



# **ENVIRONMENTAL OBLIGATIONS REGULATORY FRAMEWORK**

Strategy & Development Division

PTA, Headquarters F-5/1,

Islamabad.

# Table of Contents

Content	Page number
1. Executive Summary	03
2. Introduction	05
3. Scale & Scope	07
4. Global Scenario	08
5. Pakistan Scenario	11
6. Telecom Policy 2015 for Environmental Regulatory Framework	13
7. Industry Consultation	14
8. Industry Response	15
9. Interaction with Environment Protection Agencies	28
10. Concerns/Issues	33
11. Environmental Regulatory Framework	35

# 1. Executive Summary

**1.1** The Kyoto Protocol is an international treaty to reduce greenhouse gas emissions, known to be causing global warming. The Kyoto Protocol was adopted by UN member countries in Kyoto, Japan, on December 11, 1997 and entered into force on February 16, 2005. The main goal of the Kyoto Protocol is to control greenhouse gases (GHGs).

**1.2** Pakistan is signatory of the Kyoto Protocol; thereby steps are required to be taken to limit emissions that contribute to global warming.

**1.3** Pakistan Environmental Protection Agency (Pak-EPA) was established under section (5) of Pakistan Environmental Protection Act,(PEPA) 1997. The basic functions of Pak-EPA are to enforce the PEPA-1997 Act, rules & regulations, carry out Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE). Pak-EPA is mandated to prepare or revise, and establish the National Environmental Quality Standards (NEQS) with approval of Pakistan Environmental Protection Council (PEPC); take measures to promote research and the development of science and technology which may contribute to the prevention of pollution, protection of the environment, and sustainable development and guidance to the public on environmental protection affairs.

**1.4** Amendment XVIII (the Eighteenth Amendment) of the Constitution of Pakistan, was passed by the National Assembly of Pakistan on April 8, 2010. The 18th Amendment, among other changes, mandates the provincial governments' greater autonomy under the constitution by abolishing the concurrent list and other related provisions. As such Federal Government assumes the responsibility of few important subjects while the Provincial Governments carry out functions and duties of more subjects. The Environment and ecology is one of the subjects under the control of provincial governments; thereby provinces of Pakistan have independent Environmental Protection Agencies/Departments; The Punjab Environment Protection Agency (EPA) , Environmental Protection Agency - Khyber Pakhtunkhwa, Sindh Environmental Protection Agency, Balochistan Environmental Protection Agency, and Pakistan Environmental Protection Agency (Pak-EPA) is restricted to Islamabad Capital Territory only.

**1.5** The Ministry of Environment is renamed as the Ministry of Climate Change in the Federal Capital, Islamabad.

**1.6** Federal Government Policy directive of Telecommunication Policy (TP 2015), Clause 9.7 of TP 2015 defines the scale and scope of environmental obligations on the Telecommunication Industry, phrasing that “The PTA will put in place an environmental regulatory framework for the sector consistent with the relevant laws, policies and regulations in consultation with stakeholders including licensees and those agencies responsible for the environment at the Federal and Provincial level. To this end, PTA will establish, within the environmental regulatory framework, a monitoring mechanism and monitor the performance of licensees in the following areas:

- a. Use of renewable sources of energy
- b. CO<sub>2</sub> emissions arising from their business activities
- c. Other forms of air pollution such as the use of diesel and other methods of electrical power generation arising from their business activities
- d. Management and documentation of the recycling and disposal of electronic waste, hazardous chemicals and other hazardous materials
- e. Preservation and restoration of the environment after civil works.

**1.7** Furthermore, the policy places a requirement of monitoring of environmental obligations by the PTA, the requirement of publishing the environmental performance of licensees it monitors against the defined targets on its website and through other channels, as appropriate. Licensees that do not meet defined targets will be reported to the authorities responsible for the environment. The PTA will publish awards for those organizations that meet a clearly specified environmental standard”. “The PTA will monitor the environmental impact of licensees and the authority to define standards for the sector and issue orders to licensees and take other action on contravention of such standards”.

**1.8** In conformation with the policy directives, consultation with all stake holders, for implementation of viable solutions to environmental obligations was carried out by S&D

Division, PTA. Response of the stakeholders was thoroughly analyzed. Officers of the S &D Division, visited monitoring facilities of Pak-EPA Islamabad and discussed in detail all related issues. Based on the policy directives by federal government, outcome of stake holder's response and visit of Pak-EPA Islamabad, Environmental Regulatory Framework has been prepared for consumption of Telecom Industry.

## **2. Introduction**

**2.1** The operations of the telecommunication industry is complex dynamic process, we have witnessed that the group of developed countries engaged in development, research, manufacturing, production of telecommunications infrastructure have to take stringent measures to minimize the environmental impact of the telecommunications and adoption of measures for management of hazardous waste to meet the standards of emissions set forth by International organizations and agencies, particularly the Kyoto Protocol Signatory Countries. The developing and less developed countries have been traditionally focused on utilizing the benefits of advanced and modern telecommunications and associated sectors as services sector industry; however these Countries have to prepare and engage in Environmental Protection and place legal framework, policies, implementation and monitoring of Climate Change Phenomenon through various instruments.

**2.2** Telecommunications of today is the need of a common man and connecting the World is a wonderful plan to educate population, socializing, business, and other benefits for the countries and societies. The human race is becoming sophisticated and cultured through the efficient use of telecommunications and associated sectors.

**2.3** Countries having large scale population are installing telecommunications infrastructure at a faster rate and are natural attraction for vendors, manufacturers, suppliers, operators, distributors, advisors and consultants. Our aim and objective is to reap the benefits of telecommunications and associated sector with minimal environmental hazards by curtailing pollution to protect the global environment. Pakistan is signatory to Kyoto Protocol and member of Climate Change International Organizations as well as other

Technical Bodies engaged in environmental issues in Telecommunications Operations, therefore, concrete steps have to be taken by all stake holders to adopt environmental obligations.

**2.4** Countries of the World have implemented environmental obligations based on individual legislation, status of the Industries, the role of telecommunications taking into account operational requirements and associated factors.

**2.5** Pakistan Telecommunication Industry has to play a proactive role in this extremely important segment in the whole sphere of modern societies, cultures, countries, regions and the World for safety of our future generations.

**2.6** Pakistan Telecommunication Authority prepared a Consultation Document for consultation of all stake holders on Environmental Obligations of Telecommunication Industry in Pakistan to safe guard our environment without disturbing the operational business of telecommunications and associated sectors engaged in various important activities.

**2.7** The response to the above mentioned document was very encouraging and with tangible suggestions from most of the industry players. Response of the stakeholders was thoroughly analyzed by PTA.

**2.8** The officers of the S &D Division, PTA visited monitoring facilities of Pak-EPA Islamabad and discussed in detail all related issues.

**2.9** Based on the policy directives by federal government, outcome of stakeholder's response and visit of Pak-EPA Islamabad, Environmental Regulatory Framework has been prepared for consumption of Telecom Industry.

### 3. Scale and Scope

**3.1** The scale and scope of this Framework is to the extent of the Federal Government Policy directive of Telecommunication Policy (TP 2015), Clause 9.7 of TP 2015 defines the scale and scope of environmental obligations on the Industry, phrasing that “The PTA will put in place an environmental regulatory framework for the sector consistent with the relevant laws, policies and regulations in consultation with stakeholders including licensees and those agencies responsible for the environment at the Federal and Provincial level. To this end, PTA will establish, within the environmental regulatory framework, a monitoring mechanism and monitor the performance of licensees in the following areas:

- 3.1.1 Use of renewable sources of energy.
- 3.1.2 CO<sub>2</sub> emissions arising from their business activities.
- 3.1.3 Other forms of air pollution such as the use of diesel and other methods of electrical power generation arising from their business activities.
- 3.1.4 Management and documentation of the recycling and disposal of electronic waste, hazardous chemicals and other hazardous materials.
- 3.1.5 Preservation and restoration of the environment after civil works.

**3.2** Furthermore, the policy places a monitoring of environmental obligations by the PTA, the requirement of publishing the environmental performance of licensees it monitors against the defined targets on its website and through other channels, as appropriate. Licensees that do not meet defined targets will be reported to the authorities responsible for the environment. The PTA will publish awards for those organizations that meet a clearly specified environmental standard”.

**3.3** “The PTA will monitor the environmental impact of licensees and the authority to define standards for the sector and issue orders to licensees and take other action on contravention of such standards”.

## 4. Global Scenario

**4.1** The Telecommunications and ICT and associated Industry in the World have grown over the past forty years. This transformation is the result of intensive research and development, production of equipment on larger scales, interest of suppliers and vendors of state of the art technology, global liberalization and deregulation, Public and Private sector motivation, higher demand of modern services, advancement in software and flexibility of services, growth in data demand and reliance of fully enabled services seamlessly delivered to the user, encouraging role of International, regional and national organizations, higher standard planning by all stake holders, financial assistance and high levels of investment by the operators in all segments of related industries. Furthermore many important components are integrated in a manner to create a gigantic thrust that is driving the elaborate telecommunications, ICT and associated industries and sectors. In fact all the players embracing these industries have benefitted in many ways, the life styles are changed and telecommunications, ICT and allied industries are acting as catalyst of phenomenal growth.

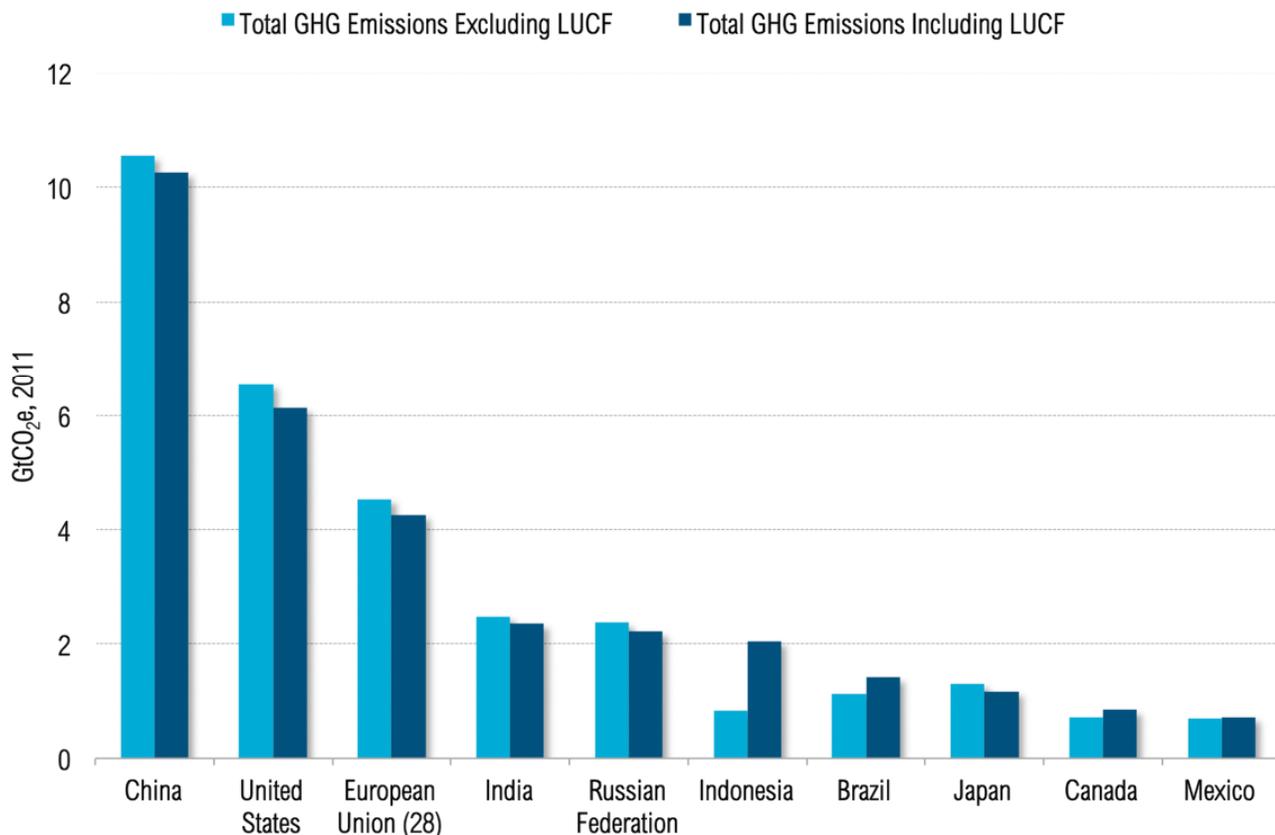
**4.2** These landmark achievements have associated costs and burdens, the global telecommunications, ICT and assistive industry has though contributed in many positive ways and means, howsoever, the environmental stress in form of global pollution cannot be neglected and Administrations of the World need measures to reduce environmental hazards and pollution of the atmosphere. International organizations engaged in environmental management and Climate Change effects are stressing the need to reduce Green House Gases (GHG), currently at a level of approximately 43 Gt and increasing at an alarming rate of 2.2% to 2.5%. The telecommunications, ICT and associated industry share is 8.6 Gt of GHG with an average growth rate of 2% of the total Green House Gases (GHG) and this trend will grow to 3% by the year 2020.

