

DIGITALES ARCHIV

ZBW – Leibniz-Informationszentrum Wirtschaft
ZBW – Leibniz Information Centre for Economics

Hanif, Muhammad Wasif; Hafeez, Shakir; Iqbal, Naveed et al.

Article

Wastophobia : a path towards sustainability in responsible behavior-a case of domestic sector electricity waste management

Provided in Cooperation with:

International Journal of Energy Economics and Policy (IJEPP)

Reference: Hanif, Muhammad Wasif/Hafeez, Shakir et. al. (2021). Wastophobia : a path towards sustainability in responsible behavior-a case of domestic sector electricity waste management. In: International Journal of Energy Economics and Policy 11 (5), S. 121 - 129.
<https://www.econjournals.com/index.php/ijeep/article/download/11450/6066>.
doi:10.32479/ijeep.11450.

This Version is available at:
<http://hdl.handle.net/11159/7826>

Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics
Düsternbrooker Weg 120
24105 Kiel (Germany)
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)
<https://www.zbw.eu/econis-archiv/>

Standard-Nutzungsbedingungen:

Dieses Dokument darf zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden. Sie dürfen dieses Dokument nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen. Sofern für das Dokument eine Open-Content-Lizenz verwendet wurde, so gelten abweichend von diesen Nutzungsbedingungen die in der Lizenz gewährten Nutzungsrechte.

<https://zbw.eu/econis-archiv/termsfuse>

Terms of use:

This document may be saved and copied for your personal and scholarly purposes. You are not to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public. If the document is made available under a Creative Commons Licence you may exercise further usage rights as specified in the licence.



Wastophobia: A Path Towards Sustainability in Responsible Behavior-A Case of Domestic Sector Electricity Waste Management

Muhammad Wasif Hanif, Shakir Hafeez*, Naveed Iqbal, Syed Afzal Moshadi Shah, Muhammad Asim Afridi

Department of Management Sciences, COMSATS University Islamabad, Abbottabad Campus, Pakistan. *Email: shakir@cuiatd.edu.pk

Received: 29 March 2021

Accepted: 04 June 2021

DOI: <https://doi.org/10.32479/ijeeep.11450>

ABSTRACT

Electricity is indispensable for socio-economic developments. Its demand is dramatically increasing in the domestic sector at an incredible pace despite distressing electricity deficiency in most of the world's developing economies like Pakistan. The synthesis of the literature portrays that domestic consumers irresponsibly (consciously or unconsciously) waste a major portion of their electricity consumption that is detrimental to electricity security, climate, and sustainable developments. To effectively deal with the issue of electricity waste, this study is presenting a theoretical research framework containing a fear based promotional marketing strategy. The novelty of the model is to present an intriguing behavioral strategy for developing consumer sustainable responsible behavior. Confronting consumers with the awareness of wasteful consumption and its detrimental conditional impacts (financial, environmental, personal future and electricity security threats and religious punishments) can significantly create threats of electricity wastage (wastophobia) in the electricity consumers' mind. Wastophobia strategy will set ground foundations for the researchers and policymakers to manage electricity waste as well as wastage of other goods and services. This strategy will significantly contribute to the theoretical knowledge of various disciplines, such as marketing, psychology, waste management and so on. Sustainable responsible behavior is categorically supporting consumers as well as holds huge potential in present policy guidelines under the arena of electrical purification and waste management. Moreover, such policy implications are viable, sensible, and supportive for national electrical transmission and production regulatory authorities at both public and public counterparts.

Keywords: Energy Efficiency, Wasteful Consumption Awareness, Religious Sermons, Wastophobia, Sustainable Responsible Behavior

JEL Classifications: Q4, Q40, D1

1. INTRODUCTION

The electricity is a revolutionary discovery in the history of mankind. Presently, each segment particularly the domestic sector overwhelmingly relies on electricity (Zafar et al., 2018). Domestic consumers whether an infant, adult, young, aged, male, female, rich, and poor utilize (or avail service) electricity for accomplishing routine activities. Succinctly, in the modern world, electricity holds an imperative position for human existence and considered the index of the socio-economic propensity of an economy (IEA, 2018).

Electricity is setting grounds to enrich human living standards. Each day, innovative electricity-driven appliances (EDA) are presented in the market to enhance the quality of life. Among them, the domestic sector EDA are noteworthy (IEA, 2018) to make life faster, comfortable and splendid. EDA provides routine-base services such as; lighting, maintaining indoor temperature, freezing, cleaning clothes, preparing food, extracting water from the earth, entertainment, security and so on (National Research Council, 1997). The proliferation of astonishing EDA is raising electricity demand (ED) and dependency globally at the growth rate of 2.8% (IEA, 2020).

The rising ED is threatening for human sustainability and sustainable developments.

A major portion of the rising ED is consumed in domestic buildings around the world. Globally, the domestic building utilizes in bulk (30%) of the total electricity supply (IEA, 2017). China's residential sector holds second position (Ding et al., 2017), European residents consumption is 40% (Prete et al., 2017), while residents in Pakistan consume almost half (51%) of the total electricity supply at the average growth rate of 7% per annum (Survey, P.E. 2018).

Figure 1 evidently depicts that fulfilling dramatically growing unproductive sector ED (46%, 2016; 47%, 2017; 51%, 2018) by shrinking (27%, 2016–25%, 2018) industrial sector's needs is destructive for the sustainable economic growth of the economy.

1.1. Electricity Deficiency and its Detrimental Impacts

Pakistan is experiencing electricity deficiency (Qazi et al., 2018) of almost 6097 megawatts (Survey, P.E. 2018). The blackout remains 6–8 h on average per day. The power quality is poor due to fluctuating voltages. While 17% of villages are still not interconnected with the electricity network (National Electric Power Regulatory Authority (2020). The projected deficiency is almost 13934-megawatt units at the current growth rate till 2025 (Rafique and Rehman, 2017). To wipe out the effects of electricity deficiency residents bear almost PKR 30 billion annually to buy an uninterruptable power supply and batteries (National Electric Power Regulatory Authority (2020). The government is progressively adding additional capacity in the system (Survey, P.E. 2018) but consumers' irresponsible/distorted behavior is pouring water over governmental efforts towards clean, green, uninterrupted electricity supply ideology.

