

“Impact of Load Shedding on Socio - Economic Life of the People” (A Study of Sargodha City)

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Abstract

This study is focused on “Impact of Load Shedding on Socio - Economic Life of the People :A Study of City Sargodha” The objective of study was, to estimate the impact of load shedding among common people, to analyse the attitude of the people towards the load shedding and to find out the impacts of load shedding on socio – economic life of the people. Interview schedule was used as a tool for data collected from 150 respondents it was concluded that average age of the respondents was 40 years. Male respondents were 80% and Female respondents were 20%. Among the target population, 70.3% respondents were married, 20.7% were unmarried and 4% were Widow/ Widower. Majority of respondents were married. Majority of respondents 96% replied experiencing load shedding in routine life; we found that more than 97% of respondents had negative views about load shedding effecting on their life position. Hypothesis has been proved with the help of findings that and findings reveals that Load Shedding Effecting on Your Life. In this context 97.3% (146) respondents were reply –Yes and 2.7% (4) were reply -No. It shows that both are unequal. Another finding shows that Load shading affects our exports. In this context 93.3% (140) respondents were replied –YES and the, 6.7% (10) were replied -NO. Along with findings reveals that LoadShedding have Negative Impact on Country's Reputation. In this context 92.7% (139) respondents are reply–YES and the, 7.3%

(11) are reply -NO. Load Shedding is the cause of high rate of crimes. In this context 74.7% (112) respondents are reply –YES and the, 25.3% (38) are reply -NO. Basis of Load Shedding is the cause of noise pollution. In this context 70.0% (105) respondents are reply

Introduction

Load shedding in Pakistan has become one of the major issues like inflation, unemployment, child labour, suicide bomb-blast, illiteracy and last but not least political instability. This issue or problem has made his way in the country due to irresponsible government leaders and unawareness of nation. (The Pakistani Spectator - Dec 21st, 2008) The amazing fact regarding the lives and daily routines of poor and patient people of Pakistan is that they never tried to get a leader for their benefit and always wanted to have their country progressive. In Pakistan we could find the lions who could even work without having electricity. Students are the key resources for success of any country. These would be the pillars the country would be standing on. Students are the pillar of a nation. They would be the researchers, teachers, scientists, politicians of tomorrow. They are the future and for the better future, one needs to give them better present life, environment. Students, as dependent variables, have a lot of independent variables for example, electricity

load shedding. Theoretical literature confirms that energy especially electricity load shedding decelerate the efficiency of the students. Ahmad and Ali (2009) found that performance and results of learners are affected by energy (in particular power) shortage.

Load shedding was implemented to save money. It also saves pollution. Load shedding is what electric utilities do when there is a huge demand for electricity that exceeds the generation available. Their tentative is to have a brown-out where the voltage is reduced. It costs a lot to have generators standing by just in case there is a surge of demand, and the operators of those generators expect to be paid whether they run the generators or not. An alternative is if there is a large consumer of electricity (say, a factory) that could suddenly turn off all its electricity demand, they could agree to do that on request, and it has the same benefit as adding that amount of generation to the electric grid. In fact, its better -- as there is less demand on the wires which are often saturated at the same time. That factory has losses from shutting down its equipment and idling its workers, but if the money it gets paid is enough, then it's worth it. This is a perfect example of load shedding. There are many other cases where lots of smaller consumers agree to reduce demand on hot summer days, such as by reducing air conditioning or lighting. Someone who aggregates all these smaller cases can have the same effect as one big generator and so get the same money, and the operators of the electric grid are happy as it effectively solves the peak demand problem. Pollution can be reduced by load-shedding as well. Often, the generators that you run as a last resort are the least efficient and most polluting. If you don't need to run those because you saved energy elsewhere for the few hours of highest power demand. It is difficult to quantify the effect of load shedding on students who have to study for exams that can potentially change their lives. It is also difficult to quantify the effect these power outages have on children who grew up during the last five years' on those who are ill; on

those visiting from other countries; or on people who can't get proper sleep on a regular basis.