**4.3** The reason for increased GHG, mainly Carbon Dioxide (CO<sub>2</sub>), is because of the increased energy consumption which results in emission of pollutants. Natural calamities like typhoons, floods and changes in the sea levels are attributed to the CO<sub>2</sub> fuelled greenhouse effect.

**4.4** This is estimated that during the last 30 years the CO<sub>2</sub> emissions have gone up by approximately more than 80%. The International Energy Agency (IEA) lists the fossil fuel emissions as 32.2 Gt in 2014. The total global emissions of 42.826 Gt, an annual increase of more than 2.2% have been recorded by the IEA. Thus by the year 2020 the pollution levels In 2016 the estimated level of combined pollution has risen to 45 Gt, and expected to reach 49.3 Gt or a higher figure by the year 2020.

**4.5** There are top 10 high productivity Countries, China generates approximately 28.8% followed by the United States 16%, EU, India, Brazil, Indonesia, Japan, Canada, Mexico as given in the graph below:

### Top 10 Emitters



<http://bit.ly/11SMpjA>

 WORLD RESOURCES INSTITUTE

**4.6** This group of Countries has approximately more than 72% of GHG share of the total Global GHG figure of 43 Gt, pronounced emissions of 30.96 Gt.

**4.7** The Kyoto Protocol and International agreements are aimed at reducing GHG and pollutants from Earth atmosphere. United States is not a signatory of the Kyoto Protocol, more than 190 Countries are Signatory of this Environmental Protocol.

**4.8** Many Organizations are engaged in studies and research for finding ways to reduce GHG and other pollutants. The ambient temperature rise in the World and phenomenal changes in Climate is required to be methodically studied and systematic scientific methods to be utilized for saving the Climate and the Environment of the Earth.

**4.9** Since this document is limited to telecommunication, ICT and associated industry therefore relevant examples of Countries have been taken to first of all understand the dynamics of pollution caused by telecommunications and allied industry and suggesting for employing methods, ways and means for reduction in GHG and pollutants in phased manner.

**4.10** Extensive research has been made while preparing this document, the following references are helpful in understanding the scale, scope and remedies to problems associated with environment pollutants inclusive of GHG. Since the subject is of extensive and elaborate nature, the approach of OFCOM UK has been studied, primarily covering the telecommunications, ICT, Broadcasting & Media.

**4.11** The approach of developed countries to curtail GHG and pollutants seem to have similarities and massive industrialization and urbanization are key factors, systematic methods are being employed to save the environment and associated climate change effects. The environmentalists are intensively engaged in research studies using various techniques and methods; the broader study of various documents indicate that telecommunications, ICT, Broadcasting and Media assessments are of lesser importance compared to other large scale sectors of the economy of developed countries. Nonetheless environmental organizations keep monitoring and assessing all segments of telecommunications, ICT and Broadcasting sector to maintain an appropriate ratio of GHG and pollutants emissions.

**4.12** The International Energy Agency exercises the functions and gauges the GHG emissions by publishing enormous data of economies of the World. Adoption of solutions is the responsibility of environment management & monitoring organizations of

Administrations in accordance with the standards of Science and technology organizations of the Public Sector. The relevant details on Global GHG emissions and Country-wise data may be viewed at <https://iea.org>.

## 5. Pakistan Scenario

**5.1** The total emissions of Pakistan are approximately 0.7% of the Global total and this figure has to be considered high, taking into account the fact Pakistan is a developing Country and the industrial sector is still being nurtured at a slow pace in comparison to the advanced and developed Countries of the World. The economy is primarily services sector driven, with lesser shares of the industrial and agricultural sectors.

**5.2** Robust, dynamic and consistent policy frameworks consistent with relevant Acts and ordinances are required with for assessment of technologies for drawing a timeline to stay at par with International Community in all segments of the Telecommunications, ICT, Broadcasting & Media sectors. Concerted efforts are required for making the Industry efficient to the extent possible. This will create an environment for proper working by Pakistani Public and Private sector organizations, within the internationally acceptable levels of pollutants and GHG limits and reduction schematics.

**5.3** Pakistan Telecommunication Authority is entrusted the task of supervision of the telecommunications industry under the Act and policy directives of the Federal Government consistent with the Telecommunication Act 1996.

**5.4** Considering one segment of the industry, Cellular Mobile Operators have installed approximately 35,000 towers and these are spread across the Country. The tier 1 Cities (population of more than 1 M) are prime activity centers and source of revenue for the telecommunications, ICT and allied Industry. Tier 2 (population 100,000 – 1,000, 000) and tier 3 (population 5000 – 100,000) are good activity centers as well but have huge problems with electricity from the transmission systems and grid station power. Diesel Generators

are required for electricity supply in almost all the segments of the telecommunications market. Encouragement is required to shift to alternate energy in phased manner and through consultation with industry.

**5.5** Pakistan has a shortage of more than 14000 MW of Electricity. This process of generation and supply of electricity may take inordinate time due to various difficulties of the Water & Power Sector of Pakistan. The Cellular Mobile operators have to make arrangements for power outages which require use of generators, the concerned environment control organizations at the provincial and federal level may prepare policy, plans and implementation mechanism.

**5.6** PTA as Regulator of telecommunications sector is required to assist the environmental management & control organizations by providing necessary data of the licensed operators.

**5.7** The operators are obliged to take necessary steps for reduction of GHG, pollutants, waste and measures adopted by many developing countries in the World. The electricity shortage and long durations of outages remain a problem particularly in rural areas, although Urban jurisdictions are also very much affected in Pakistan.

**5.8** The alternate power for telecommunications infrastructure is an issue which has to be dealt in systematic manner by using sources of energy such as solar power, and other practical solutions.

**5.9** The expectations are that alternate arrangements replacing diesel generators will be employed by the Industry as and when such sources are available to reduce GHG emissions in telecommunications & ICT.

**5.10** The monitoring of installed generators will be the responsibility of Environment & Climate Change organizations at the provincial and federal level and active data of

telecommunications operators will compiled by the PTA and made available on the website as a requirement of the Telecommunication Policy 2015.

**5.11** The Industry is well developed, the Cellular Mobile, LDI, WLL, LL and CVAS licensee are providing satisfactory services and we feel that practical and cost effective methods will be utilized to deal with issues of importance and finding ways for reliable power for the telecommunications and ICT equipment for provisioning of quality services to users and customers in maximum Cities, Towns, Villages and remote locations in Pakistan.

**5.12** The radio emissions standards or safety limits of Specific Absorption Rate (SAR) are being followed in the World. Majority of the Countries have adopted International Commission for non-ionizing Radiation Protection (ICNIRP) limits and standards. Federal Communications Commission (FCC) in United States has lower limits than the recommended limits of ICNIRP. India is a peculiar case example and limits are set at 1/10<sup>th</sup> of ICNIRP limits.

**5.13** The above issue will apply on all telecommunications equipment, gadgets and tools, inclusive of the hand held devices, particularly cellular mobile phones. Pakistan is following the safety recommendations/limits of ICNIRP.

## **6. Telecom Policy 2015 for Environmental Regulatory Framework**

**6.1** Section 9.7 of the Telecom Policy 2015 deals with the subject of Spectrum trading. Following sections of the policy are re-produced for clear understanding of the subject.

### **9.7 Environmental obligations**

9.7.1 The PTA will put in place an environmental regulatory framework for the sector consistent with the relevant laws, policies and regulations in consultation with

stakeholders including licensees and those agencies responsible for the environment at the Federal and Provincial level.

9.7.2 To this end, PTA will establish, within the environmental regulatory framework, a monitoring mechanism and monitor the performance of licensees in the following areas:

- a) Use of renewable sources of energy
- b) CO<sub>2</sub> emissions arising from their business activities
- c) Other forms of air pollution such as the use of diesel and other methods of electrical power generation arising from their business activities
- d) Management and documentation of the recycling and disposal of electronic waste, hazardous chemicals and other hazardous materials
- e) Preservation and restoration of the environment after civil works.

9.7.3 PTA will publish the environmental performance of licensees it monitors against the defined targets on its website and through other channels, as appropriate. Licensees that do not meet defined targets will be reported to the authorities responsible for the environment. The PTA will publish awards for those organizations that meet a clearly specified environmental standard.

9.7.4 PTA will monitor the environmental impact of licensees and the authority to define standards for the sector and issue orders to licensees and take other action on contravention of such standards.

## **7. Industry Consultation**

7.1 In conformation with the policy directives, consultation with all stake holders, for implementation of viable solutions to environmental obligations was carried out by S&D Division, PTA. Following questions were asked from the operators.

1. What steps should be taken to reduce the telecommunications GHG and pollutants?
2. Who should monitor and supervise the emissions?
3. What mechanism should be adopted to share this data with the stake holders before placing on the PTA website?
4. What is the average duration of electricity outage in urban areas and are back up arrangements deployed by your Company/Group?
5. The rural areas experience longer electricity outages, what type of solutions have been installed by your Company/Group?
6. What sort of long term policy should be adopted to deal with this issue and in your best opinion what role should be played by GoP/PTA?
7. Do you agree that green energy will be available in Pakistan and what is the anticipated time frame, 5 years or longer?
8. What steps are necessary to expedite availability of green energy for use by telecommunications, ICT, Media & Broadcasting sectors?
9. Do you agree that infrastructure sharing in telecommunications will have positive impact?
10. What is your opinion on dealing with waste management?
11. What planning is being done by your Company/Group for evolving a sustainable mechanism for reduction in GHG and environmental pollutants? Elaborate on steps taken or to be taken to deal with this issue?
12. What steps, short term and long term, should be taken for management and documentation of the recycling and disposal of electronic waste, hazardous chemicals and other hazardous materials
13. How do you plan for preservation and restoration of the environment after civil works.

## **8. Industry Response**

**8.1** In response to the above questionnaire, PTA received mixed reactions from the operators. **Ufone** and **PTCL** were of the view that the subject is being dealt by separate and independent agencies at federal as well as provincial level. These agencies have their

own setups for monitoring the quality of standards with regard to environmental protection as per relevant laws, rules and regulations. The operation of telecom operators is also under security of the environment protection agencies. Any non-compliances or observance of degraded standards is duly identified and addressed as per prevailing legal framework. The operators are bound to get NOCs and to meet other documentation requirements of these agencies while laying out telecom infrastructure.

**8.2** Keeping in view foregoing, Ufone and PTCL believe that any regulations/obligation consequent to current consultation would be redundant in nature and will not bring additional benefits for the cause of environment protection. This will add to miseries of telecom operators as they are already dealing with five such agencies relevant to environment protection. PTCL and Ufone recommended that enforcement of environment protection obligations should solely be the domain of Environment Protection Agencies, already working under Environmental Protection Act 1997. Hence the situation does not warrant for additional statutory instrument specifically for telecom sector, in this regard.

**8.3 Telenor Pakistan (TP)** replied that TP is committed to be an Environmentally Green company. Therefore, Telenor has implemented an integrated Health, Safety, Security and Environment (HSSE) in accordance with ISO 14001 for Environment and OHSAS 18001 for Occupational Health and Safety. Recently, TP has upgraded its Environment Management System (EMS) in accordance with the latest version i-e ISO 14001:2015. Telenor will also be proceeding for third party certification of EMS and will become only a few companies with such certification, in Pakistan. TP is devoted towards Environment Obligations and appreciates the initiative of consultation for "Implementation of Viable Solutions to Environment Obligations" taken by Pakistan Telecommunication Authority (PTA), in light of National Telecom Policy (NTP) 2015.