1.2. Irresponsible Behavior (IB)

Behavior is the composite mixture of human actions, emotions, habits, moralities, normative and social factors. The disequilibrium in any of the states can lead to distorting human nature (Martiskainen, 2014) and evolves irresponsible behavior (IB). IB is displeasing (Gupta, 2007), immoral and considered as social transgression (Grappi et al., 2013). It is based on illegal actions (unconsciously and consciously) that are considered against the

laws (Gupta, 2007). According to Collins (2019) actions are considered irresponsible that are taken without considering the consequences.

In the case of electricity, domestic consumers are widely held liable for IB. For example in China, inefficient electricity consumption portion is 23% of the total electricity demand (Sheng and Guo, 2018) despite China is the topmost country investing in energy efficiency around the world (IEA, 2018). While, wasteful consumption portion of domestic consumers in Pakistan is more than 25% (Samaa Digital, 2016). Domestic consumers irresponsibly (consciously and unconsciously) do electricity wastage in routine life. Unconsciously electricity wastage occurs due to deploying conventional appliances (IEA, 2018; ELCOMA, 2017) and keeping appliances on standby mode (Ding et al., 2017). While laziness/habits (Balta-Ozkan et al., 2013), higher-income (Vassileva and Campilo, 2014) and security threats (Chitnis et al., 2016) develop consumer conscious IB. Figure 2, contains the detail picture of irresponsible behavior.

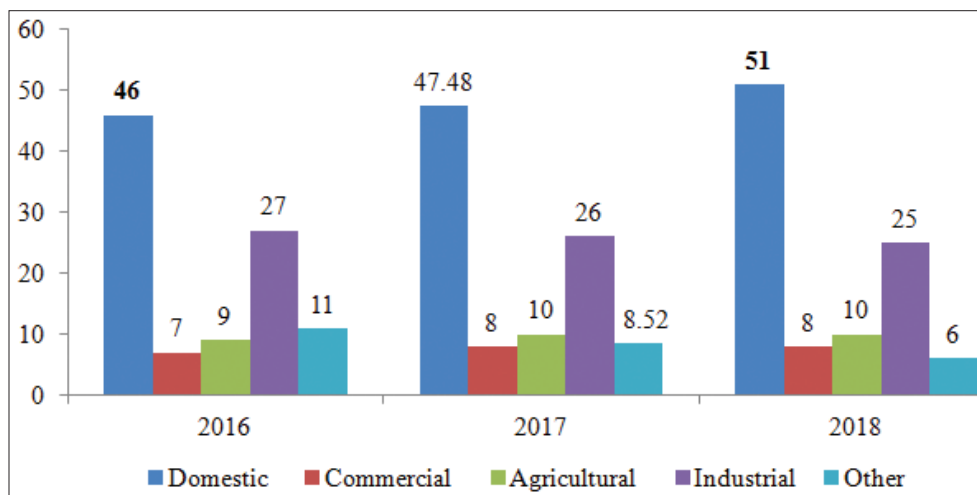
1.3. Wasteful Consumption as the Key Barrier

The ED is incessantly rising at each sector around the world but the pace domestic sector hold is incredible. The literature synthesis is that domestic consumers misuse a considerable portion of electricity consumption at home. The distorted behavior leads to extravagant, futile and wasteful consumption that brings ruination in the human inner self, society, economy, and environment instead of sophistication it provides. In a nutshell, if even now, corrective actions are not taken to deal with IB then wasteful consumption will devastate all living beings on the earth. Such as Fisk (1973) argued in his responsible consumption theory that irresponsible consumption will bring more distractions for humanity than the growing number of population in the world.

1.4. Inspiration of the Study

So far, various behavioral strategies are deployed to change consumer behavior such as; education (Saini, 2018), electricity prices (Chen, 2017), incentives (Edelman, 2015), public and individual benefits (Zhang et al., 2014), electricity awareness (Brounen et al., 2013), role of technology (Grønhøj and Thøgersen 2011), energy taxes (Mills and Schleich, 2010) and so on. These strategies significantly contributed to develop responsible behavior.

Figure 1: Sectoral electricity consumption (Survey, P.E. 2018)



But the results of the mentioned strategies remained affective for a short span. Because consumers re-shifted their behaviors after removing the interventions deployed by the researchers during experimental stages of the studies mentioned above. Therefore, none of the strategy directs that, “*How to sustain or how to develop sustainable Responsible Behavior*”?

Thus, the key idea of this study is to handle consumer’s IB with an intriguing approach. To attain this objective, a theoretical framework is developed based on a fascinating behavioral strategy that will support to demolish distorted human nature and contribute to eliminate wasteful electricity consumption (crisis).

2. THEORETICAL BACKGROUND

Unconscious (unaware) consumers mostly take uninformed decisions that produce unintended consequences. In short, unawareness supports to structures consumer IB. For awareness creation and behavioral modifications, businesses do promotions for the brands, offer for sale (Kotler et al., 2007). The core of the promotional contents remains to disseminate brand positive aspects by keeping consumer unaware about related destructive consequences occur during; production, utilization, and recycling process (Nuseir, 2019). For example, today, in the case of electricity, a consumer is well aware that; refrigerator maintains perishable goods for a long period of time; an air-conditioned well maintains room temperature; standby mode feature keeps appliances active for user ease. Meanwhile, the majority of consumers remain unaware of; the volume of electricity units the appliances consume? How many units of electricity are being wasted at standby mode? How many charges household pay for their inefficient electricity consumption? How to monitor and reduce electricity waste at home? Unfavorable consequences along with severe punishments for doing wastefulness/extravagance mentioned in theological books? Holding aside these issues, the most noteworthy hurdle is “*How to deal with those consumers who are well aware about electricity wastage but still do not bother to take steps for reducing their wastage at home*”?

Why does the problem (wastage) occur? This is sighted in Sigmund Freud “*Philosophy of “Psychoanalysis”* (1890). Freud elaborates that holding unconscious thoughts in mind creates cognitive problems (Freud, S. n.d.) and develop distorted human nature (Spencer, 1956). Psychoanalysis portrays that by turning unconsciousness of individuals into consciousness can effectively handles the cognitive problems. Thus, psychoanalysis is supportive for this study to turn consumers’ unconscious irresponsible behavior into sensible awareness of wasteful consumption. In other words, Psychoanalysis addresses the question that “*how to turn the unconscious part of consumers mind into sensible awareness*”. As addressed above that majority of the consumers are unconscious about different wasteful electricity consumption aspects. Therefore, this study is adopting the awareness of wasteful consumption as a key determinant to get rid of consumers’ unconscious irresponsible behavior problem.

