, weight, volume, energy and materials;

**The Pakistan Council of Scientific and Industrial Research Act, 1973** provides for the establishment of Pakistan Council of Scientific and Industrial Research (PCSIR). The functions of PCSIR as prescribed in the Act are as follow:-

- i. To set up and manage technological research institute exclusively for certain selected industries and such laboratories and centres as may be required for the promotion of the overall technological development of the country.
- ii. To coordinate and review the work of the institutes, laboratories and centres.
- iii. To manage the existing research units of the registered Council pending their absorption in the institutes, laboratories and centres to be set up by the Council.
- iv. To undertake such special scientific and technological surveys and investigations as may be referred to it by the Federal Government from time to time.

**The Government of Pakistan also intends to enact the Pakistan “Energy Conservation Act” with the following broad objectives:-**

- i. To provide legal backing to National Energy Conservation Centre.
- ii. To create a national functional focus on energy conservation activities in Pakistan.
- iii. To provide for a legal basis for prescribing energy efficiency standards and labeling requirements.
- iv. To provide for a legal basis for enforcing energy efficiency standards and labeling requirements.
- v. To provide for a platform to harmonize and synchronize various policies of the Government with energy efficiency focus.
- vi. To institute national energy conservation and management awards.

## **5. Strategies and Work Plan:-**

The strategies and work plan are to revolve around the basic document of BRESL Project. Such strategies and work plan would not be limited to but would include the following:-

### **i. Establishing the Base Line:**

- a) An assessment of the existing policy context and gap analysis.
- b) An assessment of the existing legal framework and gap analysis.
- c) Review of international best practices.
- d) An assessment of available appliances in the market and determining their comparative efficiency levels.
- e) An assessment of the awareness regarding ES & L issues and its importance among policy makers, government stake holders, private sector stake holders and general public with awareness need analysis.
- f) An assessment of the institutions including laboratory and testing set ups designated to deal with BRESL Project and capacity gap analysis.
- g) An assessment of manufacturers, traders and dealers to estimate their level of expertise and awareness with their need analysis.
- h) An assessment of select manufacturing facilities' equipment and processes to gauge their capacity for product and process revisions.

### **ii. Consultation, Strategizing and Planning:**

Once the base line is established, extensive consultation, strategizing and planning would be undertaken in order to achieve the final objective of adopting and enforcing energy efficiency standards and labeling requirements. This would include the following:-

- a) Defining challenges and barriers to be confronted for achieving ES & L.
- b) Consultation with other BRESL Countries.
- c) Consultation with national stake holders.
- d) Comparison with international best practices.
- e) Developing a strategy for implementation in consultation with all stake holders by creating a situation of "winning position for all concerned".

### **iii. Strengthening of the Policy Context for Energy Conservation:**

The Government of Pakistan shall clearly define its position viz a viz energy efficiency standards and labeling requirements. This can be done through a policy announcement at the highest level. This shall

involve enactment of new laws (e.g. Energy Conservation Act) as well as through modification of existing laws (e.g. Pakistan Standards and Quality Control Act). These laws must clearly state the intent of the Government of Pakistan that energy efficiency standards and labeling requirements would be laid down to be followed.

**iv. Strengthening of Institutions:**

All relevant institutions would be strengthened on the basis of needs and gaps so that they become capable of designing, adopting, testing and enforcing the ES & L requirements. Some of the areas where strengthening would be needed are as follows:

- a) Legal relevance
- b) Human resource.
- c) Availability of equipment.
- d) Geographical dispersion.
- e) Data collection.

**v. Manufacturer Support Program:**

The products compliant with energy efficiency standards and labeling requirements can not be made available unless manufacturers are assisted to produce such products. Therefore, assistance to manufacturers of designated BRESL products is of high importance. A properly designed manufacturer support program would be implemented, which among other things would include the following:-

- a) Educational workshops for manufacturers and retailers on impacts of standards, ways to work with standards to increase profitability, etc.
- b) Technical assistance to manufacturers with reference to design changes and technology up gradation.
- c) Assistance in developing viable business plans and establishing linkages with financial institutions to implement EE product manufacturing capacity development.
- d) Fiscal incentives to make ES&L compliant products more cost competitive than non-compliant ones.

