

**Safety and Security of Cargo: An Anthropological Study on the Role of
Law Enforcement Agencies in Pakistan**



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DEDICATION

This research is dedicated to my beloved parental figures, in particular my father, who supported me at every stage of my academic life, and to my grandparents for their love, encouragement, and support. Fellows and friends that help me with my project and support me in general. They are all the reason for my success in general. They encouraged me and assisted me in advancing so that I could complete my research. In addition, I would like to dedicate my work to my esteemed supervisor, Dr. Asim Muneeb Khan, for his unwavering support, wisdom, and commitment during my research.

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ABSTRACT

Cargo handling involves loading, discharging, and transporting cargo domestically or internationally. Pakistan's cargo sector faces security challenges, requiring human workers for safety, efficiency, and customer satisfaction. Regular maintenance, communication, and regulatory compliance are crucial for seamless movement. Understanding how human variables affect cargo processing at Islamabad International Airport is the goal of this qualitative research study. The study employs a sample of 20 respondents, the most of whom are from law enforcement agencies, to examine the function of law enforcement agencies (LEAs) in the safety and security of cargo handling. The research uses purposive sampling from non-probability sampling grounds with a sample size of 20 respondents. The Incapacitation Theory, which focuses on the obligation of the state to protect citizens from breaking the law and enact punishments to lower crime rates, is used in this study. It has been found that Pakistan's cargo sector faces security challenges, including domestic and international transport. Human workers play a crucial role in cargo handling, ensuring safety, efficiency, and customer satisfaction. Regular maintenance, communication, and regulatory compliance are essential for seamless movement. Airport cargo handling protocols include ASF, ANF, shipment, RCS, and GHA. Ground Handling Agents and Risk Strategy Control collaborate to ensure safety. Further research is needed for land and sea cargo systems.

Keywords: *Cargo, LEAs, Safety, Security, Freight, Ground Handling Staff, IATA, Discourse, RCS, International.*

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CHAPTER 1

INTRODUCTION

1.1 Brief History of Cargo Management in Pakistan

Cargo is the bulk of materials that are transported by the means of air, sea, and land. Cargo could be used both for commercial and personal use nowadays. Cargo is also known as freight or mixed load which includes multiple items of different nature. Now businesses conduct their regular dealings easily through the facility of cargo (Kaufmann & Papadopoulos, 2014). Historically, the first ever air cargo flight was carried out in 1910 in the US between Dayton to Columbus after which this means kept on evolving day by day (Monteiro & De Vasconcellos, 2019). In modern times, air transportation is considered as one of the safest and most reliable means of trade. In air cargo, which is also commonly known as air freight, items are collected from different firms through a shipper which is then delivered to customers using cargo services. However, compared to air freight and land cargo, sea cargo is considered a relatively cheap source of transportation of goods and services throughout the world (Bendall & Stent, 1987).

The term ‘Cargo’ can be used for any material, goods or products carried by any mode of transportation like ships, aircraft, and motor vehicles. It can also include a wide variety of freight having a distinct nature. Goods can include dry cargo and perishable cargo or both but due to advancement in technology now it’s possible to even cargo frozen items (Gupta & Goyal, 2017). Dry cargo may include garments, textile, fabric rolls, surgical equipment, medicines, and machinery etc. The latter includes vegetables, flowers, fruits, meat and all those materials which have less shelf time (Li & Fan, 2017). In addition to this, another category of cargo transported by air mean is called as ‘Special Cargo’ which includes AVI (Animaux Vivivants) a French word

which means live animals including livestock, cats, dogs, and horses, etc. Moreover, HUM (Human Remain), DG (Dangerous Goods) and VAL (Valuable Cargo), including currency, silver, and gold bullion, etc. (Cullinane & Toy, 2010).