2.1. Awareness of Wasteful Consumption

Awareness is the initial step to motivate and change consumer behavior for electricity conservation, but not compulsory

(Abrahamse et al., 2005). The study of Steve (2015) elaborates that the governments of different countries are focusing on diverse tactics to convey knowledge and to make the general public more aware of the efficient use of electricity (Akroush et al., 2018). Electricity is indispensable (IEA, 2018) and its useful consumption cannot be minimized at any cost. But its wasteful consumption can be eradicated. The issue of wasteful electricity consumption is common in the domestic sector around the world. Till now, no such awareness campaign has been launched that addresses consumers about the various facets of wasteful consumption.

Wasteful consumption awareness provides information to consumers with various aspects of electricity wastage, including; (a) unit consumption of each appliance (b) electricity consumption monitoring procedure (c) unit consumption at standby mode (d) methods to reduce electricity waste (e) cost and incentives involved in saving electricity waste and so on. Therefore, study proposes that; *the information of various facets of wasteful consumption supports to manage the issue of unconscious irresponsible behavior. Awareness of wasteful consumption also leads to produce fear (wastophobia) in the consumers’ mind.*

2.2. Conditional Impacts of Wasteful Consumption

To change consumer unconsciousness is not a big deal but it remained so far a challenge for researchers and policymakers to modify consumer conscious irresponsible behavior. To effectively manage consumer conscious irresponsible behavior (laziness, habits) some conditional impacts (based on awareness of wasteful consumption) are necessary to present in front of conscious irresponsible consumers. The conditional impacts will provide experience about the detrimental consequences of electricity wastage.

2.2.1. Financial (economic) impacts

Electricity waste is considered as the bottleneck of electricity security. Electricity insecurity directly impacts on financial (economic) stability of the economy. Pakistan imports 85% fuel to meet electricity needs and pay almost US \$15 billion annually for imports bill payments (ESP, 2018). While fossil fuels share for electricity production is more than 64% globally (IEA, 2018). Zaman (2017) study reveals that imports of the country are the US \$ 53.02 billion while the exports volume is not more than \$ 20.44 billion annually. The annual trade deficit is almost US \$ 32.58 billion in 2018.

Table 1 illustrates that 6.34% of increase in the net imports and 0.78% decrease in net exports for the period of 2017–2018. The fluctuating trade deficit gap is the chronic indication for rising imported fuel prices and per-unit cost of electricity that affects directly to each household in the country. Therefore, this study proposes that “*financial burden can influence irresponsible*

Table 1: Economic impacts

Year	Imports \$ (billion)	Exports \$ (billion)	Trade Deficit \$ (billion)	Imports growth %	Export growth %
2016	45	25.5	19.5	16.06	-0.78
2017	53.5	25.1	28.4	21.02	-6.34

consumer behavior and develop threat of wasteful consumption in consumers' mind".

2.2.2. Environmental threats

The burning of fossil fuels has stern environmental implications such as emission of Corbin dioxide (CO₂), methane and other greenhouse gasses that cause global warming (IEA, 2018). In the words of Stofan Allen (2015) "*Global warming is just one cause of climate change. Other severe impacts include droughts, floods, ozone depletion, heat waves, and especially food security threats.*" World Health Organization (2019) report depicts that almost 90% population of the world breathes in dangerously polluted air called "new tobacco", which has already increased global environmental temperature up to 2^o (Vassileva and Campillo, 2014). World Economic Forum report on climate change (2018) indicates that rising temperature will cause more than 100 millions premature deaths around the world in the current century. While the global climate risk index report (2019) indicates that countries like Haiti, Philippines, and Pakistan are recurrently experiencing severe global climate change effects (Eckstein et al., 2019).

Pakistan's energy sector holds the major share in emitting CO₂ and other gasses (Survey, P. E. 2018). Therefore, major electricity consuming sector's contributions in greenhouse gasses emissions cannot be overlooked. Thus, spreading environmental degradation informational contents *can be supportive to create a threat of electricity wastage in irresponsible consumer mind".*

2.2.3. Religious punishment

A human spends life in the blend of societies, culture, nations, and religion in this world. Among all, religion is the fundamental part of human life as Mathras et al. (2015) study explained that religion constructs human nature and behavior. Religion is the system of beliefs based on strict principles addressed by the Supreme Being (Pollack, 1995). Presently, three religion; Christianity, Muslim, and Hinduism (31.4%, 23.2%, 15%) are dominant in the world that jointly makes approximately 70% population of the world. The followers obey and spend their lives according to religious preaching. Approximately 80% of the world population keeps religious affiliation and more than 70% of American believes that their religious beliefs affect human behavior (Pew Forum, 2015).

Human is the steward of God on earth. God has taught human through scriptures (Holy Books) about all the means of life and restricted from bad practices. The one who obeys religious principle gets success in the world and Hereafter. While hard punishment (ruin and destroyed) is mentioned for those who disobey religious teachings.

Extravagance Belief (Knowledge): Today, human became addictive to wasteful consumption. But all major religions of the world are agreed upon the teachings of extravagance. The word wasteful, exaggeration, greed, excessive, immoderate consumption are synonymously used for extravagance. Extravagance means exceeding consumption from limits of needs. These practices create destructions for humanity. Different scholars have criticized extravagance as; ill-being, (Pandelaere, 2016), status consciousness (Goldsmith et al., 2017), self-destruction (Ikeda,

2012), and greed (Sinaga, 2012). It is complicated to uphold a moderate level of consumption but not impossible.

Wasteful Consumption in Islam: In Islam, extravagance is prohibited in the Holy book (Quran). According to the Muslims, God dislikes those who consume excessively and commit waste. The virtuous are those maintain the state of equilibrium between two extremes states of spending (a) misery and (b) waste.

The religious instructions of the Holy Quran about the extravagance are as follow;

"the extravagant are the inmates of the fire." (Surah Ghāfir, 40:43)

"...and eat and drink and be not extravagant; surely He does not love the extravagant."(Surah al-Ar'āf 7:31)

"and do not squander wastefully, surely the squanderers are the followers of the shaitans and the Shaitan is ever ungrateful to his Lord." (Surah al-'Isrā', 17:26-27).