A major underlying cause of load shedding is the circular debt accrued over the years by the government. In the past two decades, short-term policies by successive governments have only exacerbated the power shortage problem. Apart from circular debt, line losses, theft and non-payment by various governmental departments are also issues that need to be sorted out. Another important step that needs to be taken is to explore alternative ways of generating electricity. Currently, Pakistan gets energy via thermal and hydel sources. Thermal power plants require furnace oil which is subject to international pricing and thus an expensive option. Solar energy, wind energy and tidal energy are the future of sustainable energy and a state-initiated drive to explore these options is necessary.

Justification of the Study

The increasing load shedding is having adverse effects on all walks of life and load shedding is the most common problem that is found in the country, that's why we selected this topic. And this problem is affecting mostly industry, agriculture sector, and various other as well as leading people towards frustration. Unscheduled load shedding has crippled our routine life. Successive regimes in Pakistan has failed to launch any mega projects like big dam to store water and generate power students suffer greatly from excessive load shedding. Those students who are unable to pay their proper attention towards study due to load shedding how they would be able to study properly without having fresh mind load shedding badly affected their studies which would prove in poor results. Students need a fresh mind to study and excessive load shedding leading them toward mantle trauma. Business community has also felt a great set back to their business and investment. Due to excessive load shedding we are unable to utilize our recourses like coal, gas and oil in a proper

way. This problem is badly affecting proper life effecting labour to while foreign countries are not suffering from this problem. Thus we see that load shedding causes a great loss inconvenience and discomfort to prepare as well as country. Load shedding in Pakistan has become one of the major issues like inflation. Unemployment child labour, suicide, bomb, flat illiteracy and last not least political instability as well as:

- Industries cannot run properly if their electricity services are continually unreliable.
- The more electricity is made amiable the more the income for the country as a whole can become.
- Electricity least obedient yet the most important energy.

At the time of independence in 1947, Pakistan inherited 60MW of power generation capability for a population of 31.5 million, yielding 4.5 units per capita consumption. The Government of Pakistan in 1952 by acquiring majority shareholding took control of the Karachi Electric Supply Company (KESC) engaged in generation, transmission and distribution of electric energy to the industrial, commercial, agricultural and residential consumers of the metropolitan city of Karachi and its suburbs. In 1958, Water and Power Development Authority (WAPDA) was created as a semiautonomous body for the purpose of coordinating and giving a unified direction to the development of schemes in water and power sectors, which were previously being dealt with by the respective electricity and irrigation department of the provinces.

In 1959, the generation capacity had increased to 119 MW and by that time the country had entered the phase of development, which required a dependable and solid infrastructure, electricity being its most significant part. The task of power development was undertaken by WAPDA for executing a number of hydel and thermal generation projects, a transmission

network and a distribution system, which could sustain the load of the rapidly increasing demand of electricity. After the first five years of its operation by 1964-65, the electricity generation capability rose to 636 MW from 119 MW in 1959, and power generation to about 2,500 MKWH from 781 MKWH. At the inception of WAPDA, the number of electrified villages in the country was 609 which were increased to 1882 villages (688,000 consumers) by the year 1965. The rapid progress witnessed a new life to the social, technical and economic structures of the country. Mechanized agriculture started, industrialization picked up and general living standards improved.

The task of accelerating the pace of power development picked up speed and by the year 1970, the generating capability rose from 636 MW to 1331 MW with installation of a number of thermal and hydel power units. In the year 1980 the system capacity touched 3,000 MW which rapidly rose to over 7,000 MW in 1990-91. However, electricity consumption in Pakistan has been growing at a higher pace compared to economic growth due to the increasing urbanization, industrialization and rural electrification. From 1970 to the early 1990s, the supply of electricity was unable to keep pace with demand that was growing consistently at 9-10% per annum. In the early 1990s, the peak demand exceeded supply capability by about 15-25%, necessitating load shedding of about 1,500 - 2,000 MW. On the demand side, there was a weak link between the electricity price and demand, which failed to manage the demand. On the supply side, the main reason behind this capacity shortage was the inability of the public budget to meet the high investment requirement of the power sector, despite the allocation of a high share to this sector. During the 1990s, the economic growth rate of Pakistan declined to a level of 4-5% per annum from a level of 6% per annum in the 1980s.

