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# **Environment Barometer 2018**

by

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# Table of Contents

1. Abstract:.....	1
2. Introduction:.....	1
3. Objective.....	2
4. Literature Review.....	2
5. Methodology.....	4
5.1. Universe:.....	4
5.2. Target Population:.....	5
5.3. Urban Areas:.....	5
5.4. Rural Areas:.....	5
5.5. Sample Design.....	5
5.6. Primary Sampling Units (PSUs):.....	6
5.7. Secondary Sampling Units (SSUs):.....	6
5.8. Sample Size and Allocation.....	6
6. Result & Analysis.....	8
7. Conclusion.....	18
8. References.....	19

## 1. ABSTRACT:

This study was conducted in collaboration with Henrich Böll Stiftung (hbs). The study aims to find out people's perception about environmental issues, their impacts on daily life leading to environment a determinant for people to vote? A questionnaire consisting of 10 closed-ended questions was developed. n About 91% of the respondents said that high temperature is an issue followed by 87% who added that water shortage is one of the key environmental issues. However, only 13% of the respondents voted for environment keeping it as a determinant. This shows that environment is a key issue but is not a priority.

**Keywords:** Environment, Water, Temperature, Air Pollution, Trees, Political Parties, Government and Pakistan

## 2. INTRODUCTION:

This perception survey analyzes Pakistan's environmental vulnerability against 10 indicators based on Organization for Economic Co-operation and Development (OECD) parameters. Pakistan has a poor performance with a decreasing forest cover due to discrepancy in plantation and deforestation measures, losing up to 42,000 ha per year (1.66%). Currently, Pakistan's forest cover is an abysmal 1.9% (of land cover), which is the lowest among the countries in the region. The country actually lost 840,000 ha or 33.2% of its forest cover during 1990 and 2010. On the count of water resources, Pakistan has gone from being water surplus to water stressed and soon it is going to have water scarcity. The per capita water availability has reduced from approximately 5000 cubic meters per year to around 1000 cubic meters per year. Wastage of water continues both by domestic and industrial consumers. Pakistan is expected to experience increased variability of river flows due to increased variability of precipitation and melting of glaciers. Demand for irrigation water may increase due to higher evaporation rates. Yields of wheat and basmati rice are expected to decline and may drive production northward, subject to water availability.

Water availability for hydropower generation may decline. Hotter temperatures are likely to increase energy demand due to increased air conditioning requirements. Warmer air and water temperatures may decrease efficiency of nuclear and thermal power plant generation. Mortality due to extreme heatwaves may increase. Urban drainage systems may be further stressed by high rainfall and flash floods. Sea level rise and storm surges may adversely affect coastal infrastructure and livelihoods.<sup>1</sup> In last few years, air pollution has increased manifold in Pakistan. For example, Lahore, the provincial capital of the Punjab province, witnessed extreme visibility and health issues in the form of smog. According to readings, an air monitoring level of carbon monoxide went as high as 21.29 milligram per metre in one of the main and high populated areas in the city. The life of locals was stranded. However, there is a lack of comprehensive studies that could indicate the smog composition.

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<sup>1</sup>Zaman, Q.U., Asian Development Bank (ADB). 2017. Climate Change Profile of Pakistan. Accessed on 12<sup>th</sup> June, 2018. <https://www.adb.org/sites/default/files/publication/357876/climate-change-profile-pakistan.pdf>

According to Climate Vulnerability Risk Index 2016, Pakistan is ranked 7th most vulnerable country in a long run due to climate change. German Watch, a think tank based in Germany, ranked Pakistan the 40th on the list with having suffered 566 casualties, and losing US \$47.313 million — equivalent to 0.0048 per cent of the GDP. This also means that its natural resources are under stress and can result in making the country and its future generations further vulnerable to climate change because Pakistan economy is largely based on agriculture. The economic progress of the country will be at stake if adequate measures are not taken. In Pakistan, extreme weather events are increasing; the super floods of 2010 affected around 20 million people. In 2011, five years of rainfall fell in just 4 weeks in Sindh. In 2012, Pakistan again faced heavy floods. These events show that climate change is a reality with devastating consequences in the country. The last few years of continuous flooding in the country has had a long-term impact on farmers' ability to produce crops.

The above stresses and resource depletion require effective governance especially around the above-mentioned 10 indicators. The leadership in the country is preoccupied with political and security issues and do not consider environment a part and parcel of development.<sup>2</sup> The livelihood of people is directly connected to the natural resources and also to environmental sustainability. The government, however, has taken initiatives to reduce risk of flash floods in Northern Pakistan, particularly glacial lakes outburst floods (GLOFs). Similarly, local communities improved livelihoods by repairing water channels in Sindh. Income generation activities for women have also been created by the communities with the help of civil society with minimal or no role of the government. Therefore, with the upcoming elections in 2018, it is important to gauge opinion of the people on environment related issues affecting their lives communicate to the political parties urging them to pledge to bring improvement in the life local communities, their resources and lower their vulnerability keeping in view the climate hazards.