There are multiple types of crafts used in air cargo which include freighters and some passenger crafts which carry bulk of materials alongside. Nowadays due to the massive transportation of goods, there are dedicated planes, ships, and vehicles just for a particular commodity (Gupta & Goyal, 2017). Most of the time, these crafts are huge in size, like Boeing 777, 747, 380, Dreamliner, etc. Due to high demand for transportation of goods several companies own planes just for the purpose of cargo. As far as Pakistan is concerned, the airlines, like Emirates, British Airways, Qatar Airways, Kuwait Airways, Thai Airways, PIA, etc., serve the purpose of international cargo. Apart from that, transportation of goods also takes place through vassals and ships. The freight transported by air mainly fall into two main categories known as general cargo and special cargo (Li & Fan, 2017). General cargo is an ordinary shipment that does not require special handling but must follow the specific requirements and safety protocols. Special cargo requires special handling, and its requirements are set by IATA (International Air Transport Association) which is mandatory to follow (International Air Transport Association, 2023).

Law enforcement agencies play a crucial role in cargo handling, ensuring the security, safety, and legality of goods being transported across borders or within a country (Administration, 1972). Their responsibilities include preventing criminal activities, maintaining regulatory compliance, and safeguarding public interests. Key aspects of their role include security and anti-terrorism measures, customs and border control, inspections and surveillance, intellectual property rights enforcement, environmental regulations, trade compliance, documentation and recordkeeping, emergency response, collaboration, and enforcement of laws and regulations.

Security and anti-terrorism measures involve implementing security protocols to intercept potentially harmful or illegal cargo. Customs and border control inspect cargo shipments to comply with import and export regulations, verify documentation, assess duties and taxes, and prevent the entry or exit of prohibited or restricted items (Chalmers, 2003). Inspections and surveillance at various points along the supply chain help detect contraband, counterfeit goods, and other illicit items. Intellectual property rights enforcement helps protect intellectual property rights by identifying and confiscating counterfeit or pirated goods.

Environmental regulations ensure proper classification, handling, and transportation of hazardous materials, protected wildlife, and items that could harm the environment (Lam & Notteboom, 2014). Trade compliance ensures cargo adheres to international trade agreements and domestic laws, while documentation and recordkeeping ensure the accuracy and authenticity of cargo documentation. Emergency response teams work alongside emergency responders to manage accidents, spills, and incidents involving hazardous materials. Collaboration with government entities, international organizations, and private sector stakeholders is essential for effective cargo handling and security. Enforcement of laws and regulations is ultimately the responsibility of law enforcement agencies.

Trade is a vital aspect of the modern world, with air cargo being its core medium. Advancements in technology, sea routes, and compasses have transformed the transportation of goods, but also brought challenges such as theft, damaged, spoiled, and illicit product transportation. To address these issues, laws related to land, air, and water were enacted worldwide. The human factor is vital to the safety and security of cargo, and it is a main area of research in the anthropological domain. Cargo handling is a technical process involving various factors from origin to destination.

In Pakistan, the aggregation of multiple law enforcement agencies is neglected or unexplored in the anthropological domain. The current research focuses on the role of Law Enforcement Agencies (LEAs) in maintaining the safety and security of air cargo in Pakistan. This research looks into the influence of human factors on cargo transportation, as well as their importance in security inspections, responding to suspicious objects, and optimizing law enforcement agency performance. It looks at the relationship between human factors and cargo movement, how they contribute to successful screening, and how people respond to suspicious things during security inspections. The objective of this research is to improve the operational efficiency of law enforcement organizations by taking into account available staff.

1.2 Problem Statement

Trade is the main component of the modern world and air cargo being its core medium is faced by a series of issues. Since the evolution of mankind, many changes have taken place in the everyday affairs of trade affairs. The mediums for the conduct of trade have evolved greatly over the span of time. Trade relies majorly on the transportation of goods from one place to another (Alam & Akram, 2019). Historically the process of trade involved passages taken by road and on animals. With the advancement in technology and the discovery of sea routes and invention of compass the trade expanded overseas to other continents. Yet the time taken for the transportation of products from one place to the other was high (Singh & Kaur, 2015). Not to forget, the chances of damaged goods, spoiled goods or no goods/lost goods were great as well. With the invention of the plane, there came an upgradation in the means of transportation of goods from one place to the other. The world had now evolved into a whole new age where transference of products had become more efficient than ever (Mahmood & Asghar, 2017).