The Power Policy 1994 helped in overcoming load shedding in the country. Rather, it resulted in surplus power as the actual load growth was much less than that projected and the projects were contracted beyond requirement. Moreover the Policy attracted only thermal projects resulting in reversal of the hydel / thermal generation mix. In the year 2000, the vertical disintegration of WAPDA started as part of the country's new electricity market restructuring and liberalization program. Since then WAPDA has been broken down into fourteen separate units: four thermal power generating companies, nine distribution companies and a transmission and distribution company. In November 2005, the Government of Pakistan privatized (74.35%) the Karachi Electric supply Company (KESC). At present, KESC and WAPDA operate their own networks and are interconnected through 220 KV double circuit transmission lines and can supply power to each other.

On June 30' 2008, the total generation capacity from WAPDA's own hydel and thermal sources plus generation from two nuclear power plants, KESC and Independent Power Procedures (IPPs) stood at 19,420 MW. (Kraft & Kraft, 1978) stated that electricity has proved to be very important for the economic prosperity and rising socioeconomic standing of any country. Strong integration is found between energy consumption and gross domestic product for economic growth by showing unidirectional relationship.

Reinikka&Svensson (2002) found that unreliable and insufficient electric power supply considerably decreases investment in productive capacity by firms in Uganda. Firms spend heavily in auto-generation when provision of electricity by state run power houses is unreliable. The direct cost of this action, however, is that less productive capital is installed. Addition to this is the diseconomies of scale in self-generation.

Karekezi& Kimani(2002) stated that firms in Africa have taken different steps to counter the

problem of load shedding. Some of these modifications and response adjustments include choice of business, choice of location, reduction in output, substitution of factors of production and self-generation. The most frequently adopted policy by firms is investments in possible substitute i.e. self-generation of electricity. Many electricity users – both households and firms – now find it indispensable to generate their own electricity to make up for the inadequate provision resulted from the inefficiencies of the public power system. Many end users of electricity (from households to large enterprises) now manage small to medium-sized generators.

Pakistan is confronting a severe energy crises and the energy deficit is augmenting. **(Akram, 2008)** stated that in the year 2008, the then government raised the commercial tariff of electricity from Rs 8-10 per unit to 14 per unit. At that time industrial and manufacturing sector were already suffering very badly from the power outages. The domestic tariff was also increased from Rs 5-7 per unit to 8-10 per unit. KESC, at that time, was already facing a devastating financial crisis and it was not willing to generate electricity through furnace oil. Hence, the shortfall then increased during all proceeding years, as during 2010 the electricity demand was about 14000 to 15000 MW per day which shoots up to 20000 MW per day. **(Haq& Husain, 2008)**

Pokharel, B., Curtis, M. A., Hickey, G. M., & Bouchard, M. A. (2010) stated that predominantly, health and social impacts of power shortage are higher in rural South Asia. Today, there are roughly 1.4 billion people lacking access to electricity, major portion of 1.4 billion people live in much backward rural parts of South Asia. International Energy Agency on its World Energy Outlook 2010 report has pointed out that if the existing trend continues, 1.2 billion people, or 15% of the world's population, would still be lacking access to electricity in 2030. Lack of access to electricity around the world has turned out to be a main bottleneck in achieving the

Millennium Development Goals of eradicating extreme poverty by 2015. The 2010 UN MDG summit highlighted that 395 million more people need to have access to electricity by 2015 in order to achieve the goals. There are severe health impacts from biomass burning. Smoke emission from burning of biomass has enormous impact on human health pushing families' vicious cycle of poverty. Household utilization of biomass for cooking and heating in a badly ventilated house is the most common cause of Indoor Air Pollution (IAP). It is estimated that 3 billion people, almost half of the world, rely on biomass for household energy (Perez-Padilla et. al., 2010).