### **3. OBJECTIVE**

The study aims to:

- analyze the data on the state of environment in Pakistan through secondary sources/desk review (forest cover, water scarcity, disasters, pollution, energy, mass transit etc.)
- analyze the impact of respective governments' policies and decisions around environment during the last five years
- provide an unbiased and independent opinion poll, and analysis about the performance of political parties regarding environment issues and response of both federal and provincial governments against the selected indicators (i.e. climate change, air pollution (smog), water, land, energy, forests, waste management, and fisheries).

### **4. LITERATURE REVIEW**

Pakistan is facing many environmental challenges, which pose serious threats to human health and life. Climate change is negatively impacting health, agriculture and overall economy of the

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<sup>2</sup> <https://www.youlinmagazine.com/story/70-years-of-environment-and-climate-in-pakistan/OTEz>

country. The main reasons are carbon emission, deforestation, population explosion and lack of finances to mitigate and adapt to climate change effects. Pakistan is a water scarce country. The main causes are climate change, lack of enough reservoirs to store water, water issues with India, and old irrigation system and water wastages in domestic consumption and lack of awareness. Air pollution, poor waste management and population bomb are major hurdles behind the availability of clean drinking water for everyone in Pakistan. Pakistan could not achieve the UN's set target of 25 percent of forest cover on its total area, besides two plantations drives annually. The reason behind deforestation is energy crises, commercial benefits and domestic use. Though certain plans have been launched to increase forest cover, which includes Green Pakistan Program, Billion Tree Tsunami and REDD Plus, but it will take some years for these plants to grow and replace already cut big trees (Huma, 2018). The word "environment" was unfamiliar to people of Pakistan even after promulgation of the 1983 Environmental Protection Ordinance. The most significant achievements in the recent years are incorporation of environmental concerns in government policies and initiation of process of Environmental Impact Assessment (EIA) in the development schemes. In the forestry sector, a culture of collective effort has been introduced and every sector of society-the institutions, schools and NGOs now realize that planting of trees is their responsibility. Energy conservation, which has importance in the context of emission of greenhouse gases and other pollutants but was not attracting attention in the past, now considered a vital tool for the protection of environment. Fuel efficiency in transport, industry and domestic sector has been taken into Government policies and plans (MoE, 2001). Air pollution is rapidly growing environmental problem in Pakistan. Highly inefficient energy use, accelerated growth in vehicle population and vehicle kilometers traveled, increasing industrial activity without adequate air emission treatment or control, open burning of solid waste including plastic, and use of ozone depleting substances (ODSs) are some of the major causes of deterioration of ambient air quality. Rapidly growing energy demand, fuel substitution such as high emitting coal and oil, and high-energy intensity are the key factors contributing to air pollution. Ambient air quality data show that carbon monoxide levels in Karachi and Lahore considerably exceed WHO's recommended levels. Particulate matter content cross safety levels in the major industrial cities in the Punjab province. The reported lead levels in ambient air sites in Peshawar, Rawalpindi, Lahore and Karachi are also quite high compared to WHO's permissible levels (Khawaja and Khan, 2005). Air pollution has turned into a significant environmental problem in Pakistan. In the period 1990 to 2005, carbon dioxide, methane and nitrous oxide emissions in the country increased by 97.4, 33.2 and 44.5 per cent, respectively (Mallick and Masood, 2011). Pakistan has all the environmental laws, but the government and citizens lack the will to implement and follow those laws completely. This also undermines the superiority of laws. The Pakistani nation needs to adopt trend of using public transport in daily life (Huma, 2018). 20% of the registered industries in Pakistan are considered highly polluting (4). Under the Self-monitoring and reporting/SMART program for industry in Pakistan, in category (most hazardous) there are 23 & 11 industrial sectors for industrial effluents and gaseous emission, respectively (5). Major industries/clusters are in textiles, leather, steel, oil refineries & mills, chemicals, ceramics, pharmaceuticals and food (Khawaja, 2012). According to one estimate, the average annual cost of environmental degradation and natural resource damage in the country is about US\$ 365, or US\$ 1 billion a day. Pollution compounds the problems of water scarcity and distribution and