**8.4 JAZZ** replied that Environment protection is jurisdiction of EPA, therefore, any such consultation should include all stakeholders. Power generators are major source of CO2 emission that are used to energize the equipment whereas power is not a core

business of Telecom Operators in Pakistan, however, due to lack of availability of electricity round the clock, Telecom Operators were forced to invest the CAPEX & OPEX for power generation. Therefore, it is recommended that investor friendly policies be made so that power is available to industry for healthy growth of Telecom sector and to avoid CO2 emission to the environment.

**8.5** **CMPak (Zong)** was of the view that PTA should remove the restriction of deploying transformers on each site, as now the Power consumption of the new equipment does not require huge electricity intake from the grid. Import taxes on greener Telco equipment including generators should be reduced to encourage imports of environment friendly equipment, government needs to be serious in reduction of carbon foot print and give subsidy or tax free imports on this equipment. As far as monitoring is concerned, Zong considers that the competent authority which have the means and capability to monitor the environment, but it should not create any new cumbersome process that hinders rapid site deployments. Any new addition in current process will increase both time and risk of further exploitation of policy and procedure loopholes in the process, thus increasing the costs of operators.

**8.6** Generally, there was a consensus on the response to the questionnaire. Operators' responses to the questionnaire are detailed below:

Sr. No.	PTCL and Ufone Comments/Suggestion
1.	<p>24x 7 Availability reliable Grid power at affordable prices</p> <p>Ensure Fuel quality, especially Diesel fuel, as per latest Euro standards</p> <p>Provide incentives for adoption of alternate energy sources.</p> <p>Provide incentives for adoption of Environmental measures, such as Tax credits etc.</p>
2.	<p>Approval and availability of steps and incentives mentioned under 5.1 above are prerequisite to move forward; monitoring and supervising emissions should be taken up accordingly.</p>

	<p>Environmental Protection Agency through mutually agreed processes after establishing baseline emissions and setting agreed targets.</p>
3.	<p>Formats and frequency of the data collection should be determined after industry consultation.</p> <p>After collection of data; the report should be shared with the concerned operators individually followed by one-to-one meeting and provision of time for response.</p> <p>Data collection should be done by an independent body/auditor after baselining &amp; benchmarking the existing environmental metrics of the industry. Mechanism of sharing can be mutually agreed.</p>
4.	<p>6 to 8 hours in Urban areas on average.</p> <p>Effective backup arrangements are in place to deal with these outages.</p>
5.	<p>Generators, Enhanced Battery Backups, Solar</p>
6.	<p>Already the role of Environment Protection is assigned to Provincial Governments and they are effectively managing the requirements; however, there is need of following steps/incentives to enhance efficiency in telecom sector:</p> <p>24x 7 Grid availability at affordable prices.</p> <p>Fuel quality, especially Diesel fuel, as per latest Euro standards</p> <p>Provide incentives for adoption of alternate energy sources, especially through USF model, where operators should be allowed to deduct the expenses on solar power from the USF contribution at source on mutually agreed conversion plan.</p> <p>Provide incentives for adoption of Environmental measures, such as Tax credits etc.</p> <p>PTA should strike a balance between the interests of all stakeholders, especially the Telecom Industry instead of monitoring as envisioned in the draft paper.</p>
7.	<p>Yes, it may take more than 5 years.</p>

8.	<p>Quality of energy sources as per international standards</p> <p>Provide incentives for adoption of alternate energy sources.</p> <p>Provide incentives for adoption of Environmental measures, such as Tax credits etc.</p>
9.	<p>Yes, in principle, infrastructure sharing in telecommunications will have positive impact.</p>
10.	<p>Please elaborate the requirements in the context telecom sector. In general, Government should incentivize proper waste management, especially recycling of equipment and material wherever possible.</p>
11.	<p>Periodic modernization and sharing of network infrastructure to reduce energy consumption and carbon footprint; however, introduction of incentives or availability of resources through inclusion of it in USF model will encourage operators.</p> <p>Introduction of alternate energy sources, e.g. Solar, in feasible areas (more than 300 sites).</p> <p>Deployment of Energy Management / Conservation battery backup solutions to reduce Generator operation.</p>
12.	<p>Please elaborate the requirements in the context telecom sector.</p> <p>Existing Government regulations / procedures ensure that electronic equipment results in minimal hazardous waste.</p> <p>Government, through EPA, should set up a feasible electronic waste management system for collection and disposal of whatever negligible waste material that is produced.</p>
13.	<p>Site area is cleaned after construction by disposing off left over construction material to a suitable location.</p> <p>Adequate drainage is provided at sites to avoid accumulation of water.</p>

Sr. No.	Telenor Comments/Suggestion
1.	<p>Emission is CO<sub>2</sub> which is produced by the Diesel Generation sets (Gensets), used to Power up Base Transceiver Station (BTS) sites in case of main grid outages. To reduce CO<sub>2</sub> emissions Telecom Industry should take below measures: -</p> <ul style="list-style-type: none"> <li>• Green electricity e.g. solar/ solar hybrid solutions.</li> <li>• Enhance battery backup to minimize use of diesel consumption for power generation, as CO<sub>2</sub> emission factor of diesel is higher.</li> <li>• Infrastructure sharing.</li> <li>• Use Climate-friendly alternatives to Hydro-Fluoro-Carbons (HFCs) and Hydro- Chloro-Fluoro-Carbons (HCFCs) in air conditioning. Climate friendly, energy efficient and safe alternates are available.</li> <li>• Maintenance of machines as per manufacturer guidelines.</li> <li>• Preventive measures to avoid leakages, spills.</li> </ul>

Sr. No.	Telenor Comments/Suggestion
1.	<p>In telecommunication sector the main source of Green House emission is CO<sub>2</sub> which is produced by the Diesel Generation sets (Gensets), used to Power up Base Transceiver Station (BTS) sites in case of main grid outages. To reduce CO<sub>2</sub> emissions Telecom Industry should take below measures:</p> <p>Green electricity e.g. solar/ solar hybrid solutions.</p> <p>Enhance battery backup to minimize use of diesel consumption for power generation, as CO<sub>2</sub> emission factor of diesel is higher.</p> <p>Infrastructure sharing.</p> <p>Use Climate-friendly alternatives to Hydro-Fluoro-Carbons (HFCs) and Hydro- Chloro-Fluoro-Carbons (HCFCs) in air conditioning. Climate friendly, energy efficient and safe alternates are available.</p>

	<p>Maintenance of machines as per manufacturer guidelines.</p> <p>Preventive measures to avoid leakages, spills.</p>
2.	<p>The carbon and other emissions should be monitored internally by all telecom operators and respective groups, and it may be provided to the Authority on annual basis as per the format agreed mutually. In addition, Environmental Protection Authority (EPA) may generate Annual reports.</p>
3.	<p>Data provided by the telecom operators to PTA. After review, PTA will share the consolidated data with all the stakeholders. After the acknowledgement the data may be uploaded on the website.</p>
4.	<p>The load shedding is 6-8 hours (avg), in urban areas. Telenor is deploying 10 hours of storage backup at each site, while Gensets are installed for load shedding exceeding 10 hours.</p>
5.	<p>On average, there is 10-16 hours load shedding in rural areas. Telenor Pakistan is deploying high capacity and fast charging storage solutions. In addition, Telenor is deploying Renewable Energy Solar solutions at extreme remote locations to avoid excessive fuel consumption and CO2 emissions.</p>
6.	<p>Solar solutions are planned by Telenor Pakistan for 20 years with different capacities depending upon site load and grid outages trend.</p> <p>PTA may use its governmental influence to increase pressure for load shedding reduction.</p> <p>PTA may encourage Carbon credit concept for Network operators which would help in carbon emission reduction.</p> <p>PTA may introduce custom duty waivers on renewable energy products which would encourage deployment of green energy solutions in Telecom networks across Pakistan.</p>
7.	<p>It may take longer than five (05) years, to raise the green electricity share considerably. Presently, major portion of under construction power projects is of coal fired power plants. It also depends on the priorities set by Government of Pakistan, for green energy, which includes but not limited to:</p> <p>Hydro power projects.</p>

	<p>Solar Parks.</p> <p>Wind energy solutions</p>
8.	<p>Primary step, the Government of Pakistan should deploy of the above-mentioned Green Energy projects. Secondly, to promote Green Energy production by the mentioned sectors the renewable energy solutions shall be incentivized by: -</p> <p>Government shall introduce custom duty waivers on renewable energy products which would encourage deployment of green energy solutions in Telecom networks across Pakistan.</p> <p>The government should work on average price reduction of solar modules.</p> <p>The funding should be introduced to supports solar incentives.</p>
9.	<p>Yes, from climate and environment perspective, when an operator is sharing the power and infrastructure of another operator, instead of building a new site and additional power sources, the existing infrastructure and power source utilizes, which results in lesser CO2 emission and other wastes.</p> <p>Furthermore, the green and fertile land is protected by not building additional structures.</p>
10.	<p>The methodology of "Reduce, Reuse and Recycle" should be adopted, while dealing with waste i-e</p> <p>reduce the waste generation,</p> <p>reuse the generate waste and</p> <p>if reuse is not possible, recycle the waste.</p>
11.	<p>Telenor is committed to minimize its environmental impact and make all reasonable efforts to minimize use of resources including energy, water and raw materials. Organization also adheres to local and internationally recognized environmental and energy efficiency standards. Telenor has established and implemented its policy on Climate &amp; Environment.</p> <p>An Environmental Management System (EMS) has been established and maintained in the organization, in accordance with</p>

	<p>ISO 14001:2015 Environment management system (EMS). This EMS is periodically reviewed, updated and internally audited by the competent resources. The energy consumptions in the buildings, network, travel and transport are regularly recorded, and audited.</p> <p>The waste generations and safe disposals are also recorded, reported and tracked. The organization also performs environmental aspects and Impacts Assessments (EAIA) on periodic basis. Based upon the EAIA, the organizational sets and reviews its environmental objectives and targets.</p>
12.	<p>Establish guidelines for handling and disposal of electronic waste and other hazardous waste, in particular.</p> <p>Promote set up of environment friendly recycling plants and identify such plants for operators, to consult.</p> <p>Periodic data gathering from waste producers.</p> <p>Recognize environment friendly organizations, periodically (award &amp; recognition).</p>
13.	<p>We follow the below guidelines:</p> <p>Ensuring Quality Maintenance by considering QHSE standards and reutilization of resources by adopting Infrastructure sharing which minimize the need of new construction and increase possibility of retaining existing surroundings.</p> <p>Ensuring good functionality by providing timely preventive and corrective maintenance so that the project's utility remains unchanged and its lifetime is extended.</p> <p>Choosing structures and materials based on optimal durability, limiting the need for maintenance, and permitting recycling.</p> <p>Optimized structure design (volume/surface) and orientation in relation to the sun and prevailing winds to increase the possibilities of Solar/windular installation</p> <p>Preventing future obsolescence by following the guidelines of international building codes to maximize energy-saving measures in the choice of construction method.</p>

Sr. No.	Jazz Comments/Suggestion
1.	(24/7 Power availability by WAPDA for Telecom sector. We have already replaced some high capacity Gensets installed at sites with low capacity Gensets (31 KVA replaced with 9/13 KVA etc. Approx. 40% network has 9/13 KVA gensets installed). Alternate energy could be deployed by Telcos in-house based on subsidized rates. Our purchase policy also takes in to account CO2 emissions and other environmental factors. Our Teams are also conducting routine Preventative Maintenance and Corrective Maintenance to keep the Gensets in optimum working conditions. Tree plantation initiatives are also aligned by our CSR Team.
2.	Environment Protection Agency could monitor and supervise emissions.
3.	EPA should take the lead and it should not be restricted or targeted to Teleco's only, Environment is jurisdiction of EPA, therefore we disagree placing any data on PTA website. Detailed mechanism should be devised in collaboration with EPA, and all other stakeholders that are responsible for emission or its control. Furthermore, provisioning of electricity is obligation on government and major source of emission in environment are power generators.
4.	Budgeted figures for 2017 is 6.5 hrs per day (Rural and Urban). Backup arrangements include Diesel Generators and Batteries.
5.	Diesel Generator and Batteries.
6.	Availability of continuous and stable power supply must be ensured by the GoP. Alternate remedies could be subsidies or support in terms of taxation relief to offset the extra costs being borne by the telcos due to energy shortage. Subsidies on renewable energy, low cost solar solutions, etc. could be useful.
7.	By the looks of current development in this area, it will take longer than 5 years for green energy to be available in sufficient quantities.
8.	Substantial incentives and aggressive plans for installing green energy plants must be commenced immediately. Work on these projects should be fast paced and carried out 24/7 in 3 shifts. Incentives can then also be given for power sector to invest in the green energy plants. Policies for re-selling to the grid etc. should be made available. Duty free import of finished plants may also be allowed.
9.	Not only through Telecom infrastructure sharing, footprint of