Though, the discoveries and inventions of new means for transportation were a blessing for business communities and otherwise. But along came the vices and problems associated with these means. Some of the problems connected with cargo included theft of goods, damaged goods, spoiled goods, transportation of illicit products and weapons across the border and overseas. For this purpose, laws related to all means of transportation including land, air and water were enacted throughout the world (Khan & Ahmad, 2018). The human factor has always been quite vital to the safety and security of the cargo. It is also the main area of research in anthropological domain as it links the whole world with global transmission belt while inculcating the factor of human resource alongside. There are several studies that examined this whole process but most of them were focused on the periphery of this very phenomenon (Shah et al., 2016).

It is observed that cargo handling is very technical work which involves various factors from origin to its destination. The literature review shows that the aggregation of multiple law enforcement agencies that work together to ensure the safety and security of cargo is not focused. Internationally, there are few research studies present in this regard but in the context of Pakistan this area can be called as neglected or unexplored with in the anthropological domain (Khan & Ahmad, 2018; Shah et al., 2016). There are bundles of agencies working together at domestic level that ensure that no contraband passes the national borders. The Anti-Narcotics Force, Airport Security Force, Federal Investigation Agency, and the department of customs are the most important of them all who workday and night to smoothen this whole process (Mahmood & Asghar, 2017). My research work will be focusing particularly on the role of LEAs in maintaining the safety and security of air cargo in Pakistan.

Keeping in mind the background of the history of cargo and its evolution as well as the problems associated with this field. The following research questions on cargo safety and security arise are focused on in this research study.

1.3 Research Questions

Following are the research questions of current study:

1. How human factors affect the transportation of cargo?
2. What is the role of LEAs to ensure the security checks in air cargo?
3. How do the LEAs react if any suspicious item is found during the security checks?
4. What can possibly be done to maximize the performance of LEAs with reference to manpower available?

1.4 Objectives of the Study

Following are the objectives for the conduct of this study.

- To study the socio-economic and demographic characteristics of the respondents.
- To explore the air cargo handling practices at Islamabad international airport.
- To analyze the role of LEA in safety and security of air cargo.
- To suggest the appropriate recommendations for better handling and ensuring the efficient safety and security measures of air cargo.
- To bridge the gap between the old study done on the safety and security of cargo and this paper.

1.5 Operational Definitions of Major Terms

Some of the major terms that will be used throughout the thesis will help build better understanding of the research at hand. These terms are the operational position of my research paper. These operational terms are Human Factor, Safety and Security of the Cargo and the Role of the Law Enforcement Agencies in the domain of Cargo.

1.5.1 Human Factor

Humans have been associated with a lot of flaws but the role of human beings from any sector cannot be completely disregarded. Human factor is one of the major terms in this paper as the study highlights the role of human beings in the safety and security of cargo (Singh & Arora, 2021). Although, there has been an evolution in the security mechanisms and detection machines have been introduced. Yet the availability of humans is vital to strengthen safety and security. Even though, a lot of evils pertaining to the safety and security of cargo also occur because of the human factor. Yet the significance of the human being cannot be denied (Ahammad et al., 2022). This research explores the importance of human factors in cargo handling in Pakistan.