has become a critical concern in Pakistan. The disposal of untreated urban sewage, industrial effluent and agricultural drainage runoff is responsible for most of the contamination of lakes, rivers and groundwater aquifers. Agricultural activities are linked strongly to the deterioration of water quality in Pakistan. The country use an estimated 5.6 million tonnes of fertiliser and some 70,000 tonnes of pesticides annually and per hectare intake of fertiliser are increasing at a faster rate than most other countries over time (Mallick and Masood, 2011). The effects of global climate change in Pakistan are already evident in the form of growing frequency of droughts and flooding, increasingly erratic weather behavior, changes in agricultural patterns, reduction in freshwater supply and the loss of biodiversity. Pakistan in recent years has faced one of the deadliest floods and earthquake in its history where national capacity to overcome the natural calamity was seen wanting. With an ever increasing population posing a momentous challenge, in order to provide quality life infrastructure, existing environment management capacity of Pakistan cannot cope with such a large population threat. In Pakistan, environmental issues has caused roughly 1/3 of all child mortality highest in South Asia along with unending spread of other diseases like diarrhea and typhoid mainly due to insufficient water supply, poor sanitation and hygiene conditions which overall contribute in approx 30 percent of the cost of environmental damages. Despite increasing international attention, the environmental degradation issue is severely harming the public space and the state alike on policy fronts. Pakistan falls in the most vulnerable categories of climate change but we are doing nothing to cope with the challenge (Ali et al., 2015). A large number of population does not have access to clean drinking water with more than 90% of water being consumed for our Agriculture. In addition to water, other issues such as loss of biodiversity, solid waste and energy were considered to be major challenging areas for Pakistan on the horizon of next ten to fifteen years and a collaborative and a coordinated approach on part of all stakeholders will be needed to overcome these issues in an effective manner (Gabol and Ahmed, 2011).

## **5. METHODOLOGY**

A comprehensive survey was conducted to explore the indicators of environment such as: weather pattern, water, waste management, forests and air pollution. The sample selected through methods employed strict random probability at every stage and the respondents were interviewed. The minimum 'effective achieved sample size' was 5700 after discounting for design effects. To achieve that figure, the realistic estimated impact of clustering, eligibility rates (where appropriate), over-sampling and response rate needs were considered apart from the minimum 'effective achieved sample size'.

### **5.1. Universe:**

The universe for capturing the population consists of urban and rural areas of all provinces of Pakistan defined by the population census 2017. Military restricted and protected areas will be excluded from the scope of this survey. Similarly, the areas located in difficult terrain where coverage through enumeration is not possible will also be excluded.

## 5.2. Target Population:

The target population under this study will be consisted of all registered voters classified on the basis of geographical area, i.e. urban/rural, age, gender, income status and other target criterions, which we will be interested in describing and making statistical inferences.

## 5.3. Urban Areas:

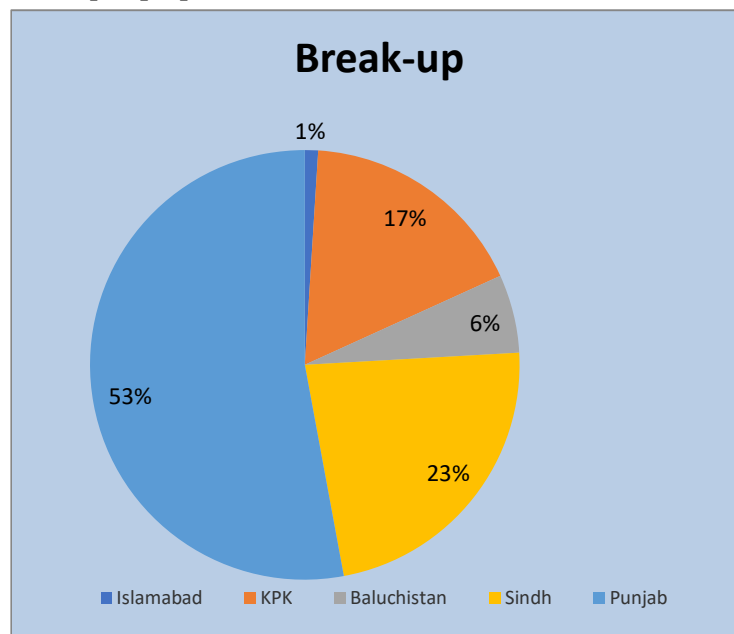
Large cities having a population of 0.5 million and above have been treated as independent stratum. Each of these cities will be further sub-stratified into low, middle and high income groups. The remaining cities/towns within each defunct administrative division will be grouped together to constitute an independent stratum.

## 5.4. Rural Areas:

The entire rural domain of a district from Punjab, Khyber Pakhtunkhwa, and Sindh will be considered as independent stratum whereas Balochistan's defunct administrative division will be treated as independent stratum.