On the environmental front, the most indirect impact from lack of access to electricity is related to biomass burning for energy source in rural areas. Whereas, in the urban areas although certain portion of population still rely on inefficient form of energy source such as fuel-woods, charcoal and crop residue; but primary source of environmental impacts is from switching to kerosene powered or low grade fossil fuel powered generators. It is very common in South Asia for households and small businesses to have these generators in urban areas, which produce Green House Gases (GHGs) and pollute both air and sounds in its surrounding areas.

Siddiqui, R., Jalil, H. H., Nasir, M., Khalid, M., & Malik, W. S. (2011) found that a high frequency, 76% of the units surveyed, have opted for stand-by generators and 69% of sample firms reported delays in delivery of orders. Consequently, the loss in value of commodities is estimated at Rs 400 billion for Punjab with an 8 hour shift and Rs 267 billion with 12 hour shift. Conversion to value addition and driving the sample for Pakistan as a whole, the approximation of cost of load shedding is Rs 176 billion for the large-scale production sector, equivalent to 12% of the total national value added by the sector.

Masood, M. T., & Shah, F. (2012) has mentioned a news report by AFP. It is stated that

energy crisis has left Pakistan textiles in tatters: Power cuts sometimes last more than 12 hours a day and force factory owners in the country's cloth capital Faisalabad to switch off the lights and sell their looms for scrap, leaving tens of thousands of workers unemployed. The country is the world's fourth-largest manufacturer of cloth and the industry accounts for 60 percent of export revenue. But the dearth of electricity is heaping pressure on Pakistan's weak economy.

Hypothesis of the Study:

- It is more likely that load shedding affected the life of people of Pakistan. .
- It is more likely that load shedding affected the export of Pakistan.
- It is more likely that load shedding increasing crime rates among the youth.
- It is more likely that load shedding problem is creating negative image of Pakistan.
- It is more likely that load shedding is increasing noise pollution.

Methodology

Our target population consists of male and female respondents of 30 years or above than 30 years and research group has interviewed required 150 respondents. Our sample was 150 respondents and sampling type was Multi Stage Sampling. At the first stage we selected one tehsil of District Sargodha out of 6 tehsil (Bhalwal, Kotmomin, Sillanwali, ShahPur, Bhera and Sargodha) randomly. The research group followed probability sampling method in order to draw a representative sample. From the probability sampling method researchers used random sample method. The sample size for this study was decided as 150 respondents from different areas of City Sargodha. In view of the maximum feedback of respondents, it was decided to use interview schedule as the tool for data collection. It included both structured and unstructured Open/closed ended, questions with the guidance of research supervisor. The research group was divided into

four subgroups for the purpose of data collection. It took fifteen days for data collection. The average time for taking an interview was 30 minutes. The research group interviewed 150 respondents from the given universe. The increasing load shedding is having adverse effects on all walks of life and load shedding is the most

common problem that is found in the country, that's why we selected this topic. And this problem is affecting mostly industry, agriculture sector, and various other as well as leading people towards frustration. Unscheduled load shedding has crippled our routine life.

Finding

Table 1.1 Load Shedding Effecting on Your Life

Responses	Frequency	%age
Yes	146	97.3
No	4	2.7
Total	150	100.0

The above table describes the respondents' distribution on the basis of Load Shedding Effecting on Your Life. In this context 97.3% (146) respondents were reply –Yes and 2.7% (4) were reply -No. It shows that both are unequal. So we can conclude that the majority of our respondents have concept of experiencing of Load Shedding Effecting on Your Life with the ratio of 97.3% (146).

Table 1.2 Load Shedding Effects on Income

Responses	Frequency	%age
Yes	144	96.0
No	6	4
Total	150	100.0

The above table describes the respondents' distribution on the basis of Load Shedding Effects on Income. In this context 96.0% (144) respondents are reply –YES and 4.0% (6) are reply -NO. So we can conclude that the majority of our respondents reply –YES with the ratio 96.0 % (144).