The mentioned verses of the Holy Quran clearly state that God dislike those who commits waste and will surely send into Hell (Rizvi. n.d.). Most of the consumers are unaware of these instructions mentioned in the Holy Quran. Thus, they make waste and will bear hard punishment hereafter.

Wasteful Consumption in Christianity: Material possession, extravagance, and greed are banned in Christianity. In Christianity, God holds the highest priority, who blesses material things to human for their satisfaction. The teachings of Christianity explains that,

"But those who desire to be rich fall into temptation, into a snare, into many senseless and harmful desires that plunge people into ruin and destruction. For the love of money is a root of all kinds of evils. It is through this craving that some have wandered away from the faith and pierced themselves with many pangs." (Timothy 6:9-10)

Human comforts are hidden in spiritual satisfaction rather than possession of material things and its extravagance as mentioned in Luke (12:15)

"And he said to them, "Take care, and be on your guard against all covetousness, for one's life does not consist in the abundance of his possessions." (Sartelle, 2010).

Extravagance motivates humans to maximize their wealth and spend more for inner satisfaction. While Supreme Being has kept the inner satisfaction in spiritual praying rather than in material possessions or extravagance. It creates evils in societies and leads human away from the blessings of God.

Wasteful Consumption in Hinduism: In Hinduism, material prosperity is valued; the accumulation of wealth for one's personal greed goes against the principle of *dharma* (righteous living).

According to the *Bhagavata Purana*,

“Human has no right to claim more than what is required for our basic purposes”

In the words of Mahatma Gandhi

“There is enough in the world for everyone needs, not enough for everyone greed” (Krishnaswamy, 1981; Balch, 2013).

Therefore, the study proposes; *“Religious punishment of wasteful consumption could works as a conditional response and moderately contribute in developing fear of doing wasteful consumption (wastophobia).”*

2.2.4. Personal future insecurity threats

Personal future consideration and opportunity cost play an important role in influencing consumer behavior (Bartels and Urminsky, 2015). According to the Maslow need theory (1943), safety and belonging needs are more essential than esteem and actualization to live in a state of equilibrium. But today, humans are struggling to achieve luxuries of lives as it is easily observed that EDA are creeping in every home. These appliances are equipped with artificial intelligence (AI) feature that has the capabilities to understand and redefined; human thinking, working, and way of living (IEA, 2018). The excessive usage of AI-based EDA is threatening for human security, privacy, and identity. According to Bryson (2002), exponential growth in AI-based EDA will overthrow human or will specify human existence around a bedroom. According to the World Economic Forum (2019), almost 20% of children in the United States do not go outside for playing games (Olivia Rosane, 2019). These children spend their time sitting in front of EDA based on AI capability. While the ratio of such kinds of children is rising in world developing economies. Thus, challenging phenomena is that, how to maintain positive connections between human and AI-based EDA?

Electricity Security (ES) Threat: Uninterrupted electricity supply is the superiority of every nation as socioeconomic development heavily relies on it (IEA, 2018). To make sure the electricity security human are deploying natural reservoirs at economies of scale. Heavily reliance on scarce electricity generating resource to meet unjustified electricity needs (waste) leads toward electricity insecurity that is creating stern electricity security challenges for economies. The study of Koyama (2017) explains that electricity insecurity creates various threats for an economy including political instability, terrorism, and war. Thus, *“awareness fearful consequences of Personal future and ES can indulge consumer into fear of wasteful consumption.”*

All the mentioned conditional impacts along with awareness of wasteful consumption will contribute to produce fear (wastophobia) in irresponsible (conscious and unconscious) consumer mind.

3. WASTOPHOBIA STRATEGY

To change consumers’ conscious irresponsible behavior this study is setting forth a new intriguing behavioral change

strategy in the theoretical literature labeled as “wastophobia”. Phobia is a persistent fear (Ledoux, 2014). Fear is a primary human emotion that affects behavior (Nabi and Myrick, 2018) to defend him/herself from danger, aversive, threatening conditions and particularly from predators (Misslin, 2003). The proposed “Wasto” is being introduced for waste in this study. Waste is something useless and worthless that is not required for a longer period of time (Connell, 2011). It creates shame, denial, and fear which is intimidating for people (Lynch, 1990). Therefore, this study proposes “Wastophobia” as fear of wasteful consumption.

“Wastophobia is a state of fear that promotes a considerate behavior and deters the way an individual develops mental precocious, apprehension and the practice of wasteful consumption. The behavior that may give rise to dismay and make the individual feel culpable, decrepit and uncomfortable towards behavioral practices which are inconsiderate”. While “Wastophobic” terminology in this study is termed for the person who finds himself/herself in a state of fear and feels unsafe while observing, realizing or producing wastage or wasteful electricity consumption. To spread Wastophobia among irresponsible consumer plays a significant positive role in developing SRB.

3.1. Procedure for Developing Wastophobia

To produce wastophobia in the consumer mind, little Elbert experiment based on stimulus-response theory logically support this study. Watson and Rayner (1920) conducted an experiment to examine the impact of conditions on a little child behavior. Watson elaborates that conditional-response plays a significant role in generating phobia in humans minds and that has a strong influence on human behavior (Harris, 1979). Therefore, by confronting consumers with unfavorable conditional impacts (discussed above; financial, environmental, severe punishments mentioned in theological books of religions and personal future and electricity security threats) of wasteful consumption can effectively develop “wastophobia” in consumer’s mind. Thus, the study proposes that *“Wastophobia can be the most influential, suitable, and revolutionary strategy among all behavioral changing strategies to develop sustainable consumer responsible behavior”*.

Although, focusing to spread fear is unethical approach but according to the consequentialism approach of normative ethics, action’s worth is determined by the consequences, it produces. Actions are considered right if their consequences are acceptable for society (Driver, 2012). Therefore, Spreading Wastophobia among irresponsible consumer plays a significant positive role in developing consumer sustainable responsible behavior.

Extravagance motivates humans to maximize their wealth and spend more for inner satisfaction. It creates evils in societies and leads human away from the blessings of God. Thus study proposes that *“Awareness of wasteful consumption along with it attached conditional impacts (Waste, detrimental impacts, and the threat of punishment) profoundly produce Wastophobia among electricity consumers”*.