	CO2/GHG emission can be controlled by taking other initiatives as domestic emission is much more compared to emission by generators used by Telecom industry.
10.	For cell sites/BTS used mobil oil is taken by a vendor providing power solutions; for core locations mobil oil is transferred to a warehouse for auction through vendors response for power management. Similarly, all items which are not used at sites are transferred to our warehouse for auction/disposal. Government should incentives and encourage introducing a green economy and the public sector can play a huge part by including these programs in all their offices.
11.	Though Telecom operators are not in business of power generation, however due to lack of availability of electricity round the clock, Telecom operators are forced to invest in power generation through generators or any other green solutions, which are consuming heavy capex & opex from total investment. However, with the vision to control emission, we are also launching a recycling program, paper reduction campaign, etc. Jazz is also Green Office certified from WWF, the only telco in Pakistan to have such a certification. Printing is being discouraged and is now controlled through a centralized printing mechanism. Training and Awareness campaigns are frequently carried out to spread the message of being environmentally responsible.
12.	Firstly, records need to be maintained on the quantity and type of e-waste. This can be done function wise so we can know who and what processes are generating the most waste. Disposal can be done in terms of time duration e.g. once a month or quarter, or according to volume, like whenever 100kg is gathered for disposal. Telcos don't produce hazardous chemicals or materials, but another major waste is paper and organic waste like plastics and food. In the long term, focus should be on the 4Rs, i.e. reduce, recycle, reuse, recover.
13.	Jazz does not harm the environment in any of it's civil work programs. Actually, the company frequently sponsors tree plantation campaigns. Civil works carried out by vendors are covered under our HSE Policy for the Supply chain, where they have to comply to social safety standards and labor law.

Sr. No.	CMPak Comments/Suggestion
1	<p>PTA should remove the restriction of deploying transformers on each sites, as now the Power consumption of the new equipment does not require huge electricity intake from the grid.</p> <p>Import taxes on greener Telco equipment including generators should be reduced to encourage imports of environment friendly equipment.</p> <p>Diesel Generators can be fitted with Carbon filters but there are challenges in its implementation.</p> <ul style="list-style-type: none"> <li>• Equipment price and taxes, Government needs to be serious in reduction of carbon foot print and give subsidy or tax free imports on this equipment</li> <li>• Theft of this equipment from installed sites.</li> <li>• Maintenance cost of these filters will raise OPEX of the operators, which in current scenario is a challenge for operators as we are in breakneck competition already and with very thin or no profit margin.</li> </ul> <p>Telcos can be urged to Plant trees, where ever applicable, on new physical sites.</p>
2	<p>Preferably the competent authority which have the means and capability to monitor the environment. But the main point is that it should not create any new cumbersome process that hinders rapid site deployments. Any new addition in current process will increase both time and risk of further exploitation of policy and procedure loopholes in the process, thus increasing the costs of operators.</p>
3	<p>Monitoring mechanism is first stage and later placing on PTA site is not an issue it can be shared on monthly or quarterly basis.</p>
4	<p>Electricity outage duration varies district wise in urban areas and also varies with respect to seasons. On the average 6-12 hours CP outage is faced in urban areas (Lower in Winter Season, Higher in summer season).</p> <p>CMPak has deployed Solar systems, Diesel Generators and Battery Banks system for backup as per operational needs</p>

5	<p>Two type of solutions are installed for rural areas where electricity outages are high;</p> <p>Solar Solutions High Capacity FCB (Fast Charging Batteries) Solutions</p>
6	<p>Government should promote the import of green telco equipment by reducing taxes on them.</p> <p>Environment friendly energy resource generation should be subsidized.</p> <p>Let the private sector get involved in green energy generation sector. Especially on individual level i.e. people interested to provide electricity on very small level in towns, urban and suburban areas and local communities. This will reduce the load on the main electric grids and help the industries to grow, while home uses will have multiple options of either meeting their energy requirements locally or from DISCOs</p>
7	<p>It depends on the Government. It has to take special interest in promoting green energy.</p>
8	<p>Local interest and awareness in this area is essential, by promoting extensively and providing subsidy or tax relief to green energy manufacturing units.</p> <p>General Availability of Green energy generation devices.</p>
9	<p>Yes, we should further enhance it to Active Sharing to reduce Teleco OPEX and GHG. PTA should encourage Active Sharing in this perspective.</p>
10	<p>Waste management is an integral part of keeping the environment clean. Metropolitans should have concise planning for waste management and disposal of waste should be controlled and made efficient to reduce overall environmental impact.</p>
11	<p>CMPak has already started working in this and we have deployed multiple cell sites with Solar energy backups. We are continuously trying to enhance our greener footprint but we face challenges and lack of government and local support in regard to security and cost factors.</p>
12	<p>We are not directly involved in recycling and disposal .We Sell Disposables to third party</p>

13	The Preservation and restoration of Environment is necessary for the people living in the cities/rural areas of Pakistan and CM Pak is very much focused on this aspects. After the Civil Work is performed, PAT Is performed which involves the quality checked by our Civil Engineers as per the Standards of CM Pak Management and that is in line with the environment preservation. For environment friendliness, CM Pak Sites are labeled with the warning Signs and appropriates labels that provides safety to the people living in the environment. The ready sites are of high quality and cleanliness is observed so that it doesn't affect the existing infrastructures of the society. The amount of waste generated is reduced by changing process inputs and regular maintenance and preventive maintenance of CM Pak existing Infrastructures which should be environmental friendly and as per rules and regulation of governed authorities
----	--

## 9. Interaction with Environment Protection Agencies

9.1 As a sequel to Industry consultation for implementation of viable solutions to environmental obligation initiated by PTA, PTA also approached to Ministry of Climate Change Islamabad and five Environment Protection Agencies, working in federally administered area, Punjab, Sindh, Khyber-Pakhtunkhwa and Baluchistan, under Pakistan Environment Protection Act of 1997. The consultation document was sent to these agencies to comment on the industry response to the consultation paper. Telecom operators had pointed out that they are already complying with the EPA Rules, Regulations and Act. Telecom operators further informed that their operation is under security of the environmental protection agencies. Any non-compliance or observance of degraded standards is duly identified and addressed as per prevailing legal framework. As per the industry response, the operators are bound to get NOCs and to meet other requirements of these agencies while laying out telecom infrastructure.

9.1.1 In view of the above, these agencies were requested to provide a copy of Rules, regulations and monitoring mechanism as per Telecom Policy Clause 9.7.2(a-e) mentioned above. These agencies were also requested to convey any difficulty in compliance of EPA

rules, regulations and legal framework at the end of telecom operators. Following questions were asked from these agencies:

- i. Does your office issue NOC, to Operators to install BTS Towers? (Yes or No)
- ii. Does your office have any list of Operators to whom NOC have been issued, if yes, please share the list with this office.
- iii. Do Operators comply with your regulations? If NOT, what are the difficulties faced by your office.

**9.1.2** Response of the stakeholders was thoroughly analyzed. Officers of the S &D Division, visited monitoring facilities of EPA Islamabad and discussed in detail all related issues. These agencies have their own setups for monitoring the quality of standards with regard to environmental protection as per relevant laws, rules and regulations.

## **9.2 Ministry of Climate Change**

9.2.1 Ministry of Climate Change replied that Pak-EPA, an attached department of the Ministry, has not yet issued any Environmental Approval to the operators of BTS Towers as the same are not covered under any of the schedules of the review of IEE/EIA Regulation 2000. However, these regulations are under review to include the BTS towers and further action shall be taken after notification of the same.

## **9.3 Environment Protection Agency Government of Punjab**

9.3.1 The most comprehensive reply was received from Environment Protection Agency, Government of the Punjab. It was informed that in exercise of powers conferred upon section 33 of Punjab Environment Protection Act, 2012, EPA Punjab has devised Punjab Environment Protection (BTS) Regulations, 2012 as a regulatory framework for ensuring environmentally sound installation and operation of Base Transceiver System in the province and proponents of all such projects are obliged to obtain Environmental Approval under Section 12 of PEPA 2012 prior to commencement of project. A copy of these regulations is attached at Annex-1.

**9.3.2** EPA Punjab also intimated that as far as the issues faced in monitoring and compliance of such Telecom projects is concerned, almost all BTS Towers in Punjab have been installed without obtaining environmental approval in violation of section 12 of Act ibid and some of the proponents have obtained Environmental Approvals after commencement of their projects.

## **9.4 Environment Protection Agency Government of Balochistan**

**9.4.1** Environment Protection Agency Government of Baluchistan, sent a copy of the Balochistan Environmental Protection Act 2012 and Pakistan Environment Protection Agency Regulations, 2000 where BTS is not covered under schedule I; projects requiring an Initial Environmental Examination (IEE) or Schedule II the projects requiring an Environmental Impact Analysis (EIA). Regarding difficulty in compliance of EPA rules, regulations and legal framework at the end of telecom operators, Environment Protection Agency Government Baluchistan informed that there is no implementation of Environmental Management Plan (EMP) during or after project completion.

## **9.5 Environment Protection Agency Government of KPK**

**9.5.1** Environment Protection Agency Government of KPK informed that under the Pakistan Environmental Protection Act, 1997, Schedule I & Schedule 11 of regulations 2000, BTS Tower does not require Environmental Approval. However, in November, 2008 the Senate Standing Committee issued instructions to the Provincial EPAs for regulating the BTS towers along with guidelines and since then EPA is issuing Environmental approval or regret the same on the basis of factual position / situation in the Province.

**9.5.2** Environment Protection Agency Government of KPK further informed that, after 18th amendment, Khyber Pakhtunkhwa promulgated their own Khyber Pakhtunkhwa Environmental Protection Act, 2014 and rules regarding BTS have been included in the new regulations, however, the same have not yet notified.

**9.5.3** It was also informed that the agency issued Environmental Approvals regarding BTS Towers at planning stage but the Agency received applications for already installed BTS Towers which cannot be entertained at this stage under the law. It was also mentioned that the Agency initiate actions against the new BTS Towers which violate the existing rules and suggest to adopt mitigation measures to decrease the air / noise pollution.

## **9.6 Gilgit-Baltistan Environmental Protection Agency**

**9.6.1** Gilgit-Baltistan Environmental Protection Agency (GB-EPA) has been establishment under section (8) of Pakistan Environmental Protection Act, 1997. Main functions of GB-EPA are to take measures to promote research and development of science and technology which may contribute to the prevention of pollution, protection of the environment, and sustainable development; identify the needs for, and initiate legislation in various sectors of the environment. Provide information and guidance to the public on environmental matters; specify safeguards for the prevention of accidents and disasters which may cause pollution; and encourage the formation and working of non-governmental organizations.

## **9.7 Environment Protection Agency Government of Sindh**

**9.7.1** The Sindh Environment Protection Act 2014 promulgated in March 2014 to enforce Rules and Regulation. Environment Protection Agency Government of Sindh in Regulations 2014 included BTS in Environmental checklist as per EIA/IEE regulation (Annex-2). A proponent of a project falling in any category listed in Schedule-III shall file environmental checklist with the Agency and the provisions of section 17 shall apply to such project. It was reported that alternate source of energy used by telecom operators is Diesel fired generators for their business activities and that may emit NO<sub>x</sub>. carbon monoxide (CO), hydrocarbons, and particulate matter as a source of GHG.

## **9.8 Pakistan Environmental Protection Agency (Pak-EPA) Islamabad.**

**9.8.1** Officers of the S &D Division, visited monitoring facilities of Pak- EPA Islamabad and discussed in detail all related issues. A presentation was delivered by the officers of the Pakistan Environmental Protection Agency (Pak-EPA), highlighting main functions of Pak-EPA and legal provisions to undertake any assignment. A visit of the labs was also conducted by the officers.

**9.8.2** Basic functions of Pak-EPA are to enforce the PEPA-1997 Act, rules & regulations; approve Environmental Impact Assessment (EIA), Initial Environmental Examination (IEE), issue certificates for establishment of environment labs in the Islamabad Capital Territory. Pak-EPA is mandated to prepare or revise, and establish the National Environmental Quality Standards (NEQS) with approval of Pakistan Environmental Protection Council (PEPC); take measures to promote research and the development of science and technology which may contribute to the prevention of pollution. Protection of the environment, and sustainable development; identify the needs for, and initiate legislation in various sectors of the environment; provide information and guidance to the public on environmental matters are also under Pak-EPA's jurisdiction. The Agency may undertake inquiries or investigation into environmental issues, either of its own accord or upon complaint from any person or organization.