Table 1.3 Load shedding effects our exports

Responses	Frequency	%age
Yes	140	93.3
No	10	6.7
Total	150	100.0

The above table describes the respondents' distribution on the basis of load shading effects our exports. In this context 93.3% (140) respondents were replied –YES and the, 6.7% (10) were replied -NO. So we can conclude that the majority of our respondents reply –YES with the ratio 93.3 % (140).

Table 1.4 Load Shedding is a Reason of Inflation

Responses	Frequency	%age
Due to load shedding	27	18.0
Lack of Production	45	30.0
Lack of utilization resources	48	32.0
Unemployment	22	14.7

Total	142	94.7
No Response	8	5.3
Total	150	100.0

The above table reveals the respondents on the basis that load shedding reason of inflation, 32.0%(48) are reply lack of utilization resources, 30.0%(45) are reply lack of production, 18.0%(27) are reply due to load shedding, 14.7%(22) are reply unemployment, and 5.3%(8) are no response. So the research shows that majority of that load shedding reason of inflation with ratio of 32.0% (48).

Table 1.5 Load Shedding has Negative Impact on Country's Reputation

Responses	Frequency	%age
Yes	139	92.7
No	11	7.3
Total	150	100.0

The above table describes the respondents' distribution on the basis of LoadShedding have Negative Impact on Country's Reputation. In this context 92.7% (139) respondents are reply–YES and the, 7.3% (11) are reply -NO. So we can conclude that the majority of our respondents reply –YES with the ratio 92.7 %(139).

Table 1.6 Load Shedding is Effecting the Medical Treatment of Patients

Responses	Frequency	%age
Yes	138	92.0
No	12	8.0
Total	150	100.0

The above table describes the respondents' distribution on the basis of Load Shedding is Effecting the Medical Treatment of Patients. In this context 92.0% (138) respondents are reply –YES and the, 8.0% (12) are reply -NO. So we can conclude that the majority of our respondents reply –YES with the ratio 92.0 %(138).

Table 1.7Load Shedding Cause of High Rate of Crimes

Responses	Frequency	%age
Yes	112	74.7
No	38	25.3
Total	150	100.0

The above table describes the respondents' distribution on the basis of Load Shedding is the cause of high rate of crimes. In this context 74.7% (112) respondents are reply –YES and the, 25.3% (38) are reply -NO. So we can conclude that the majority of our respondents reply –YES with the ratio 74.7 %(112).

Table 1.8Load Shedding Effecting on Human Psyche

Responses	Frequency	%age
Yes	123	82.0
No	27	18.0
Total	150	100.0

The above table describes the respondents' distribution on the basis of Load Shedding is Effecting on the human psyche. In this context 82.0% (123) respondents are reply –YES and the, 18.0% (27) are reply -NO. So we can conclude that the majority of our respondents reply –YES with the ratio 82.0 % (123).

Table 1.9 Load Shedding Cause of Noise Pollution

Responses	Frequency	%age
Yes	105	70.0
No	45	30.0
Total	150	100.0

The above table describes the respondents' distribution on the basis of Load Shedding is the cause of noise pollution. In this context 70.0% (105) respondents are reply –YES and the, 30.0% (45) are reply -NO. So we can conclude that the majority of our respondents reply –YES with the ratio 70.0 % (105).