4. SUSTAINABLE RESPONSIBLE BEHAVIOR (SRB)

The findings of various studies showed that influencing consumer behavior can be helpful to reduce electricity consumption (Irfan et al., 2018; Guo et al., 2018). Such as Ouyang et al, (2008) explained that consumer responsible attitude is essential for energy conservation, as it supported to reduce 14% of energy consumption in the domestic sector. As discussed above in the objective of the study that so far various behavioral strategies have contributed significantly in developing consumers’ responsible behavior but for a limited timeframe. None of the strategies has proven reliable to sustain or develop sustainable responsible behavior.

Responsible behavior means consumer choices, actions and performance should be right and under the boundaries of the

law. It guides the consumers to consider their actions’ impacts affecting other people as well as to the whole society. According to the Fishman (2013) responsible behavior is based on five key dimensions (1) honesty, (2) courage, (3) respect, (4) fairness and (5) accountability. These dimensions enhance individual’s self-realization capabilities in humans. It portrays to consumers, *how to react or behave in a complex situation when complexity is generated by human in itself*. Responsible behavior is the desirable situation to every individual but to make sure that individuals will hold responsible behavior across the life cycle is too challenging.

To develop sustainable responsible behavior is the other side of the coin. It does not matter how much a human responsibly behave in a particular situation for a short span, but the matter of the fact is that *“How much passionate/willpower an individual has to sustain with the responsible behavior across his/her life cycle”*?

Figure 2: Facets of irresponsible behavior

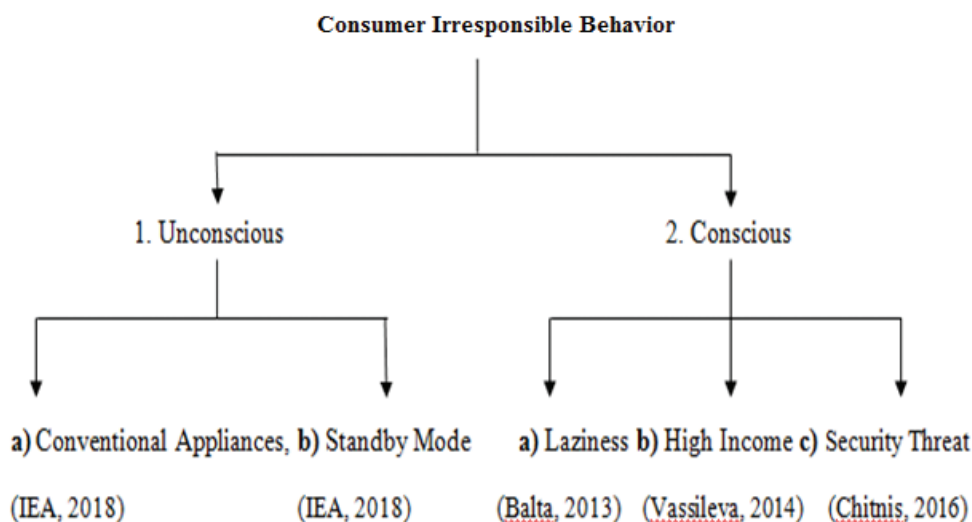


Figure 3: Model of sustainable responsible behavior (Center, 2013; Commission, 1992)

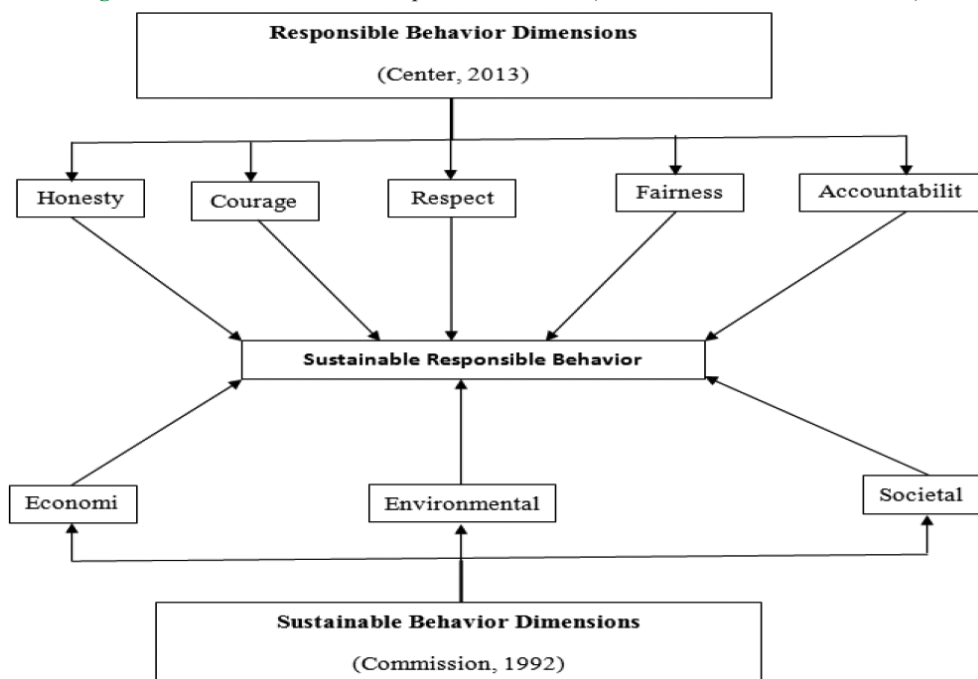
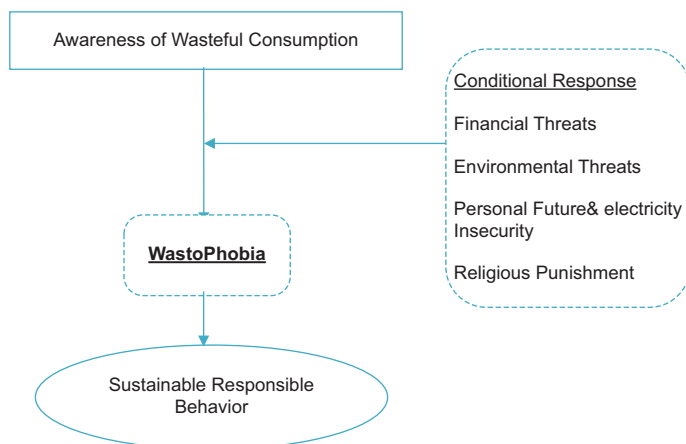


Figure 4: Wastophobia model**Research Framework**

“Sustaining on a single behavior across life cycle” or “behavior that allows individuals to fulfill their present needs without compromising the security of future generations needs is defined as sustainable behavior”. Sustainability or sustainability in behavior deals with three different aspects including (a) economic (b) environmental and (c) society (Commission, 1992). Sustainable behavior explains that a human should not deviate (stuck with a responsible behavior) from his/her behavior while having concern for the economy, society or with the environment. Therefore, merging sustainability/sustainable behavior three dimensions with five basic pillars of responsibility, this study is presenting a new determinant as Sustainable Responsible Behavior (SRB) in the theoretical literature.