## 5.5. Sample Design

A Multi-stage Stratified Random Sampling with Population Proportion to the Size has been adopted to achieve a good representative sample from the target population. This sampling technique is useful when we need to subdivide each stratum into further strata and also convenient to reduce the heterogeneity of the target population. At first stage, 136 electoral territories will be randomly selected on the basis of geographical classification. At second stage; each electoral territory will be divided into urban and rural according to the population proportion to the size as defined by census 2017. At third stage, rural urban areas of each electoral territory will be further divided into male and female with equal proportion allocation. However, the selection of male and female





from each rural and urban area will be made on the basis of simple random sampling. However, sample breakup is given in the below figure.

### 5.6. Primary Sampling Units (PSUs):

The randomly selected electoral territories of all four provinces and Islamabad will be taken as Primary Sampling Units (PSUs).

### 5.7. Secondary Sampling Units (SSUs):

The registered voters (male, female, adult 18+ and low middle high income status) in each electoral territory will be considered as Secondary Sampling Units.

### 5.8. Sample Size and Allocation

It is presumed that any sample cannot represent population perfectly. Although such “sampling error” cannot be avoided, it can be reduced by obtaining a sample of sufficiently large size and by using “appropriate sampling technique”. An appropriate sample size will be 5700 to identify the exact information and sample size is calculated on the basis of following factors.

1. Level of Significance, which describes the level of uncertainty in the sample mean or prevalence as an estimate of the population mean or prevalence, will be 95%.
2. Margin of Error (MoE) indicate the expected half-width of the confidence interval. The smaller the margin error, the larger the sample size will be needed. For this project, it will be 0.05, which will be 5% of the total population.
3. Design Effect (Deff) describes the loss of sampling efficiency due to using a complex sample design; in this project, it will be recommended as 1.0.
4. Variation in target population (based on secondary population)
5. Available resources for this study including time-frame

#### Formula for the calculation of Sample Size:

$$n = \frac{inv\chi^2_{(1-\alpha,1)}(N)(\alpha(1-\alpha))}{(\alpha^2)(N-1) + (inv\chi^2_{(1-\alpha,1)})(1-inv\chi^2_{(1-\alpha,1)})}$$

Sample size allocation according to the population proportion to the size as give below

Provinces	Pop%	Total Population	Sample	Districts	Divisions
Islamabad	1.0	2006572	57	1	1
KPK	17.2	30523371	969	25	7
Baluchistan	5.9	12344408	342	32	6
Sindh	23.0	47886051	1311	29	6

<b>Punjab</b>	52.9	110012442	3021	36	9
<b>Total</b>	<b>100.00</b>	<b>207774520</b>	<b>5700</b>	<b>136</b>	<b>30</b>

For the purpose of geographical coverage, the provinces were divided into regions, and the regions were sub-divided into sample “collection districts”. From a total of 55 select districts, 5700 registered voters were interviewed across the four provinces, i.e. Punjab, Khyber Pakhtunkhwa, Sindh and Balochistan. The sampling for the respondents’ information in the select districts was done on the basis of sample size with 53% from the Punjab, 23% from Sindh, 6% from Balochistan and 17% from Khyber Pakhtunkhwa. Registered voters in each province were divided into those representing rural and urban populations, and these amounts to 67% and 33% respectively. Equal weightage was accorded, by selecting 50% male and 50% female registered voters from each province, in order to consider statistical biases in gender selectivity in urban and rural areas.

To capture the voter diversity, the provinces of Punjab, and Khyber Pakhtunkhwa which now include the former Federally Administrative Tribal Areas were divided into three regions. The former consists of Lower, Upper and Central regions of the Punjab whereas the latter consists of Upper, Central and Lower regions of Khyber Pakhtunkhwa. Similarly, Sindh province was divided into two regions, Sindh 1 and Sindh 2. A multi-stage stratified random sampling technique was adopted in order to strategize the respondents’ responses, and to ensure that the sample is reliable and representative. The process of gathering responses from the respondents involves three distinct stages. At first stage, 52 electoral districts (24 in Punjab, 12 in Khyber Pakhtunkhwa, 13 in Sindh, and 3 in Balochistan) were randomly selected on the basis of geographical classification. At second stage, each electoral district was classified as either an urban or a rural area on the basis of population proportion relative to its size.