Table 1.10 Load Shedding Can Remove through Available Resources

Responses	Frequency	%age
Proper utilization of resources	45	30.0
Need to attention on Resources	17	11.3
Need to rely on Resources	22	14.7
Need to investment on Resources	29	19.3
Good policies	37	24.7
Total	150	100.0

The above table reveals the respondents on the basis that of Load Shedding can remove through available resources, 30.0%(45) are reply proper utilization of resources, 24.7%(37) are reply good policies, 19.3%(29) are reply need of investment, 14.7%(22) are reply need to rely on resources, and 11.3%(17) are reply need to attention on resources and 4.0%(6). So the research shows that majority of Load Shedding can remove through available resources, with the ratio 30.0 % (45)

Summary

Improvement in the processes of decision making and implementation could be an important ingredient in working toward a fair and sustainable electricity sector. Well-functioning governance system will allow for better decision making about the goals of electricity reform and ensure that these goals are modified to local needs. Better governance will allow for making and implementing decisions at the right time, and ensure a means of holding all the stakeholders (government,

private sector, public sector organizations and consumers) accountable to their actions. Regrettably, the system badly lacks in all these accounts. The power sector is affected by a number of institutional and organizational weaknesses, with inefficient generation and distribution systems, dependence on expensive fuels, non-optimal tariffs, financial mismanagement and high level of corruption and incompetence. In other words, the energy sector has been the victim of bad decisions, policies and a serious lack of capacity to take appropriate decisions and the timely implementation of those decisions. These

issues can only be addressed if the management of energy sector becomes more professional and competitive. The dilemma in Pakistan is that policy-makers have always focused on short term goals, disorganized financial strategies and have made wrong choices (like too much emphasis on RPPs by the present government; rather than developing a long term strategy and seriously implementing it. In our planning strategies for the last eight nine years (not only this government but also the previous government), the utilization of these resources has always been at the forefront, but unfortunately these plans have not been implemented significantly. All the hydro power projects (under construction) should be completed in time to enhance cheap electricity generation capacity.

It was concluded that average age of the respondents was 40 years. Male respondents were 80% and Female respondents were 20%. Among the target population, 70.3% respondents were married, 20.7% were unmarried and 4% were Widow/ Widower. Majority of respondents were married. The average family size of respondents was 7 members. We found that 60% respondents were living in joint family system and 40 were living in nuclear family system. The average monthly income of respondent was Rs.20, 000 approx. Majority of respondents 96% replied experiencing load shedding in routine life; we found that more than 97% of respondents had negative views about load shedding effecting on their life position.

Study is being effective by load shedding. Everyone is affecting because of load shedding in different types of study like, Study in classes, online study and home based

study as well as other types of study. About our 70% respondents adopts alternative method like, generator, UPS, and etc. to lessen the load shedding. 38% response lack of per capita income, 36% response inflation, 14.7% response declining expert, 8% any other (specify) and 3.3% response no response. So the majority of the response lack of per capita income with ratio of 38%. On the basis of load shedding 92.7% people response effects on sudden cut down the electric power the cause of wastage of time and can't complete the work in proper time period. Load shedding effecting on the standard of life of the people. They can't fulfilment the basic needs and people are worried about load shedding. Above 85.3% respondent's, response load shedding cause of decreasing man power. Load shedding reason of inflation, 32% response lack of utilization resources, 30% response lack of production, 18% response due to load shedding, 14% response unemployment, and 5% are no response. So the majority of that load shedding reason of inflation of 32% and load shedding 92% effect on medical treatment of patients during x-ray.

Load shedding effect our exports system 93% were response and 92.7% people were response load shedding effects our educational system and create miss balance in the society. Maximum people replied sudden cut down the electric power the cause of wastage of time. When people were not proper work and never complete the basic needs then 74.7% people response load shedding are causes of high rate of crime and frustration. When decreasing our production above 81% response load shedding devalue of our currency, and above 95% response load shedding effect our economic

progress and then directly effect on our family like, maximum people loss of job stressful environment and etc. Load shedding divert the attention of people on the basis of Load Shedding people were invents the different way of suicide attempting more then 40% and load shedding effects on individual's social life above 92% response load shedding decreasing the work capabilities of work. We can get rid to load shedding. 38% were response implementation of policy proper, 24.7% were response planning, 14.7% were response evaluation of policy, and 14.7% were no response. So the majority of that we get rid from this problem of load shedding. To conclude the fundamental hypothesis being tested is proven correct on both counts—poor governance and wrong direction of adopted policies are responsible for the current crisis in the energy sector.

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