“SRB is defined as; individual’s perception, choices, decisions, practices, and post-practice decisions should simultaneously be according to the principles of responsibility and sustainability of the behavior. SRB guides the consumers to take a stand for the right decisions across his/her lifecycle when being right is hard, confusing and complicated”.

For example, distinguishing between requisite (need) and wasteful consumption in the modernized world is much complicated. In this situation, only guidelines of SRB will be supportive to attach with the right decision. In short “guidelines of SRB will ensure sustainable developments in all facets of life including “self”, “society”, “economy” and “environment”. This could only be possible to achieve when a persistent fear of wastage (wastophobia) will continuously influence the consumer mind. Wastophobia Model is presented below in Figure 4.

This study proposes that “SRB significantly contribute to eradicating wasteful consumption of electricity around the world.”

5. CONCLUSION AND POLICY IMPLICATIONS

Presently, electricity demand is continuously increasing at an incredible pace in the domestic sector despite the distressing electricity insecurity threats. Electricity insecurity is the leading phenomena around the world. The synthesis

of literature evidently portrayed that domestic consumers’ wasteful consumption is significantly contributing in electricity insecurity. Two broad facets committing wasteful consumption are drawn out in this study as (a) conscious (creating waste by knowingly) (b) unconscious (creating waste due to unawareness) wasteful consumption. Consuming electricity consciously or wasting a chunk by unconsciously both are the distorted positions of human nature that create wastage and promotes irresponsible behavior which is immoral and undesirable. To manage this behavioral dilemma “how to maintain sustainable responsible behavior”, so far, none of the strategy has proved effectual in the past literature.

The useful electricity consumption is indispensable that cannot be eliminate at any cost. But eliminating wasteful consumption and providing uninterrupted electricity supply is the key and in-depth priority of developing economies for maintaining socio-economic developments. Sustainable electricity supply could only be attained if utilization control remained in sustainable responsible hands. The Sustainable Responsible Behavior (SRB) could prove helpful while instructing/motivating consumers to utilize electricity on essentialities rather than doing extravagance under the umbrella of consciousness or unconsciousness wastage. Thus, at the time of ripe, constructing sustainable responsible behavior to eliminate electricity wastage is considered pivotal in this study.

5.1. Theoretical Contribution

This study has presented a new behavioral strategy labeled as “wastophobia” (incorporating psychoanalysis therapy with the Little Albert Experiment based on conditional response theory) in the theoretical literature. “Wastophobia (fear of wasteful consumption) is a state of fear that promotes a considerate behavior and deters the way an individual develops mental precocious, apprehension and the practice of wasteful consumption. The behavior that may give rise to dismay and make the individual feel culpable, decrepit and uncomfortable towards behavioral practices which are inconsiderate”. While the individual who will indulge himself/herself into this fear, or in other words, feel threat of observing and practicing wasteful consumption, will be labeled as Wastophobic.

Wastophobia strategy can be encouraging to effectively-efficiently develop SRB that will eliminate consumers distorted nature. It will support to eliminate wasteful electricity consumption (crisis), its detrimental impacts more precisely and suitably than other behavioral strategies implemented in past literature. Researchers and policymakers can gain the ground foundation Wastophobia strategy and SRB for further research studies in the elimination of many other types of wastes in concerned units.

5.2. Policy Perspectives

This study provides policy guidelines to concerned governmental departments including National Electric Power Regulatory Authority (NEPRA) and Water and Power Development Authority (WAPDA for gaining control over electricity crisis that is perturbing socio-economic developments and sufficiency in uninterrupted electricity supply. The policy guidelines are as follow;

1. The initial governmental objective should be to create awareness of wasteful electricity consumption in each electricity consumer. Awareness of wasteful electricity consumption will guide the consumers about various perspectives of wastage (conscious and unconscious). Once consumers will get familiarity with various facets of wasteful consumption then they will be able to take steps for reducing their excessive/wasteful/futile consumption.
2. Government should facilitate poor (financially unstable) people for energy conservation who are unable to take initiative for implementing energy efficient (energy star) appliances in their homes.
3. Government should incorporate the negative consequential impacts of electricity wastage (financial, environmental, religious punishment and personal future and electricity security threats) with awareness of wasteful consumption to seek attention of conscious irresponsible consumers. Negative consequences of wastage will support to create wastophobia in consumers' mind that will demolish consumers' distorted nature.
4. Government should adopt influential marketing communication channels to spread Wastophobia (fear of wasteful consumption). The services of religious speakers (pressure group), customers' service advisor (meter reader, bill distributors, meter inspector and line man) of electricity providing companies, media and educational institutions into policy streams that were overlooked in the past literature. Channels such as religious speakers, customer services advisor and educational institution are more constructive, suitable and practical as targeted customers have direct interaction with them.
5. The developed SRB will directly facilitate to government (developing economies) for managing electricity crisis in the country and should conserve electricity for future generations. Along with it, economies would be able to save rapidly depleting natural reservoirs (oil and oil related products) for a long period of time. In its return, the billion dollars of investment spent on oil importation will also be cut down that will strengthen economic conditions of the country.
6. The government can utilize saved electricity for electrification purposes as many villages are still not interconnected with electric grids in Pakistan. While, surplus electricity can also be exported to improve the balance of payment of the country.
7. The reduction in oil and oil related goods importation and its consumption will surely reduce the harmful environmental impacts. Government should spend this saved money and time on gaining self-sufficiency in alternative resources generation (green, clean, efficient renewable energy).