## 6. RESULT & ANALYSIS

**Q1: What according to you are the environmental issues in Pakistan?**

Area	Issues	Percentage Response
<b>Pakistan</b>	High Temperature	91%
	Water Shortage	87%
	Air Pollution	86%
<b>Punjab</b>	Lack of Trees	86%
	High Temperature	78%
	Air Pollution	78%
<b>KP</b>	Air Pollution	94%
	Unpredictable Weather patterns	94%
	Water Shortage & High Tem.	93%
<b>Sindh</b>	Air Pollution	98%
	Lack of Trees	97%
	High Temperature	96%
<b>Balochistan</b>	High Temperature	92%
	Lack of Trees	88%
	Unpredictable Weather patterns	88%
<b>Islamabad</b>	High Temperature	91%
	Water Shortage	87%
	Air Pollution	86%

Pakistan's first-ever Environment Barometer Survey cited high temperature, water scarcity and air pollution as top three environmental challenges. Over the years, where the world is badly affected by environmental changes, Pakistan has its own story. Climate is constantly changing due to anthropogenic activities. Global warming is known in many countries but Pakistan is a place where it got attention in the year 2010 when heatwave created a mess and impacted badly especially the poor people. After this recorded high temperature in the year 2015, death toll in the country increased. Karachi was the area where most of the people died due to high temperatures which prevailed there for weeks (Saleem et al. 2018). Therefore, in the current survey, 96% of the respondents from Sindh province highlighted 'high temperature' as the top environment issues as it impacted their health, day-to-day life besides impacting the economy. Owing to lack of mitigation measures (by the government) and resources, people still couldn't adapt to the high temperatures that causes deaths every year. As many as 65 people died in Karachi due to high temperatures this year's summer (The Guardian 2018). The poor, women and children are most vulnerable to the high temperatures because of fragile health conditions and sensitivity towards high temperatures. According to the New York Times (2018), the

highest temperature ever recorded in the history of Pakistan was 50.2 degrees Celsius in Nawab Shah, Sindh (The New York Times 2018). This high temperature not only affects human health but also has devastating impact on the economy.

The second top environmental issue, according to the respondents, is water shortage. According to United Nations Development Programme (UNDP), Pakistan will run dry by the year 2025 ‘if’ mismanagement continues. According to the research, reduced water quantity and quality is because of climate change (Rees and Collins 2005). This threat is bigger than terrorism as Pakistan is heavily dependent on agricultural economy. Respondents from the Punjab didn’t see water shortage as an environmental issue. According to the Water Apportionment Accord (1991), the Punjab receives most of the water for its agricultural needs (Water Apportionment Accord is for Indus River Basin). Although, this water distribution formula is based on the population size but at times other provinces like Khyber Pakhtunkhwa and Balochistan complained about water shortage and over consumption by the Punjab province. This distribution formula is 26 years old now and it needs to be updated as per needs and demands of the provinces. Many provincial conflicts arise because of this distribution formula. Institutional failure and inter provincial conflicts have made dams a controversial subject. Pakistan has too much water in the rainy season. According to Pakistan Agriculture Scientists Association, live storage capacity of the country’s reservoirs is only 30 days. The capacity of mega dams like Mangla and Tarbela has reduced because of sedimentation and siltation. There is no mechanism to desilting. According to Water and Power Development Authority (WAPDA), 25 million acre-feet (MAF) is wasted annually because of reduced storing capacity in the existing dams. On the other hand, Pakistan has no ground water policy. According to a research, 80% ground water abstraction is done by the farmers as they have to meet agricultural demands. It has resulted in lowering of water table and salinization. The total number of tube-wells in Pakistan is 600,000 which is alarming. The demand is increasing 20,000 tube-wells per year (Bhutta and Alam n.d.).

The 3rd top environmental issue, according to respondents, is the air pollution (86%). Owing to mega projects in twin cities of Islamabad and Rawalpindi, air pollution has caused a lot of problems. Every large infrastructure project contributed to dust and particulate-matter. Industrial emissions in many parts of the country also contribute to the bad air quality. In addition, indoor air pollution (pollution due to the use of chemicals) also causes breathing problems. Orange train and metro train projects caused deforestation and further deteriorated the environment. The highest figure, according to the respondents, was in Sindh i.e. 98% air pollution. This could be because of large size of population and lack of mass transit transport system.

**Q2: How do these Issues relate to you or Impact your life?**

Area	Impact	Percentage Response
Pakistan	Health Issues	89%
	Livelihood	74%

	Social life/day-to-day matters	<b>68%</b>
<b>Punjab</b>	Health Issues	<b>94%</b>
	Livelihood	<b>75%</b>
	Declining crop yield and productivity	<b>68%</b>
<b>KP</b>	Health Issues	<b>88%</b>
	Social life/day-to-day matters	<b>82%</b>
	Livelihood	<b>69%</b>
<b>Sindh</b>	Health Issues	<b>96%</b>
	Livelihood	<b>95%</b>
	Social life/day to day matters	<b>93%</b>
<b>Balochistan</b>	Health Issues	<b>92%</b>
	Livelihood	<b>84%</b>
	Migration	<b>78%</b>
<b>Islamabad</b>	Health Issues	<b>75%</b>
	Social life/day to day matters	<b>50%</b>
	Livelihood	<b>48%</b>