**9.8.3** Pakistan Environmental Protection Agency has established Central Laboratory for Environmental Analysis (CLEAN) in its premises at Islamabad. As informed by the officers of Pak-EPA, it's a JICA funded project and it was completed before the promulgation of the Eighteenth Amendment of the Constitution of Pakistan. Hence a centralized monitoring facility, with the help of JICA experts, was established in Islamabad connecting all major cities of Pakistan. However, since the subject is now dealt at provincial government level, this centralized monitoring facility is practically non-operational. The Laboratory (CLEAN) comprises of three sections i.e, Analytical, Field Measurement and Sampling. CLEAN has its regular environmental investigation

programmes for air, water and soil pollution. Pak-EPA has conducted a latest research study with the assistance of JICA experts on air pollution with emphasis on suspended particulate matters in three major cities of the country. CLEAN conducts regular monitoring of air in Islamabad.

**9.8.4** CLEAN has the capabilities of carrying out field activities using portable equipments viz-a-viz, high volume samplers, PH and Turbidity Meter along with other relevant equipments for compliance of National Environmental Quality Standards (NEQS).

## **10. Concerns/Issues**

**10.1** As informed by the officers of Pak-EPA, main issues under consideration of Pak-EPA are: water quality monitoring of Rawal Lake, Simli Dam and Khan Pur Dam Water Reservoir due to water contamination as a result of human activities in the catchment areas of these reservoirs, identify different pollutant affecting public health, industrial pollution, vehicle pollution, Hospital Waste Management, construction sites and sanitation.

**10.2** It was also informed that Pakistan Environment Protection Agency Regulations, 2000 are still effective as no modification as of to date has been made to these regulation and BTS is not covered under schedule I, the projects requiring an Initial Environmental Examination (IEE), or Schedule II, the projects requiring an Environmental Impact Analysis (EIA), hence, as of yet there is no requirement of obtaining NOC to install BTS in Islamabad Capital Territory. However, these regulations are under review.

**10.3** As far as use of renewable sources of energy/alternate power is concerned, the matter was discussed at length. As evident from the above discussion, demand of operators for 24x 7 availability of reliable Grid power at affordable prices cannot be weighed down. Moreover, fuel quality, must be as per international standards. As backup to grid power only Genset is a viable solution as solar power requires large space which is a hurdle in urban areas and battery banks have their inherent problem of

disposal. Only Gensets with low or practically no carbon dioxide emission are a viable solution, however, government needs to give incentives for adoption of such alternate energy sources for adoption of Environmental measures, such as Tax credits etc.

**10.4** Another concern was raised by the officers of Pak-EPA on the radio emissions and proliferation of towers and the resultant hazards affecting human health. It was informed by PTA that exposure standards and guidelines have been developed by various organizations. Exposure standards and guidelines have generally been based on exposure levels where effects considered harmful to humans occur. Safety factors are then incorporated to arrive at specific levels of exposure to provide sufficient protection. Safety limits of Specific Absorption Rate (SAR) are being followed in the World. Majority of the Countries have adopted International Commission for non-ionizing Radiation Protection (ICNIRP) limits and standards.

### **10.5 Environmental Quality Standards for Industrial Gaseous Emission**

Sr. No	Parameter	Source of emission	Standard
1.	Smoke opacity	Gen Set	Smoke opacity not to exceed 40% or 2 Ringelmann Scale or equivalent smoke number

**10.5.1** The Ringelmann scale is a scale for measuring the apparent density of Smoke. It has a 5 levels of density inferred from a grid of black lines on a white surface which, if viewed from a distance, merge into known shades of grey. There is no definitive chart, rather, Prof. Ringelmann provides a specification; where smoke level '0' is represented by white, levels '1' to '4' by 10mm square grids drawn with 1mm, 2.3mm, 3.7mm and 5.5 mm wide lines and level '5' by all black.

**10.5.2** In use, the observer views the plume at the point of greatest opacity and determines the corresponding Ringelmann Number. A Ringelmann 0, 1, 2, 3, 4 and 5 are equivalent to an opacity of 0, 20, 40, 60, 80 and 100.

## **11. ENVIRONMENTAL REGULATORY FRAMEWORK**

11.1 PTA as Regulator of telecommunications sector is required to comply with the requirements of the 18<sup>th</sup> Amendment of the Constitution of Pakistan, whereby the Provinces have been assigned the subject of Environment Protection.

11.2 EPA Punjab has devised Punjab Environment Protection (BTS) Regulations, 2012 as a regulatory framework for ensuring environmentally sound installation and operation of Base Transceiver Stations in the province and proponents of all such projects are obliged to obtain Environmental Approval under Section 12 of PEPA 2012 prior to commencement of project. (Annex-1). Sindh Environmental Protection Agency has also issued (Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations, 2014 and BTS is included in the projects requiring checklist, category listed in Schedule-III (Annex-2).

11.3 All other provincial EPAs and Pak-EPA will frame their own BTS regulations or alternatively may use Annex-1 or Annex-2 for the same purpose(s).

11.4 Active list of telecommunication operators having BTS sites will be shared by PTA with Provincial and Federal EPAs. All Telecom Operators will obtain Environmental Approval(s) with concerned EPA prior to installation of BTS.

11.5 EPAs as per their policy and regulations will monitor CO<sub>2</sub> emissions and pollutants.

11.6 EPAs will exercise their control on all forms of pollutants in the environment in the vicinity of BTS sites inclusive of hazardous chemical wastes.

11.7 EPAs will monitor preservation and restoration of the environment and ecology after civil works carried out for installation of BTS by Telecom Operators.

11.8 The Telecom Operators are obliged to take necessary steps for reduction of GHG, pollutants and waste.

11.9 The Telecom Operators are obliged to document the recycling and disposal of electronic waste, hazardous chemicals and other hazardous materials.

11.10 The alternate power for telecommunications infrastructure will be dealt in systematic manner by concerned ministries/departments working in the power sector and alternate energy resources.

11.11 Practical and cost effective methods will be utilized to find ways for reliable power for the telecommunications and ICT equipment for provisioning of quality services to users and customers in maximum Cities, Towns, Villages and remote locations in Pakistan.

11.12 Alternate arrangements replacing existing diesel generators will be employed by the Industry as and when such sources are available to reduce GHG emissions.

11.13 The monitoring of installed generators will be the responsibility of Environment & Climate Change organizations at the provincial and federal level and active data of telecommunications operators will compiled by the PTA and made available on the website as a requirement of the Telecommunication Policy 2015.

11.14 The radio emissions standards or safety limits of Specific Absorption Rate (SAR) in majority of the countries are International Commission for non-ionizing Radiation Protection (ICNIRP) limits and standards. The same standards will apply in Pakistan.

11.15 The above issue will apply on all telecommunications equipment, gadgets and tools, inclusive of the hand held devices, particularly cellular mobile phones. Pakistan is following the safety recommendations/limits of ICNIRP.

11.16 EPAs are the authorities responsible for the environment. EPAs will report to PTA if the Telecom Operators (licensed) do not meet defined targets for the environment.

11.17 PTA will publish the environmental performance of licensees monitored through concerned EPAs against the defined targets on its website.

11.18 PTA will publish awards for those Telecom Operators that meet a clearly specified environmental standard.

**GOVERNMENT OF THE PUNJAB,  
PROVINCIAL ENVIRONMENTAL  
PROTECTION AGENCY  
26<sup>th</sup> November, 2012**

**NOTIFICATION**

**No. F#1143-167/G/LS/EPA/12.** In exercise of the powers conferred under section 33 of the Punjab Environmental Protection Act, 1997 (XXXIV of 1997), the Provincial Environmental Protection Agency, with the approval of the Government, is pleased to make the following regulations:

**1. Short title and commencement:** - (1) These regulations may be cited as the Punjab Environmental Protection (BTS) Regulations 2012.

(2) They shall come into force at once.

**2. Definitions:-** (1) In these regulations:

- (a) "Act" means the Punjab Environmental Protection Act, 1997 (XXXIV of 1997);
- (b) "ambient noise" means the intensity, duration and character of sounds from all sources in a particular area such as residential, commercial, industrial, silence zone and mixed categories of these areas;
- (c) "BTS" means the Base Transceiver Station with or without gen set having stationary component of a cellphone system which includes transmit-receive units and one or more antennae, combined systems often including multiple co-located systems and ganged directional antennae;
- (d) "checklist" means an expression of information or documents or data or information, listed in Schedule I, compulsorily required to be submitted along with an application for initial environmental examination for a BTS project;
- (e) "Director-General" means Director-General of the Provincial Environmental Protection Agency;
- (f) "gen set" means a machine that converts mechanical energy into electrical energy, operated through any source of energy;
- (g) "hospital" means a health care unit in public or private sector, approved or recognized by the competent health authority;
- (h) "IEE Form" means a Form filled in by the proponent or by an authorized agent of the proponent corresponding or explaining details required by the provincial Agency as incorporated in Schedule I for purposes of review;
- (i) "noise emission standard" means the standard to be used for measurement of noise at a minimum distance of one meter from source;

- (j) "PEQS" means Provincial Environmental Quality Standards established under the Act;
- (k) "schedule" means a schedule appended to these regulations;
- (l) "silence zone" means a zone declared as such by a competent authority; and
- (m) "smoke opacity" means degree of darkness of flue gas caused by emission of unburnt carbon particles due to incomplete combustion of fuel measured on Ringlemann Scale.

(2) All other words and expressions used in these regulations, but not defined, shall have the same meanings, as are assigned to them in the Act.

**3. Preparation of IEE Form for BTS.-** (1) The proponent shall fill up the IEE Form of the BTS project site in accordance with the requirements of the checklist.

(2) All relevant details reflecting qualitative and quantitative impact of the BTS shall be incorporated in the IEE Form, whose completeness or otherwise, shall be confirmed by the District Officer (Environment) or any other officer of the Provincial Agency authorized by the Director-General.

**4. Review Fee.-** The proponent of a BTS project shall deposit an amount of fifteen thousand rupees as a non-refundable review fee in the designated account of the Government exchequer at the time of submission of the IEE Form along with the application Form contained in Schedule-II.

**5. Filing of IEE Form.-** Five printed and two soft copies of IEE Form along with the application shall be filed with the District Officer (Environment) for purposes of environmental approval of the initial environmental examination as per Schedule I along with the copy of receipt showing payment of the review fee.

**6. Review.-** (1) The District Officer (Environment) shall make every effort to carry out review of the IEE Form within fifteen days as per Schedule IV after confirmation of completeness under regulation 3 and the District Officer (Environment) shall prepare the IEE Form review report and project suitability report.

(2) While reviewing the IEE Form, the District Officer (Environment), in addition to the site inspection report, may recommend or otherwise as per parameters of schedule I and part-A of the schedule IV.

(3) In case the District Officer (Environment) fails to furnish the site inspection report of a project within the prescribed duration to the Director General or does not recommend the project, the proponent may submit an application to the Director-General, who may obtain site inspection report through specially authorized officer or committee.

(4) The review of the IEE Form by the Provincial Agency shall be based on quantitative and qualitative assessment of the parameters given in Schedule III along with documents and data furnished by the proponent, comments from the public and Government Agencies, if required.

7. **Decision on IEE Form.-** On completion of the review, the decision of the Provincial Agency shall be communicated to the proponent in the form prescribed in Part-B of the Schedule IV and the process of according approval of IEE Form shall be completed within fifteen days from the date of filing of the complete IEE Form.

8. **Conditions of Approval.-** (1) Every approval of an initial environmental examination for BTS, shall be subject to the conditions laid down in the Act, rules or regulations made under the Act regarding environmental approval.

(2) The proponent of a BTS project shall ensure compliance with the PEQS for ambient noise, smoke opacity and noise emission standards contained in Schedule III.

(3) A BTS with a gen set shall not be established or operated within hundred meters from a hospital, school or silence zone.

(4) In case a gen set is installed with BTS, it shall be installed at least ten feet away from a neighboring wall and the gen set with rubber padding, proper silencer and canopy containing sound proof inner walls to control noise and smoke emission shall be installed.