1.5.2 Safety and Security of Cargo

Safety and security play a vital role in strengthening any institution. Therefore, safety and security are another important term that should be elaborated in this research paper time and again. Cargo nowadays is an important part of any business as well as civilian, which makes its safety and security even more vital (Alshehri & Alzahrani, 2022). People rely on cargo nowadays a great deal for the purpose of transportation of products. The products could be for the purpose of conducting business transactions or of a personal nature. Without the assurance of safe delivery and secure, unharmed delivery of the product this department cannot operate properly (Khan &

Khan, 2021). This research study will highlight the aspects that can ensure the ways through which safety and security be attained.

1.5.3 Role of Law Enforcement Agencies

The role of law and order is a vital element in the consolidation and stability of any society. Law ensures that the ultimate safety of the life and property of citizen and thus in this case the cargo of every citizen is protected under law. However, law here plays dual role, first one is mentioned before, and the second role of law enforcement agencies is to thoroughly investigate each cargo (Dawson, 2021). The previous two terms are associated with the law enforcement agencies and their role in the acquisition of the safety and security of the cargo. As discussed earlier, the regular transportation of goods has become a vital part of any society with business community. Thus, there comes the role of the law enforcement agencies to ensure the safety and security of the cargo (Ahammad et al., 2022). This thesis highlights the role of the law enforcement agencies operating in Pakistan in terms of cargo safety.

1.6 Significance of the Study

This research has both theoretical and practical significance in the Cargo safety and security framework. For the former it mainly highlights the role of law enforcement agencies in ensuring the safety and security of air cargo. It gives us an inside analysis of safe and sound cargo handling at airports by fulfilling all standard operation procedures enforced by the airport authorities like ANF, ASF, Pakistan Customs, and Ground Handling Agents.

Furthermore, for practical purposes, it can provide various guidelines to these agencies and policymakers to opt for more prudent policy choices. It will also highlight the loopholes present

in the whole process of air cargo handling which can directly inflict its repercussions for the exporters and importers of Pakistan.

1.7 Organization of the Study

The organization of the research comprises of five chapters, of which each has a different composition. Chapter one highlights the factors that are related to the background of the research and the research questions which will be addressed in this research. Chapter two highlights the literature review and the theoretical as well as the previous research on Cargo. The literature review comprises of the previous research done on the subject. The objective of this research is to bridge the gap between the existing literature and the new statement of problem. Chapter three comprises research methodology, research design, sampling and sample size, methods and tools of data collection, and analysis. Ethical considerations, field experiences and interviews will also be a part of this chapter. Chapter 4 will address the issue that has been raised in the research question and the order of the research will be in the order of role of human beings in the safety and security of the Cargo. Different types of cargo will be shared, which would, general cargo, special cargo, cargo handling in Pakistan. Last but not the least, the human factor and the role of Law Enforcement Agencies as well as the Pakistan Civil Aviation Authority (PCAA), Airport Security Force (ASF), Pakistan Customs and Anti-Narcotics Force (ANF) will be explained in detail in this chapter.

Chapter five concludes the whole research and deduce the implications of the human factor and the pros and cons associated with it. The chapter will also propose some recommendations to make improvements in the safety and security domain of the cargo. Similarities and differences of this Study with the previous studies will be examined and a synthesis of findings will be

determined. At the end the summary and the conclusion will provide the essence of the entire debate.

CHAPTER 2

LITERATURE REVIEW

This chapter comprises of in-depth research on the previous work done on the cargo as well as the history of cargo, the types of cargo and their utilization. However, as unfortunate as it may seem, there has been very little work done on the cargo management and safety security in Pakistan. There is an availability of data on the cargo management in the western countries but there is very limited data on the cargo operations in Pakistan which is also a limitation in this research. This research will rely mostly on the primary form of research which is interviews and surveys done by myself. These interviews will be done by meeting with the higher officials in the cargo sector of all fields. Some of these interviews shall be conducted in person while some of them will be in the form of emails. However, what little information is available in the form of existing literature will also be considered. The main gap in this literature is the unavailability of the literature to incorporate the missing elements in this research at hand.