The aforementioned top environmental issues impact livelihood (74%), health (89%) and social life (68%) of the respondents. The most recent example of bad air quality is the presence of smog in the Punjab and in some parts of KP. Smog causes lungs and breathing problems. According to the World Bank's report titled: 'Cleaning Pakistan's Air: Policy Options to Address the Cost of Outdoor Air Pollution', each year 20,000 premature deaths are recorded in Pakistan due to bad air quality. Moreover 80,000 hospital admissions per year are due to the very same reason. Owing to these health issues, economy is impacted badly (World Bank 2014). Toxic air pollutants also affect livelihood. Pakistan is highly dependent on agricultural economy. Bad air quality affects cropping patterns. Early harvesting and late sowing is witnessed over the period of time because of high temperatures. Heatwaves are getting stronger roots with the passage of time. People are migrating towards cities to get quality life in terms of money and health facilities. But, situation is not very satisfactory for them.

**Q3: What are the reasons for the above mentioned environmental changes?**

<b>Area</b>	<b>Reasons</b>	<b>Percentage Response</b>
<b>Pakistan</b>	Human Activities	<b>87%</b>
	Natural Cause	<b>75%</b>
	Population Growth	<b>74%</b>
<b>Punjab</b>	Human Activities	<b>92%</b>

	Population growth	75%
	Infrastructure Development	61%
<b>KP</b>	Natural Cause	88%
	Human Activities	87%
	Infrastructure Development	84%
<b>Sindh</b>	Human Activities	94%
	Natural Cause	93%
	Lack of Government Capacity	92%
<b>Balochistan</b>	Lack of Government attention	72%
	Human activities	71%
	Natural cause	69%
<b>Islamabad</b>	Human activities	92%
	Lack of Government attention	75%
	Infrastructure Development	70%

According to the respondents, the main reasons behind the aforementioned environmental issues are anthropogenic activities (87%), natural causes (75%) and population growth (74%). Human induced activities and population growth are closely inter-related. To meet the daily life demands, people use natural resources. Industrial growth without using clean air quality instruments and unsustainable use of water has deteriorated environmental quality. To convince the voters, governments have to initiate bigger infrastructure without conducting proper Environmental Impact Assessment (EIA), which affects environmental quality for living beings. Respondents also identified that lack of government attention towards environment is also leading cause of environmental degradation.

**Q4: Do you think respective previous governments tried to curb these issues?**

Area	Percentage Response in Yes
<b>Pakistan</b>	23%
<b>Punjab</b>	28%
<b>KP</b>	40%
<b>Sindh</b>	26%
<b>Balochistan</b>	20%
<b>Islamabad</b>	25%

To tackle the environmental issues, Khyber Pakhtunkhwa took the lead. Under the KP government led by Pakistan Tehreek-i-Insaf trees were planted on 350,000 hectares of land under a project titled: “Billion Tree Tsunami Afforestation Project (BTTAP)”. It is followed by the Punjab, i.e. 28%, as Pakistan Muslim League-Nawaz (PML-N) introduced mass transit

transport system, which reduces air pollution. But, all provinces and federal capital's respondents were not very much satisfied with the government's efforts as average is below 50%. Less efforts were made towards conservation of water and to improve air quality.

**Q5: If yes, what are the actions taken by the respective governments (2013-2018) to deal with these issues?**

Area	Actions	Percentage Response
Pakistan	Water Filtration Plants	22%
	Plantation/A forestation	19%
	Government Social Safety net programs	17%
Punjab	Government Social Safety net programs	25%
	Mass transit/public transport	19%
	Improved Water supply	18%
KP	Plantation/A forestation	44%
	Sanitation Infrastructure	32%
	Water filtration plants	28%
Sindh	Cash Transfer	48%
	Government Social Safety net programs	37%
	Plantation/A forestation	13%
Balochistan	Government Social Safety net programs	9%
	Water filtration plants	8%
	Cash Transfer	7%
Islamabad	Water filtration plants	55%
	Mass transit/public transport	37%
	Control of black smoke from vehicles	35%

Few of the government actions (2013-2018), which respondents mentioned, were more of related to afforestation and drinking water facilities. Afforestation in KP has improved the quality of life whereas government's social safety net programmes in the Punjab were the better initiative to deal with the environmental issues. To improve the air quality in Islamabad, two and three- stroke engines were monitored to control black smoke emissions. But the level of satisfaction in terms of government efforts was very low. They were of the opinion that a lot more needs to be done to tackle air pollution, water shortage, and high temperatures. One of the reasons is the lack of capacity and resources of the government to tackle these issues. In the absence of government's efforts, people cope up with extreme weather conditions and water problems by their own. They also seek help from the community and sometimes from non-governmental organizations (NGOs).