(5) Where the Provincial Agency accords its approval subject to certain conditions, the proponent shall, before commencing construction or operation of the project, acknowledge acceptance of the stipulated conditions by executing an undertaking in the Form prescribed in Schedule V.

9. **Application of IEE/EIA Regulations 2000.-** For the parameters not mentioned in these regulations but relevant to regulating, monitoring and cancellation of approvals issued to a BTS project, the Pakistan Environmental Protection Agency (review of IEE/EIA) Regulations 2000 shall apply to the BTS project.

**DIRECTOR GENERAL  
PROVINCIAL ENVIRONMENTAL  
PROTECTION AGENCY,  
PUNJAB**

**(NAWAZ MANIK)**  
Deputy Director (L&E)  
Environmental Protection Agency,  
Punjab, Lahore

**Schedule I***(See rule 3)***CHECKLIST & IEE FORM****Base Transceiver Station**

<b>Sr #</b>	<b>Parameters</b>	<b>Remarks</b>
<b>1</b>	<b>General</b>	
a	Name & address, and cell No. of the proponent	Mentioned/ not Mentioned
b	Name & address, and cell No of contact person	Mentioned/ not Mentioned
c	Name and location of the BTS Tower and Gen Set	Mentioned/ not Mentioned
d	Existing land use	Attached/ not Attached
e	Copy of lease or rental agreement of land or property	Attached/ not Attached
f	Copy of partnership deed	Attached/ not attached
g	Indicate the type of fuel used, storage capacity and handling arrangements	Mentioned/ not Mentioned
h	Status of the site as per record of municipal authority-residential, commercial, industrial or agricultural	Attached/ not Attached
<b>2</b>	<b>Documentation</b>	
a	Landownership Documents	Attached/ not Attached
b	TORs for compensations (in case of loss of life or property)	Attached/ not Attached
c	Undertaking/affidavit (schedule-III)	Attached/ not Attached
d	License from Pakistan Telecommunication Authority (PTA)	Attached/ not attached
e	TMA shall issue NOC before Environmental Protection Agency.	Attached/ not Attached
f	CNIC Copy of Proponent	Attached/ not Attached
g	Legal documents of technology transfer authority of the company	Attached/ not Attached
h	Map or Layout of Building including indoor location of placing generator(s)	Attached/ not Attached
<b>3</b>	<b>Description of the Project</b>	
a	Total Cost	Mentioned/not Mentioned
b	Total Area	Mentioned/not Mentioned
c	Covered and uncovered area	Mentioned/not

		Mentioned
d	Height of Tower	Mentioned/not Mentioned
e	Category/type of Tower	Mentioned/not Mentioned
f	Lattice tower (3-sided/4-sided), monopole tower/guyed tower/stealth tower	Mentioned/not Mentioned
g	Mode of Service/technology used (GSM, CDMA/3G, wireless, Wi-Fi, broadband, carrier, antennas, any other)	Mentioned/not Mentioned
<b>4</b>	<b>Protection of Accessories of Tower</b>	
a	Range of Radio Wave Frequency emitted by tower	Mentioned/not Mentioned
b	Range of Radio Wave Frequency received by tower	Mentioned/not Mentioned
c	Power supply-primary/stand by	Mentioned/not Mentioned
d	Distance of the Tower from immediate residences	Mentioned/not Mentioned
<b>5</b>	<b>Description of Gen Set</b>	
a	Rating Capacity KVA	Mentioned/not Mentioned
b	Measures taken to mitigate noise & vibration	Mentioned/not Mentioned
c	Fuel storage capacity	Mentioned/not Mentioned
d	Distance of Gen Set from immediate residences	Mentioned/not Mentioned
e	Alternative Sites	Mentioned/not Mentioned
<b>6</b>	<b>Impacts</b>	
a	Profile of social Impacts, if any	Attached/not attached
b	Profile of Environmental Impacts, if any	Attached/not attached
c	Level of noise emitted by Generators, if already installed	Attached/not attached
d	Level of smoke emitted by Generators, if already installed	Attached/not attached
e	Quantity of solid waste generated during construction/operational phase and its disposal plan	Attached/not attached
f	Pictorial view	Attached/not attached
g	Security plan	Attached/not attached
<b>6</b>	<b>Project Social Acceptability</b>	
a	Is there any complaint against project	Yes/No
b	If yes, what is the nature of complaint	Attached/not attached

c	Has the issues/complaint has been resolved	Attached/not attached
---	--	-----------------------

**VERIFICATION:** I do solemnly affirm and declare that the information given above and contained in the attached Schedules is true and correct to the best of my knowledge and belief.

Name & Designation of Proponent or authorized agent \_\_\_\_\_

Postal address of the Proponent: \_\_\_\_\_

Signature of Proponent: \_\_\_\_\_

Date: \_\_\_\_\_

Office Stamp or Seal: \_\_\_\_\_

**\*Please Note photocopies attached should be duly attested.**

**Schedule-II**

*(See rule 4)*

**Application Form**

1.	Name & address of proponent	
2.	Phone and fax Nos.	
3.	Description of Project	
4.	Location of Project	
5.	Objectives of project	
6.	IEE Form attached?	Yes/No
7.	Have alternative sites been considered and reported in IEE Form?	Yes/No
8.	Existing land use and land Requirement	
9.	Is basic site data available	
10.	Source of Power	

Signature of the Proponent: \_\_\_\_\_

Name & Designation of the Proponent: \_\_\_\_\_

Postal address of the Proponent: \_\_\_\_\_

**VERIFICATION:** I do solemnly affirm and declare that the information given above and contained in the attached Schedules is true and correct to the best of my knowledge and belief.

Date: \_\_\_\_\_

Signature & Seal: \_\_\_\_\_

**Schedule III**  
(See rule 6)

**Provincial Environmental Quality Standards for Ambient Noise**

Effective from 1 <sup>st</sup> July, 2012			
Limit in dB(A)Leq*			
#	Category of Area/Zone	Day	Night
1.	Residential Area (A)	50	45
2.	Commercial Area (B)	60	55
3.	Industrial Area (C)	75	65
4.	Silence Zone (D)	45	45

Source: NEQS notified on 26-11-2010, Pak, EPA,

**Note:**

- Silence Zone:** Zones which are declared as such by competent authority. An area comprising not less than 100 meters around hospitals, educational institutions and courts.
  - Mixed categories** of areas may be declared as one of the four above mentioned categories by competent authority.
- \* dB(A)Leq: Time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- The lowest standards or the standards set for night shift shall be followed.
  - The minimum distance for Gen Set from the nearest boundary wall shall be at least 10 feet excluding educational institutions, hospitals and courts.

**NOISE EMISSION STANDARD FOR GEN SET**

Sr. No	Parameter	Source of emission	Standard
1.	Noise	Gen Set	Noise level not to exceed 65 dB(A) at a distance of 1 meter from enclosure surface of Gen Set

**Provincial Environmental Quality Standard for Smoke**

Sr. No	Parameter	Source of emission	Standard
1.	Smoke opacity	Gen Set	Smoke opacity not to exceed 40% or 2 Ringlemann Scale or equivalent smoke number

\* (e) "Decibels" means the time weighted unit of measurement of noise in decibels on scale A which is relatable to human hearing expressed as dB(A)Leq.

**Schedule -IV (A)**

*(See rule 6)*

**PART-A**

**PROVINCIAL ENVIRONMENTAL PROTECTION AGENCY**

**Project Suitability Report Form**

1. Name and Address of the proponent \_\_\_\_\_  
\_\_\_\_\_
2. Description of the project \_\_\_\_\_
3. Location of the Site \_\_\_\_\_
4. Status of the Site (Commercial, Residential, Industrial or Agricultural)  
\_\_\_\_\_
5. Location Map (attach Annex) \_\_\_\_\_
6. Coordinates (give description of the structures present on anterior, posterior and lateral sides of the project Site) \_\_\_\_\_  
\_\_\_\_\_
7. Current status of the project (proposed, under construction, installed or operational)  
\_\_\_\_\_
8. Court case or complaint against proponent (if any) \_\_\_\_\_  
\_\_\_\_\_
9. Distance of the Gen Set from School, Hospital or Court (if applicable) \_\_\_\_\_  
\_\_\_\_\_
10. Distance of Gen Set from the boundary walls of the neighbor \_\_\_\_\_  
\_\_\_\_\_
11. Measures taken or not taken by the proponent to reduce noise and smoke emitted by the Gen Set through rubber padding, silencers and canopy construction  
\_\_\_\_\_  
\_\_\_\_\_

12. Mention readings of noise and smoke emission as per PEQS noted during site inspection

Noise: \_\_\_\_\_

Smoke: \_\_\_\_\_

13. Recommendations for approval of the Project by DO(E)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

14. Reasons to recommend the project for final approval or otherwise:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**District Officer (Environment)**  
**(Signatures & Seal)**

**PART-B**

**PROVINCIAL ENVIRONMENTAL PROTECTION AGENCY**

(See rule 7)

**Decision on IEE Form**

15. Name and address of proponent \_\_\_\_\_  
\_\_\_\_\_

16. Description of project \_\_\_\_\_

17. Location of project \_\_\_\_\_

18. Date of filing of IEE Form \_\_\_\_\_

19. After careful review of the IEE Form, the EPA Punjab has decided to accord its approval, subject to the following conditions:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

20. Reasons for disapproval, if IEE Form not approved

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Date:** \_\_\_\_\_

**Tracking No:** \_\_\_\_\_

**DIRECTOR GENERAL  
EPA PUNJAB  
(Signatures & Seal)**

## Schedule - V

(See rule 8)

### Undertaking

I, (Full name and Address) as proponent for (name, description and location of project) do hereby solemnly affirm and declare that I fully understand and accept the conditions contained in the approval accorded by the EPA Punjab bearing tracking No. \_\_\_\_\_ dated \_\_\_\_\_, and undertake to design, construct and operate the project strictly in accordance with the said conditions and the IEE Form.

I also under take to pay compensation in case of loss of life or property during construction or operational phase of the Project.

Name & Signature of the Proponent: \_\_\_\_\_

Designation of proponent: \_\_\_\_\_

Date: \_\_\_\_\_

Stamp or Seal: \_\_\_\_\_

#### Witnesses

(Full names and addresses)

(1) \_\_\_\_\_

(2) \_\_\_\_\_

**The Sindh Environmental Protection Agency (Review of  
Initial Environmental Examination and Environmental  
Impact Assessment) Regulations, 2014.**

**Contents**

**Rules.**

1. Short title and commencement.
2. Definitions.
3. Projects requiring an IEE.
4. Projects requiring an EIA.
5. Project requiring checklist.
6. Projects not requiring an IEE or EIA.
7. Preparation of IEE/EIA and environmental checklist.
8. Review Fees.
9. Filing of IEE, EIA and environmental check list.
10. Preliminary scrutiny.
11. Public participation.
12. Review.
13. Decision.
14. Conditions of approval.
15. Confirmation of compliance.
16. Deemed approval.
17. Extension in review period.
18. Validity period of approval.
19. Entry and inspection.
20. Monitoring.
21. Cancellation of approval.
22. Registers of IEE, EIA and Check list projects.
23. Environmentally sensitive areas.
24. Environmental Assessment Advisory Committee.
25. Repeal and Savings.
  - Schedule-I.
  - Schedule-II
  - Schedule-III
  - Schedule-IV
  - Schedule V.
  - Schedule-VI
  - Schedule VII
  - Schedule VIII
  - Schedule IX



Karachi dated the 16th December, 2014.

## NOTIFICATION

**NO. EPA/TECH/739/2014:-** In exercise of the powers conferred by section 37 of the Sindh Environmental Protection Act, 2014, the Sindh Environmental Protection Agency, with the approval of Government, is pleased to make the following regulations, namely:-

### **1. Short title and commencement**

- (1) These regulations may be called the Sindh Environmental Protection Agency (Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations, 2014.
- (2) They shall come into force at once.