5.3. Consumer Perspectives

Wastophobia strategy will develop consumers' sustainable responsible behavior and that will facilitate consumers to reduce their ineffective-inefficient electricity consumption at home. The compensation consumers can obtain are as follows;

1. Minimize utility charges (electricity bills) by eliminating electricity wastage,
2. Gain uninterrupted electricity supply with strong voltages.
3. Eliminate compensation cost that consumers bear on buying

- an Uninterruptible Power Supply (UPS) and batteries,
4. Gain more time to strengthen physical relations with family, friends and relatives.

REFERENCES

- Akroush, M.N., Zurikat, M.I., Al Jabali, H.I., Asfour, N.A., Al Jabali, H.I. (2018), Energy awareness and perceived benefits determinants of purchasing intentions of energy-efficient products: the roles of energy awareness and. *International Journal of Energy Sector Management*, 13(1), 128-148.
- Balch, O. (2013), The Relevance of Gandhi in the Capitalism Debate *Guardian Sustainable Business*. The Guardian. Available from: <https://www.theguardian.com/sustainable-business/blog/relevance-gandhi-capitalism-debate-rajni-bakshi>.
- Bartels, D.M., Urminsky, O. (2015), To know and to care: How awareness and valuation of the future jointly shape consumer spending. *Journal of Consumer Research*, 41(6), 1469-1485.
- Balta-ozkan, N., Davidson, R., Bicket, M., Whitmarsh, L. (2013), Social barriers to the adoption of smart homes. *Energy Policy*, 63, 363-374.
- Brounen, D., Kok, N., Quigley, J.M. (2013). Energy literacy, awareness, and conservation behavior of residential households. *Energy Economics*, 38, 42-50.
- Bryson, J.J. (2002), The Past Decade and Future of AI's Impact on Society. Available from: <https://www.bbvaopenmind.com/en/articles/the-past-decade-and-future-of-ai-impact-on-society>.
- Chen, Y. (2017), The factors affecting electricity consumption and the consumption characteristics in the residential sector-a case example of Taiwan. *Sustainability*, 9(8), 1484.
- Chitnis, S., Deshpande, N., Shaligram, A. (2016), An investigative study for smart home security: Issues, challenges and countermeasures. *Wireless Sensor Network*, 8, 61-68.
- Collins. (2019), Irresponsible Definition and Meaning Collins English Dictionary. Available from: <https://www.collinsdictionary.com/dictionary/english/irresponsible#:~:text=lacking%20a%20sense%20of%20responsibility%3B%20unreliable%2C%20shiftless%2C%20> etc.
- Commission, T.B. (1992), What is sustainability? Sustainable Development knowledge platform. United States: United Nations Department of Economic and Social Affairs. p1-4.
- Connell, E.O. (2011), Overcoming the fear of waste. *Waste Management*, 31(11), 2201-2202.
- Ding, Q., Cai, W., Wang, C., Sanwal, M. (2017), The relationships between household consumption activities and energy consumption in China: an input-output analysis from the lifestyle perspective. *Applied Energy*, 207, 520-532.
- Driver, J. (2012), *Consequentialism*. United Kingdom: Routledge. p192.
- Eckstein, D., Hutfils, M., Wings, M. (2019), GLOBAL CLIMATE RISK INDEX 2019 Who Suffers Most From Extreme Weather Events? Weather-related Loss Events in 2017 and 1998 to 2017. Germany: Germanwatch
- Edelman. (2015), *Changing Tomorrow's Story. The Strategy for Energy-efficiency Campaign*. Citizenship Report. United States: Edelman.
- ELCOMA. (2017), *The Lighting Industry in India*. Available from: <http://www.elcomaindia.com/wp-content/uploads/Lighting-Industry-India-2017.pdf>.
- Ellen, S. (2015), Available from: <https://www.nasa.gov/press-release/nasareleases-detailed-global-climate-change-projections>.
- Fisk, G. (1973), Criteria for a theory of responsible consumption. *Journal of Marketing*, 37(2), 24-31.
- Fishman, T., editor. (2013), *The Fundamental Values of Academic Integrity*. 2nd ed. South Carolina: International Center for Academic Integrity.