**Q6: Do you think these actions were enough to cope with the issues?**

Area	Percentage Response in Yes
Pakistan	4%
Punjab	3%
KP	6%
Sindh	3%
Balochistan	2%
Islamabad	6%

**Q7: If the actions were not enough how did you or others cope with the situation?**

Area	Actions	Percentage Response
Pakistan	Individual efforts	86%
	Assistance from community	66%
	Assistance from NGOs	20%
Punjab	Individual efforts	83%
	Assistance from community	64%
	Assistance from NGOs	10%
KP	Individual efforts	75%
	Assistance from community	72%
	Assistance from NGOs	25%
Sindh	Individual efforts	94%
	Assistance from community	93%
	Assistance from NGOs	30%
Balochistan	Individual efforts	88%
	Assistance from community	20%
	Assistance from NGOs	19%
Islamabad	Individual efforts	90%
	Assistance from community	80%
	Assistance from NGOs	15%



**Q8: Do you think the actions of respective previous governments (2013-2018) led to environmental degradation?**

Area	Percentage Response in Yes
Pakistan	91%
Punjab	89%
KP	86%
Sindh	91%
Balochistan	96%
Islamabad	94%

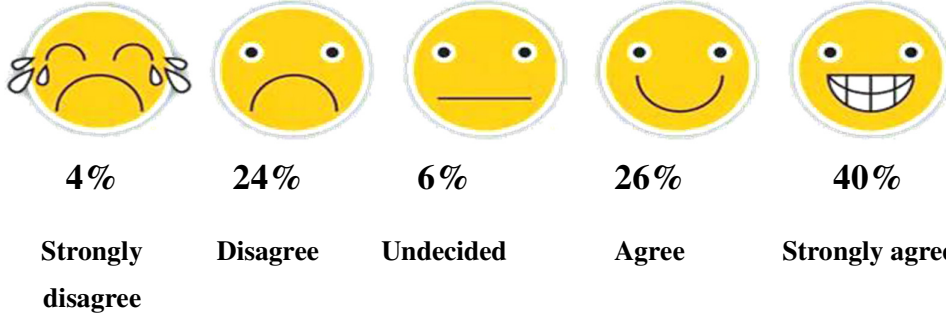
**Q9: If yes, then what are some of the actions of respective governments that led to environmental degradation in last five years (2013-2018)?**

Area	Actions	Percentage Response
Pakistan	Lack of waste management system	43%
	Poor water management	42%
	Excessive Infrastructure development	36%
Punjab	Excessive Infrastructure development	47%
	Lack of waste management system	43%
	Poor water management	36%
KP	Lack of waste management system	29%
	Excessive Infrastructure development	28%
	Poor water management	24%
Sindh	Lack of waste management system	93%
	Poor water management	91%
	Coal power plants	85%
Balochistan	Excessive Infrastructure development	32%
	Poor water management	18%
	Lack of waste management system	16%
Islamabad	Lack of waste management system	43%
	Poor water management	42%
	Excessive Infrastructure development	36%

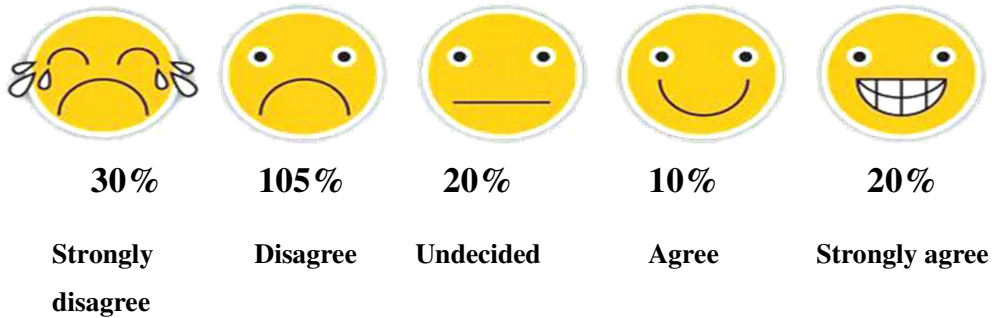
**Q10: Please express how much do you agree or disagree on the following statements?**

**Country-wide results**

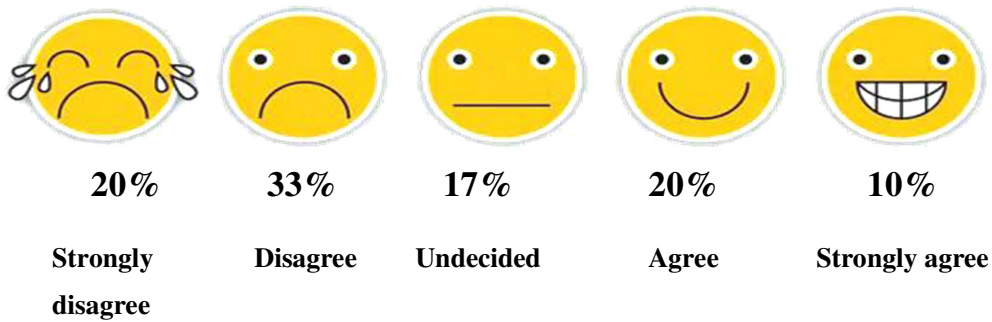
**Companies causing pollution should be fined even if it puts some jobs at risk**