### **2. Definitions.-**

- (1) In these regulations, unless there is anything repugnant in the subject or context -
  - (a) "Act" means the Sindh Environmental Protection Act, 2014 (VIII of 2014);
  - (b) "Agency" means the Sindh Environmental Protection Agency as defined under section 2(ii);
  - (c) "Committee" means the Environmental Assessment Advisory Committee constituted under regulation 24;
  - (d) "Director General" means the Director General of the Agency;
  - (e) "EIA" means an environmental impact assessment as defined in section 2(xv);
  - (f) "IEE" means an initial environmental examination as defined in section 2(xxx);
  - (g) "section" means a section of the Act.
  - (h) "Firm" means the Environmental Consulting Firm certified by the Agency;

- (i) “Environmental Sensitive areas” means the area which falls under sensitive sites like protected areas, or the sites which may have crucial and growing importance;
  - (j) “protected area” means any area which safeguards the earths precious bio-diversity protect outstanding areas of natural beauty and conservation of cultural significance;
  - (k) “Schedule” means the Schedule to these regulations;
  - (l) “urban area” means an area within the limits of a town, municipality or city and includes any area declared as such by Government by notification in the official gazette;
- (2) All other words and expressions used but not defined in these regulations shall have the same meaning as are assigned to them in the Act.

**3. Projects requiring an IEE**

A proponent of a project falling in any category listed in Schedule-I shall file an IEE with the Agency, and the provisions of section 17 shall apply to such projects.

**4. Projects requiring an EIA**

A proponent of a project falling in any category listed in Schedule-II shall file an EIA with the Agency, and the provisions of section 17 shall apply to such projects.

**5. Projects requiring checklist**

A proponent of a project falling in any category listed in Schedule-III shall file environmental checklist with the Agency and the provisions of section 17 shall apply to such projects.

**6. Projects not requiring an IEE or EIA**

- (1) A proponent of a project not falling in any category listed in Schedules-I, II and III shall not be required to file an IEE or EIA:

Provided that the proponent shall file -

- (a) an EIA, if the project is likely to cause an adverse environmental effects;
- (b) an application for projects not listed in Schedules-I, II and III in respect of which the Agency has issued guidelines for construction and operation for approval accompanied by an undertaking and an affidavit that the aforesaid guidelines shall be fully complied with.

- (2) Notwithstanding anything contained in sub-regulation (1), the Agency may direct the proponent of a project, whether or not listed in Schedule I or II or III, to file an IEE or EIA or environmental check list, for reasons to be recorded in such direction:

Provided that no such direction shall be issued without the recommendations in writing of the Committee.

- (3) The provisions of section 17 shall apply to a project in respect of which an IEE or EIA or environmental checklist is filed under sub-regulation (1) or (2).

## **7. Preparation of IEE/EIA and environmental checklist**

- (1) The Agency may issue guidelines for preparation of an IEE or an EIA or an environmental checklist, including guidelines of general applicability, and sectoral guidelines indicating specific assessment requirements for planning, construction and operation of projects relating to particular sector.
- (2) Where guidelines have been issued under sub-regulation (1), an IEE or EIA or environmental checklist shall be prepared, to the extent practicable, in accordance therewith and the proponent shall justify in the IEE or EIA or in environmental checklist any departure therefrom.

## **8. Review Fees**

The proponent shall pay, at the time of submission of an IEE or EIA or environmental checklist, a non-refundable review fee to the Agency as per rates shown in Schedule-IV

## **9. Filing of IEE, EIA and environmental check list.**

- (1) Ten hard copies and two electronic copies for an IEE and EIA reports shall be filed with the Agency prepared by Firm.
- (2) Every IEE and EIA shall be accompanied by -
  - (a) an application, in the form prescribed in Schedule-V;
  - (b) copy of receipt showing payment of the Review Fee.
  - (c) no objection certificates from the relevant departments in case of EIA shall be the part of reports;
  - (d) the environmental check list as per its guidelines.

## **10. Preliminary scrutiny**

- (1) Within fifteen working days of filing of the IEE or EIA or environmental check

list, the Agency shall –

- (a) confirm that the IEE or EIA or environmental check list is complete for purposes of initiation of the review process; or
  - (b) require the proponent to submit such additional information as may be specified; or
  - (c) return the IEE or EIA or environmental checklist to the proponent for revision, clearly listing the points requiring further study and discussion.
- (2) Notwithstanding anything contained in sub-regulation (1), the Agency may require the proponent to submit an additional information at any stage during the review process.

## **11. Public participation**

- (1) In the case of an EIA, the Agency shall simultaneously with issue of confirmation of completeness under clause (a) of sub-regulation (1) of regulation 9, cause to be published in any English or Urdu national newspaper and in a local newspaper of general circulation in the area affected by the project, a public notice mentioning the type of project, its exact location, the name and address of the proponent and the places at which the EIA of the project can, subject to the restrictions in sub-section (3) of section 17, be accessed.
- (2) The notice issued under sub-regulation (1) shall fix a date, time and place of public hearing for any comments on the project or its EIA.
- (3) The date fixed under sub-regulation (2) shall not be earlier than fifteen days from the date of publication of the notice.
- (4) The Agency shall also ensure the circulation of the EIA to the concerned Government Agencies and solicit their comments thereon.
- (5) All comments received by the Agency from the public or any Government Agency shall be collated, tabulated and duly considered by it before decision on the EIA.
- (6) The Agency may issue guidelines indicating the basic techniques and measures to be adopted to ensure effective public consultation, involvement and participation in EIA assessment.

## **12. Review**

- (1) The Agency shall make every effort to carry out its review of the environmental checklist within thirty days, IEE within sixty days, and of the EIA within four months of issue of confirmation of completeness under regulation 9.

- (2) In reviewing the EIA, the Agency shall consult such Committee of Experts be constituted for the purpose by the Director General, and may also solicit views of concerned Advisory Committee, if any, constituted by the Agency.
- (3) The Director-General may, where he considers it necessary, constitute a committee to inspect the site of the project and submit its report on such matters as may be specified.
- (4) In reviewing the IEE, the Director General may constitute a committee of the officers from within the Agency on case to case basis in view of the jurisdiction and location of the project for the purpose to extend final recommendation about the approval or rejection of the IEE.
- (5) In reviewing of the IEE, the Director General may direct the proponent and Firm to present the report before the committee as given under sub-regulation (4) and the Director General may also invite environmental experts from outside the Agency for the purpose of assistance.
- (6) The review of the IEE or EIA by the Agency shall be based on quantitative and qualitative assessment of the documents and data furnished by the proponent, comments from the public and Government Agencies received under regulation 10, and views of the committees mentioned in sub-regulations (2) and (3) above.
- (7) The environmental check list shall be reviewed as per guidelines issued by the Agency.

### **13. Decision**

- (1) Subject to sub-regulation (2), the documentary evidence in the form of videos (soft copies) of public hearing shall be submitted by the proponent at the time of environmental approval or at any stage of review process, to the Agency.
- (2) On completion of the review, the decision of the Agency shall be communicated to the proponent in the form prescribed in Schedule-VI in the case of an IEE and environmental check list, and in the form prescribed in Schedule-VII in the case of an EIA and for environmental checklist.

### **14. Conditions of approval**

- (1) Every approval of an IEE or EIA or check list shall, in addition to such conditions as may be imposed by the Agency, be subject to the condition that the project shall be designed and constructed, and mitigatory and other measures adopted, strictly in accordance with the IEE or EIA or environmental check list, unless any variations thereto have been specified in

the approval by the Agency.

- (2) Where the Agency accords its approval subject to certain conditions, the proponent shall -
  - (a) before commencing construction of the project, acknowledge acceptance of the stipulated conditions by executing an undertaking in the form prescribed in Schedule-VIII;
  - (b) before commencing operation of the project, obtain from the Agency written confirmation that the conditions of approval, and the requirements in the IEE or EIA or environmental check list relating to design and construction, adoption of mitigatory and other measures and other relevant matters, have been duly complied with.

## **15. Confirmation of compliance**

(1) The request for confirmation of compliance under clause (b) of sub-regulation (2) of Regulation 13 shall be accompanied by an Environmental Management Plan indicating the measures and procedures proposed to be taken to manage or mitigate the environmental impacts for the life of the project, including provisions for monitoring, reporting and auditing.

(2) Where a request for confirmation of compliance is received from a proponent, the Agency may carry out such inspection of the site and plant and machinery and seek such additional information from the proponent as it may deem fit:

Provided that every effort shall be made by the Agency to provide the requisite confirmation or otherwise within twenty days of receipt of the request, with complete information, from the proponent.

(3) The Agency may, while issuing the requisite confirmation of compliance, impose such other conditions as the Environmental Management Plan, and the operation, maintenance and monitoring of the project as it may deem fit, and such conditions shall be deemed to be included in the conditions to which approval of the project is subject.

## **16. Deemed approval**

The period for communication of decision stipulated in sub-section (4) of section 17 shall commence from the date of filing of an IEE or EIA or environmental check list in respect of which confirmation of completeness is issued by the Agency under clause (a) of sub-regulation (1) of regulation 9.

## **17. Extension in review period**

Where the Agency in a particular case extends the period of four months under the provisions of sub-section (4) of section 17, it may extend the further period as it may

deem fit, for the reasons to be recorded in writing thereof.

## **18. Validity period of approval**

- (1) The approval accorded by the Agency under section 17 read with regulation 12 shall be valid, for commencement of construction, for a period of three years from the date of issue.
- (2) If construction is commenced during the initial three years validity period, the validity of the approval shall stand extended for a further period of three years from the date of issue.
- (3) After issue of confirmation of compliance, the approval shall be valid for a period of three years from the date thereof.
- (4) The proponent may apply to the Agency for extension in the validity periods mentioned in sub-regulations (1), (2) and (3), which may be granted by the Agency in its discretion for such period not exceeding three years at a time, if the conditions of the approval do not require significant change:

Provided that the Agency may require the proponent to submit a fresh IEE or EIA, if in its opinion changes in location, design, construction and operation of the project so warrant.

## **19. Entry and inspection**

- (1) For the purpose of verification of any matter relating to the review or to the conditions of approval of an IEE or EIA or environmental check list prior to, before or during and after commencement of construction or operation of a project, duly authorized staff of the Agency shall be entitled to enter and inspect the project site, factory building and plant and equipment installed therein.
- (2) The proponent shall ensure full cooperation of the project staff at site to facilitate the inspection, and shall provide such information as may be required by the Agency for this purpose and pursuant thereto.

## **20. Monitoring**

- (1) After issue of approval, the proponent shall submit a report to the Agency on completion of construction of the project.
- (2) After issue of confirmation of compliance, the proponent shall submit an annual report summarizing operational performance of the project, with reference to the conditions of approval and maintenance and mitigatory measures adopted by the project.

- (3) The proponent shall, in order to enable the Agency to effectively monitor compliance with the conditions of approval, furnish such additional information as the Agency may require.

## **21. Cancellation of approval**

- (1) Notwithstanding anything contained in these regulations, if, at any time, on the basis of information or report received or inspection carried out, the Agency is of the opinion that the conditions of an approval have not been complied with, or that the information supplied by a proponent in the approved IEE or EIA or environmental check list is incorrect, it shall issue notice to the proponent for show cause within two weeks of receipt thereof as to why the approval should not be cancelled.
- (2) In case no reply is received or if the reply is considered unsatisfactory, the Agency may, after giving the proponent an opportunity of being heard -
  - (i) require the proponent to take such measures and to comply with such conditions within such period as it may specify, failing which the approval shall stand cancelled; or
  - (ii) cancel the approval.
- (3) On cancellation of the approval, the proponent shall cease construction or operation of the project forthwith.
- (4) Any action taken under this regulation shall be without prejudice to any other action that may be taken against the proponent under the Act or rules or regulations or any other law for the time being in force.

## **22. Registers of IEE,EIA and Check list projects**

Separate Registers to be maintained by the Agency for IEE, EIA and environmental check list projects under sub-section (6) of section 17 shall be in the form prescribed in Schedule-IX.

## **23. Environmentally sensitive areas**

- (1) The Agency may, by notification in the official Gazette, designate an area to be an environmentally sensitive area.
- (2) Notwithstanding anything contained in regulations 3, 4 and 5, the proponent of a project situated in an environmentally sensitive area shall be required to file an EIA with the Agency.
- (3) The Agency may from time to time issue guidelines to assist proponents and other persons involved in the environmental assessment process to plan and prepare projects located in environmentally sensitive areas.

- (4) Where guidelines have been issued under sub-regulation (3), the projects shall be planned and prepared, to the extent practicable, in accordance therewith and any departure therefrom justified in the EIA pertaining to the project.