- Freud, S. (n.d.), *A General Introduction to Psychoanalysis*. United States: Createspace Independent Pub.
- Goldsmith, R.E., Clark, R.A., Earl, R., Materialism, R.A.C., Clark, R.A. (2017), Materialism, status consumption, and consumer independence. *The Journal of Social Psychology*, 152(1), 43-60.
- Grappi, S., Romani, S., Bagozzi, R.P. (2013), Consumer response to corporate irresponsible behavior: Moral emotions and virtues. *Journal of Business Research*, 66(10), 1814-1821.
- Grønhoj, A., Thøgersen, J. (2011), Feedback on household electricity consumption: Learning and social influence processes. *International Journal of Consumer Studies*, 35(2), 138-145.
- Guo, Z., Zhou, K., Zhang, C., Lu, X., Chen, W., Yang, S. (2018), Residential electricity consumption behavior: Influencing factors, related theories and intervention strategies. *Renewable and Sustainable Energy Reviews*, 81, 399-412.
- Gupta, S. (2009), How do consumers judge celebrities' irresponsible behavior? An attribution theory perspective. *Journal of Applied Business and Economics*, 10(3), 1.
- Harris, B.E.N. (1979), *Whatever Happened to Little Albert?* United States: American Psychological Association, Inc. p151-160.
- IEA. (2017a, 2018b), *WEO-2017 Special Report: Energy Access Outlook*. Available from: <https://www.iea.org/tcep/buildings/appliances>.
- Ikeda, S. (2012), *The Economics of Self-destructive Choices*. International Resource Panel. Available from: <http://www.resourcepanel.org/reports>.
- Irfan, M., Cameron, M.P., Hassan, G. (2018), Household energy elasticities and policy implications for Pakistan. *Energy Policy*, 113, 633-642.
- Kotler, P., Burton, S., Adam, S., Brown, L., Armstrong, G. (2007), *Marketing*. Australia: Pearson Education.
- Koyama, K. (2017), *A Discussion on Energy Security Threat and Risk Factors*. Tokyo, Japan: IEEJ. p2-3.
- Krishnaswamy, N. (1981), *The Bhagavata Purana for the First Time Reader*. India: Dokumen. p2-111.
- Ledoux, J.E. (2014), Coming to terms with fear. *Proceedings of the National Academy of Sciences of the United States of America*, 111(8), 2871-2878.
- Lynch, K. (1990), *Wasting Away: An Exploration of Waste: What it is, How it Happens, Why we Fear it, How to Do it Well*. San Francisco, CA: Sierra Club Books.
- Martiskainen, M. (2014), *Affecting Consumer Behaviour on Energy Demand Final Report to EDF Energy*. United Kingdom: SPRU.
- Maslow, A.H. (1943), A theory of human motivation. *Psychological Review*, 50, 370-396.
- Mathras, D., Cohen, A.B., Mandel, N., Mick, D.G. (2015), The effects of religion on consumer behavior: A conceptual framework and research Agenda. *Journal of Consumer Psychology*, 26(2), 001.
- Mills, B., Schleich, J. (2010), What's driving energy-efficient appliance label awareness and purchase propensity? *Energy Policy*, 38(2), 814-825.
- Misslin, R. (2003), The defense system of fear: Behavior and neurocircuitry le système défensif de la peur: Comportement et neurocircuitry. *Neurophysiologie Clinique*, 33, 55-66.
- Nabi, R.L., Myrick, J.G. (2018), Uplifting fear appeals: Considering the role of hope in fear-based persuasive messages uplifting fear appeals: Considering the role of hope in fear-based persuasive. *Health Communication*, 34(4), 463-474.
- National Research Council. (1997), *Possible Health Effects of Exposure to Residential Electric and Magnetic Fields*. Washington, DC: National Research Council.
- National Electric Power Regulatory Authority. (2020), *State of Industry*. Available from: <http://www.nepra.org.pk/publications/stateofindustryreports/stateofindustryreport2017.pdf>.
- Nuseir, M.T. (2019), Impact of misleading/false advertisement to consumer behavior Impact of misleading/false advertisement to consumer behavior. *International Journal of Economics and Business Research*, 16(4), 453-465.
- Olivia Rosane. (2019), *World Economic Forum*. Available from: <https://www.weforum.org/agenda/2019/04/melting-glaciers-causing-25-to-30-of-sea-level-rise>.
- Ouyang, J., Ge, J., Lu, J., Hokao, K., Shen, T. (2008), Effects of energy saving measures for existing urban residential buildings based on thermal simulation and site investigation of energy consumption. *Journal of Asian Architecture and Building Engineering*, 7(2), 395-402.
- Pandelaere, M. (2016), Materialism and well-being: The role of consumption. *Current Opinion in Psychology*, 10, 33-38.
- Pew Forum. (2015), *The Future of World Religions: Population Growth Projections, 2010-2050*. Available from: <https://www.pewforum.org/2015/04/02/religious-projections-2010-2050>.
- Pollack, D. (1995), Was ist religion? *Zeitschrift Für Religionswissenschaft*, 3(2), 163-190.
- Prete, M.I., Piper, L., Rizzo, C., Pino, G., Capestro, M., Mileti, A., Pichierri, P., Amatulli, C., Peluso, A.M., Guido, G. (2017), Determinants of Southern Italian households' intention to adopt energy efficiency measures in residential buildings. *Journal of Cleaner Production*, 153(13), 83-91.
- Qazi, U., Ali, M.R., Moqueet, A. (2018), An estimation of the impact of uninterpretable power supply systems on electricity distribution utility of Pakistan. *Journal of Basic and Applied Sciences*, 14, 92-97.
- Rafique, M.M., Rehman, S. (2017), National energy scenario of Pakistan-current status, future alternatives, and institutional infrastructure: An overview. *Renewable and Sustainable Energy Reviews*, 69, 156-167.
- Rizvi, S.A.H. (2016), *Greater Sins. Islam/Religion and Spirituality*. Available from: <https://www.al-islam.org/greater-sins-volume-1-sayyid-abdul-husayn-dastghaib-shirazi>.
- Saini, S. (2018), The rationale behind developing awareness among electricity consumers. *International Journal for Research in Engineering Application and Management*, 11, 9-13.
- Samaa Digital. (2016), *Pakistani Households Waste 25 Percent of Electricity: Study*. Pakistan: Samaa Digital.
- Sartelle, J. (2010), *Christianity and the Material World* by John Sartelle. Available from: <https://www.ligonier.org/learn/articles/christianity-and-material-world>.
- Sheng, P., Guo, X. (2018), Energy consumption associated with urbanization in China: Efficient- and inefficient-use. *Energy*, 165, 118-125.
- Sinaga, M.L. (2012), *A Common Word, Buddhists and Christians Engage Structural Greed*. United States: Lutheran University Press.
- Sorrell, S. (2015), Reducing energy demand: A review of issues, challenges, and approaches. *Renewable and Sustainable Energy Reviews*, 47, 74-82.
- Spence, K. W. (1956), *Behavior Theory and Conditioning*. Vol. 36. United States: Yale University Press. p253-265.
- Survey, P.E. (2018), *Overview of the economy*. South Asia, 4, 1-40.
- Vassileva, I., Campillo, J. (2014), Increasing energy efficiency in low-income households through targeting awareness and behavioral change. *Renewable Energy*, 67, 59-63.
- Watson, B.Y.J., Rayner, R. (1920), Conditioned emotional reactions. *Journal of Experimental Psychology*, 3(1), 163-174.
- Wokje, A., Linda, S., Charles, V. (2005), A review of intervention studies aimed at household energy conservation. *Journal of Environmental Psychology* 25, 273-291.
- Zafar, U., Rashid, T.U., Khosa, A.A., Khalil, M.S., Rashid, M. (2018), An overview of the implemented renewable energy policy of Pakistan. *Renewable and Sustainable Energy Reviews*, 82, 654-665.
- Zaman, S. (2017), *Pakistan Bureau of Statistics, Karachi*. Available from: <http://www.pbs.gov.pk/sites/default/files//PAKISTAN%20STATISTICAL%20YEAR%20BOOK%2C%202016.pdf>.
- Zhang, Y., Wang, Z., Zhou, G. (2013), Antecedents of employee electricity saving behavior in organizations: An empirical study based on norm activation model. *Energy Policy*, 62, 1120-1127.