**vi. Change in Curriculum for Engineering Students:**

The Engineering Graduates are expected to provide the foundation for taking the work of energy efficiency beyond the life of the current BRESL Project. It is, therefore, important that all Engineering Universities and Institutes include Energy Efficiency and Labeling as part of the permanent curriculum to be taught to the students. Higher Education Commission can steer such a process for lasting impact as part of the BRESL Project in Pakistan.

**vii. Regional Co-operation:**

BRESL is a regional project with six countries cooperating with each other to achieve the goal of energy efficiency standards and labeling. A few countries, more notably China, have already taken a lead in this direction. Sharing of experiences and the lessons learnt would synergize the ES & L adoption process in all the participating countries. Regional cooperation program would include but not limited to the following:-

- a) Project web-site.
- b) Lessons learnt reports.
- c) Harmonization of energy efficiency standards and labeling requirements.
- d) Participation in regional training workshops.
- e) A follow up plan on completion of the BRESL Project.
- f) Preparation and implementation of a plan of regional activities and co-ordination with other UNDP/ GEF programs on the subject.

## **6. BRESL in Pakistan:**

The Government of Pakistan and United Nations Development Program agreed in June, 2009 to launch the BRESL Project in Pakistan with in the framework of Regional Project Management unit lead by China. BRESL is aimed at rapidly accelerating the adoption and implementation of energy standards and labels in Asia, and in so doing bring about energy savings from the use of energy efficient appliances and equipment. The project is also to facilitate manufacturers of such appliances and equipment. Further, the project is to facilitate harmonization of test procedures, standards and labels among developing countries in Asia.

As an active partner in Project involving a number of developing countries of Asia, Pakistan has already started its work on the BRESL Project. The activities undertaken are as follow:

- i. A Project Country Team was constituted wherein representation of main stake holders was ensured. The Project Steering Committee consists of, -
  - a) Mr. Faridullah Khan, Managing Director (ENERCON) as Chairman of the Committee.
  - b) Mr. Noman Rafiq (ENERCON), National Project Coordinator
  - c) Mr. K. M. Zubair, Chief (ENERCON)
  - d) Mr. Abdul Qadir Rafiq, Program Specialist, UNDP
  - e) Engineer Qadir Hilal, Principal Engineer, PCSIR
  - f) Engineer Irfan Ahmad Rabbani, Principal Engineer, PCSIR
  - g) Engineer Tafseer A Khan, Director, PSQCA
  - h) Mr. Waqar Ahmed, Executive Coordinator, The Network for Consumers Protection.

The first meeting of the Country Team was held on 20<sup>th</sup> May, 2009 wherein operational modalities were discussed and decisions taken. The second meeting was held on 29<sup>th</sup> September, 2009 wherein in Coordinator RPMU BRESL Project from China also attended. During this meeting some necessary lessons were learnt out of Chinese experience.

- ii. A project Core Team was established consisting of the following:-
  - a) MD (ENERCON) / National Project Director
  - b) National Project Coordinator
  - c) National Expert
  - d) Project Expert
  - e) Three Research Officers
  - f) Administration and Finance Officer

- iii. The office of the Core Team has been set up with in the existing facilities available with ENERCON.
- iv. ENERCON is providing the operational support, human resource and other facilities to work on BRESL project on behalf of Government of Pakistan.
- v. The operations of the Core Team are supported by UNDP Country Office in Pakistan through advisory and funding support. In this regard the guidelines enumerated in UNDP Pakistan Project Cycle Operations Manual are followed.
- vi. The activities of the Core Team are supervised and controlled by Country Team.
- vii. The Core Team has started its work on the following:-
  - a) Stake holder consultations including meetings with Govt. institutions, manufacturers, traders, civil society, etc.
  - b) Review of existing legislative regime with respect to ES& L requirements.
  - c) Review of international best practices.
  - d) Market studies to determine base line.
  - e) Review and gap analysis of existing testing facilities and institutions.
  - f) Data base development.