24. **Environmental Assessment Advisory Committee.-** For the purpose of rendering advice on all aspects of the environmental assessment including guidelines procedure and categorization of projects, the following Advisory Committee shall be constituted:-

- |   |                 |
|---|-----------------|
| (i) Director Technical, Sindh Environmental Protection Agency<br>(EIA/IEE)                            | <b>Chairman</b> |
| (ii) Chief Environment, Planning and Development Department   | <b>Member</b>   |
| (iii) Four representative on each of industry, non-Governmental organization, legal and other experts | <b>Members</b>  |

25. **Repeal and Savings.** (1) The provisions of the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Assessment Impact Regulations 2000, to the extent of the Province of Sindh are hereby repealed.

(2) All orders made, notification issued, actions taken under the repealed Regulations shall remain in force until amended, altered or repealed by the provisions of these Rules.

**DIRECTOR GENERAL  
SINDH ENVIRONMENTAL PROTECTION  
AGENCY**

**SCHEDULE I**  
(See Regulation 3)

**A. Agriculture, Livestock and Fisheries**

1. Poultry, livestock, stud and fish farms
2. Projects involving packaging, formulation, cold storage and warehouse of agricultural products.

**B. Energy**

1. Hydroelectric power generation less than 50 MW
2. Thermal power generation less than 100MW
3. Coal fired power plants with capacity less than 50 MW
4. Transmission lines less than 11 KV, and grid station
5. Waste-to-energy generation projects including bio-mass less than 25 MW
6. Solar project
7. Wind project

**C. Oil and Gas projects:**

1. Oil and gas 2D/3D Seismic survey and drilling activities
2. Oil and gas extraction projects including exploration and production located outside the environmentally sensitive areas
3. Construction of LPG storage facilities
4. Construction of LPG,CNG filling station and petrol pumps

**D. Manufacturing and processing**

1. Ceramics and glass units less than 500 million
2. Food processing industries with total cost less than Rs. 200 millions

3. Pharmaceutical units.
4. Marble units
5. Carpet manufacturing units
6. Rice mills, ghee/oil mills ,
7. Brick kilns
8. Stone crushing units
9. Man-made fibers and resin projects with total cost less than Rs. 200 millions
10. Manufacturing of apparel, textile garments unit , including dyeing, bleaching and printing, with total cost less than Rs.50 million
11. Wood products with total cost more than Rs.100 million
12. Steel re-rolling mills
13. Recycling plants

**E. Mining and mineral processing**

Commercial extraction of sand, gravel, limestone, clay, sulphur and other minerals not included in Schedule II with total cost less than Rs.100 million

1. Crushing, grinding and separation processes
2. Smelting plants with total cost less than Rs100 millions

**F. Transport**

1. Flyovers, underpasses and bridges having total length less than 500 meters

**G. Water management, dams, irrigation and flood protection**

1. Dams and reservoirs with storage volume less than 25 million cubic meters of surface area less than 4 square kilometers
2. Small-scale irrigation systems and drainage system with total cost less than Rs. 100 million

**H. Water supply and filtration**

Water supply schemes and **filtration** plants with total cost less than 100 million

(Including projects of maintenance, up gradation, reconstruction of existing projects.)

**I. Waste disposal and treatment**

1. Solid and non-hazardous waste with annual capacity less than 10,000 tons
2. Waste water treatment for sewage treatment facility with total cost less than 200M
3. Industry specific Waste water treatment facility for Industrial effluent (small scale plant)

**J. Urban development**

1. Housing schemes less than 10 acres
2. Mutli-story buildings having residential and commercial setup on the total plot size is less than 2000 sq.yards
3. Hospitals with capacity of 50 beds, health care unit/laboratories with 500 OPD/day.
4. Construction of Educational, Academic institutions on land less than 10 acres.

**K. Other projects**

Any other project for which filing of an IEE is required by the Agency under sub-regulation (2) of Regulation 6.

## **SCHEDULE II**

(See Regulation 4)

### **List of projects requiring an EIA**

#### **A. Energy**

1. Hydroelectric power generation over 50 MW
2. Thermal power generation over 100MW
3. Coal power projects above 50 MW
4. Transmission lines (11 KV and above) and distribution projects.
5. Nuclear power plants
6. Wind energy projects if falls under any sensitive, protected area.

#### **B. Oil and Gas projects**

1. Petroleum refineries.
2. LPG and LNG Projects(including LNG Terminals, re-gasification units) except LPG filling stations
3. Oil and gas transmission systems
4. Oil and gas gathering system, separation and storage.

#### **C. Manufacturing and processing**

1. Cement plants
2. Chemical manufacturing industries
3. Fertilizer plants
4. Steel Mills
5. Sugar Mills and Distilleries
6. Food processing industries including beverages, dairy milk and products, slaughter houses and related activities with total cost more than Rs. 200 Million
7. Industrial estates (including export processing zones)
8. Man-made fibers and resin projects with total cost of Rs 200M and above
9. Pesticides (manufacture or formulation)

10. Petrochemicals complex
11. Synthetic resins, plastics and man-made fibers, paper and paperboard, paper pulping, plastic products, textiles (except apparel), printing and publishing, paints and dyes, oils and fats and vegetable ghee projects, with total cost more than Rs. 10 million
12. Tanning and leather finishing projects
13. Battery manufacturing plant

**D. Mining and mineral processing**

1. Mining and processing of coal, gold, copper, sulphur and precious stones
2. Mining and processing of major non-ferrous metals, iron and steel rolling
3. Smelting plants with total cost of Rs. 100 million and above

**E. Transport**

1. Airports
2. Federal or Provincial highways or major roads (including rehabilitation or rebuilding or reconstruction of existing roads)
3. Ports and harbor development
4. Railway works
5. Flyovers, underpasses and bridges having total length of more than 500m

**F. Water management, dams, irrigation and flood protection**

1. Dams and reservoirs with storage volume of 25 million cubic meters and above having surface area of 4 square kilometers and above
2. Irrigation and drainage projects serving 15,000 hectares and above
3. Flood Protection

**G. Water supply and filtration**

Large Water supply schemes and **filtration** plants.

**H. Waste Disposal and treatment**

1. Handling, storage or disposal of hazardous or toxic wastes or radioactive waste (including landfill sites, incineration of hospital toxic waste )
2. Waste disposal facilities for municipal or industrial wastes, with total annual

capacity of 10,000 tons and above.

3. Waste water treatment facility for industrial or municipal effluents.

**I. Urban development and tourism**

1. Housing schemes above 10 acres
2. Residential/commercial high rise buildings/apartments from 15 stories and above.
3. Land use studies and urban plans (large cities)
4. Large scale public facilities.
5. Large-scale tourism development projects

**J. Environmentally Sensitive Areas**

All projects situated in environmentally sensitive areas

**K. Other projects**

1. Any other project for which filing of an EIA is required by the Agency under sub-regulation (2) of Regulation 5.
2. Any other project likely to cause an adverse environmental effect

### **SCHEDULE-III**

#### **List of projects requiring environmental screening (through check list)**

- a. Construction of, offices and small commercial buildings (1-6 story),home industrial units, ware houses, marriage / banquet facilities, large scale motor vehicles workshops, restaurants / food outlets ,large baking unit subject to the compliance with existing zoning laws.
- b. Reconstruction / rehabilitation of roads ( small roads in urban area and farm to market roads more than 2 km.
- c. On-farm dams and fish farms.
- d. Pulses mills.
- e. Flour Mills
- f. Projects promoting energy efficiency (small scale).
- g. Lining of existing minor canals and /or water courses.
- h. Canal cleaning
- i. Forest harvesting operations
- j. Rain harvesting projects
- k. Rural schools (Secondary and Higher Secondary) and rural and basic health units having atleast ten beds capacity.
- l. BTS Towers
- m. Lime Kilns
- n. Ice factories and cold storage.
- o. Cotton oil mill
- p. Warehouses for pesticides and pharmaceuticals

**Schedule-IV**

**(See Regulation 7)**

<b>Description</b>	<b>IEE</b>	<b>EIA</b>	<b>Environmental Check list</b>
<b>Projects</b>	<b>Rs.100,000</b>	<b>Rs.200,000</b>	<b>Rs.30,000 except BTS Towers which is Rs.15,000</b>

**SCHEDULE V**  
[See Regulation 8(2)(a)]  
**Application Form**

1.	Name and address of Proponent		Phone: Fax: Telex:	
2.	CNIC No. of proponent			
3.	Description of project			
4.	Location of project			
6.	Objectives of project			
7.	IEE/EIA attached?	IEE/EIA	:	Yes/No
8.	Have alternative sites been considered and reported in IEE/EIA?	Yes/No		
9.	No Objection Certificate of relevant stakeholders	Name(s)		
10.	Existing land use		Land requirement	
11.	Is basic site data available, or has it been measured?	(only tick yes if the data is reported in the IEE/EIA)  Meterology (including rainfall) Ambient air quality Ambient water quality Ground water quality		
			Available	Measured
			Yes/No	Yes/No
			Yes/No	Yes/No
			Yes/No	Yes/No
12.	Have estimates of the following been reported, especially Quantitative Analysis?	Water balance Solid waste disposal Liquid waste treatment	Estimated	Reported
			Yes/No	Yes/No
			Yes/No	Yes/No
			Yes/No	Yes/No
13.	Source of power		Power requirement	
14.	Labour force (number)	Construction: Operation:		
15.	Environmental Consulting Firm			

Verification. I do solemnly affirm and declare that the information given above and contained in the attached IEE/EIA is true and correct to the best of my knowledge and belief.

Date

Signature, name and \_\_\_\_\_  
designation of proponent  
(with official stamp/seal)

**SCHEDULE VI**  
[See Regulation 12]

**Decision on IEE/Environmental Check List**

1. Name and address of proponent \_\_\_\_\_  
\_\_\_\_\_

2. Description of project

3. Location of project

4. Date of filing of IEE

5. After careful review of the IEE, the Agency has decided –

(a) to accord its approval, subject to the following conditions:

\_\_\_\_\_  
\_\_\_\_\_

or (b) that the proponent should submit an EIA of the project, for the following reasons –

\_\_\_\_\_  
\_\_\_\_\_

[Delete (a) or (b), whichever is inapplicable]

Dated

Tracking no.\_\_\_\_

Director-General  
Sindh Environmental Protection Agency  
(with official stamp/seal)

**SCHEDULE VII**

[See Regulation 12]

**Decision on EIA**

1. Name and address of proponent \_\_\_\_\_  
\_\_\_\_\_
2. Description of project \_\_\_\_\_
3. Location of project \_\_\_\_\_
4. Date of filing of EIA \_\_\_\_\_
5. After careful review of the EIA, and all comments thereon, the Federation Agency has decided –
  - (a) to accord its approval, subject to the following conditions:  
\_\_\_\_\_  
\_\_\_\_\_
  - or (b) that the proponent should submit an EIA with the following modifications-  
\_\_\_\_\_  
\_\_\_\_\_
  - or (c) to reject the project, being contrary to environmental objectives, for the following reasons:  
\_\_\_\_\_  
\_\_\_\_\_

[Delete (a)/(b)/(c), whichever is inapplicable]

Dated

Tracking no.\_\_\_\_

Director-General  
Sindh Environmental Protection Agency  
(with official stamp/seal)

**SCHEDULE VIII**  
[See Regulation 13(2)]

**Undertaking**

I, (full name and address) as proponent for (name, description and location of project) do hereby solemnly affirm and declare that I fully understand and accept the conditions dated , and undertake to design, construct and operate the project strictly in accordance with the said conditions and the IEE/EIA/Environmental Check List.

Signature, name and  
designation of proponent  
(with official stamp/seal)

Witnesses  
(full names and addresses)

\_\_\_\_\_

\_\_\_\_\_

**SCHEDULE IX**  
(See Regulation 21)  
**Form of Registers for IEE and EIA and Environmental Check List projects**

<u>S. No.</u>	<u>Description</u>	<u>Relevant Provisions</u>
1	2	3
1.	Tracking number	
2.	Category type (as per Schedules I, II & III)	
3.	Name of proponent	
4.	Name and designation of contact person	
5.	Name of consultant	
6.	Description of project	
7.	Location of project	
8.	Project capital cost	
9.	Date of receipt of IEE/EIA/Environmental Check List	
10.	Date of confirmation of completeness	
11.	Approval granted (Yes/No)	
12.	Date of approval granted or refused	
13.	Conditions of approval/reasons for refusal	
14.	Date of Undertaking	
15.	Date of extension of approval validity	
16.	Period of extension	
17.	Date of commencement of construction	
18.	Date of issue of confirmation of compliance	
19.	Date of commencement of operations	
20.	Dates of filing of monitoring reports	
21.	Date of cancellation, if applicable	