**Power stations and factories should switch to cleaner processes even if consumer bills and prices have to go up**



**Government should do more to promote and encourage a better environment even if our taxes have to go up slightly**

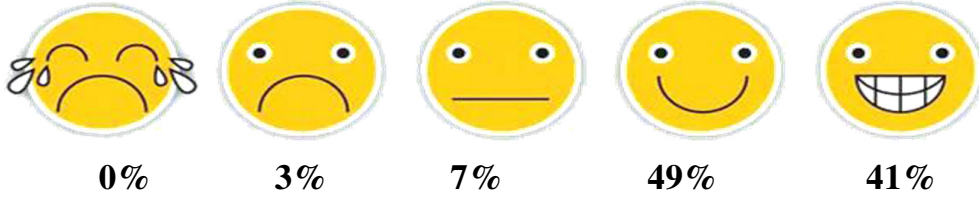


**Police should stop and check vehicles emission more frequently even if it causes traffic delay**



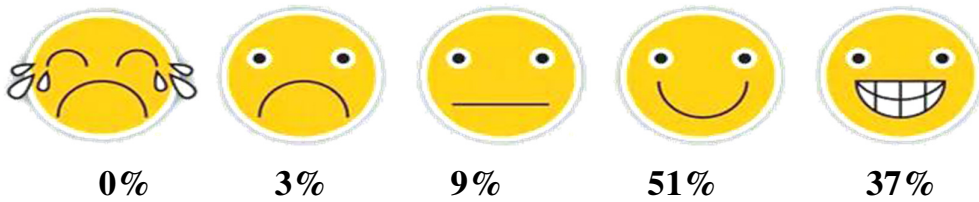
Strongly disagree      Disagree      Undecided      Agree      Strongly agree

**Improving the environment is the responsibility of every citizen**



Strongly disagree      Disagree      Undecided      Agree      Strongly agree

**Recycling programmes should be put in place and promoted across the city**



Strongly disagree      Disagree      Undecided      Agree      Strongly agree

**Water wastage should be discouraged through innovation and management**



Strongly disagree      Disagree      Undecided      Agree      Strongly agree

These agreements and disagreements showed mix response but by looking these responses, one can say that people desperately want to get rid of the environmental hazards.

**Q11: Do you know of the plans of plans of political parties have in place to curb environmental issues in Pakistan?**

Area	Percentage Response in Yes
Pakistan	9%
Punjab	5%
KP	9%
Sindh	3%
Balochistan	1%
Islamabad	25%

This question shows the level of awareness created by political parties among their voters on environmental issues. Only 9% of respondents' country-wide knew the plans of political parties to curb the environmental issues. Islamabad is leading with 25%, while rest of regions of Pakistan have response in yes less than 10%.

**Q12: Is environment a determinant for you to vote for a party in coming elections?**

Area	Percentage Response in Yes
Pakistan	13%
Punjab	13%
KP	23%
Sindh	11%
Balochistan	1%
Islamabad	16%

Surprisingly, after getting such a positive response on environmental issues all over the country, the last question 'if environment is a determinant for respondents to vote' was very much disappointing as only 13% of the respondents consider environment as an issue to vote for. The highest percentage was in KP where 23% of respondents thought so. In rest of the country, the response in yes was less than 20%. In Islamabad, only 16% said yes. Islamabad is considered as most developed and cognisant area of Pakistan but with such low response, it will not be wrong to conclude that there is a lot needs to be done to make environment a top priority.

## **7. CONCLUSION**

The above trends indicate that awareness among masses on environmental issues is growing and they do feel the changing climate and in this regard they account for the duty bearers and plan to consider environment as an area as determinant to vote in the election 2018. Since the results in this survey are based on the structured questions, it might be concluded that the level of cognizance of society is increasing day-by-day with the people becoming vulnerable to climate change and natural hazards. There is a need to give priority to the protection of environment and as opined by the survey respondents, the political parties should give categorical commitments in this regard. The crux of the answers from respondents is that the dream of a clean Pakistan can be materialized if the future governments take appropriate policy action followed by adequate resources and make people aware of their rights in a clean and green environment. This study is the first of its kind in the country. Based on the survey data, the study recommends to the coming governments to take all stakeholders on board to achieve the goal of sustainable development.

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