2.1 History of Cargo: Railroad, Sea, and Air

This chapter includes a thematic, empirical, and theoretical overview of the literature dealing with the role of law enforcement agencies in maintaining the safety and security of cargo. There are number of studies carried out in first world countries highlighting their role but in Pakistan this area is left unexplored. Cargo has evolved from land to open seas and from seas to the skies (Alam & Akram, 2019). The cargo delivery has been made more efficient and more prompt as well as more safe and secure. Nowadays people rely and trust their business with the cargo as well for the purpose of delivering goods to loved ones on special occasions or otherwise (Gupta & Goyal, 2017). The revolution in the cargo delivery mechanisms and the prompt delivery

systems has even made it possible for individuals to transport perishable and edible products from one place to another in fresh form (Kaufmann & Papadopoulos, 2014). Different companies have emerged for this purpose which each company providing different ways of transportation of cargo as well as different rates. Insurance addition has made the cargo damage less liability for the sender and the cargo company. This sector has become a blessing of the 20th and 21st century (Monteiro & De Vasconcellos, 2019).

Due to the revolution in the cargo, there has been witnessed a surge in online shopping not only within the state but also with other countries. People sitting at home can conduct online businesses with cargo people even picking up the delivery commodity for a fee and the product will be delivered to the consumer sitting anywhere in the world (Bendall & Stent, 1987). Businesses today will cease to exist if the cargo industry shuts down as most of them rely on online shopping. Various authors have written on the importance of cargo and the perks attached to it. But with all the advantages of the cargo there exist some disadvantages associated with cargo as well (Cullinane & Toy, 2010). Most of these are related to the malicious activity of theft, sabotage, and trade of illegal products. Here comes the work of the law enforcement agencies to investigate the matter. Most of the law enforcement agencies are now replacing manpower with machines and even sniffer dogs (Mahmood & Asghar, 2017). But this is highly debated whether the instincts of a man be easily replaced with that of an animal or a machine. But then the debate arises whether a man can work as honestly as a machine would as the element of bribery enters here (Li & Fan, 2017).

2.2 Theoretical Discourse

Many authors in the past have worked on the efficacy of the manpower and their significance in the safety and security of the cargo. An integrated MILP model is presented in a

study by Rong and Grunow (2009) to assess people shift designs and manpower requirements for air cargo facilities. By establishing a new demand levelling method and taking into account the qualification hierarchy between build-up and break-down personnel, it reduces labour expenses. In terms of personnel planning, the integrated method beats traditional two-stage techniques, and the application of it in air cargo terminals is illustrated by the case study.

The studies (such as Bartodziej, 2017; Bo Feng et al., 2015; Klindokmai et al., 2014) have shown a direct relation in between the two variables taken in this study (i) law enforcement agencies and (ii) the safety and security of not only ports but the societies spread across the country. Cargo serves the purpose of delivering goods from one place to the other but sometimes the nature of the goods is harmful to society. The transportation of unauthorized arms, contraband and smuggled goods also takes place, which brings in the role of the law enforcement agencies that uphold the standards of society and keep them safe. However, since most of the transporters of these illegitimate products are human beings and the law enforcement officers are human beings as well, raises a major question. Whether human factor in cargo safety and security is important or is it really a liability.

In order to adapt to shifting circumstances, the airline sector must carefully manage operations, particularly when it comes to staffing air cargo terminals with people who handle goods (Nobert & Roy, 1998). In order to provide flexibility, novel model and solution methodology, and gives experimental findings from a significant airlines. COVID-19 has significantly impacted the aviation industry (Rodbundith & Sopadang, 2021), including air cargo capacity and passenger side operations. The new laws and regulations require changes to comply with WHO regulations. The unstable volume of air cargo affects management planning. This paper analyzes the impact of the pandemic on shipping and cargo operations and the significant factors affecting air cargo terminal

processes. The main contribution of Rodbundith & Sopadang (2021) is evaluating the factors affecting operation performance using MCDM technique and Best-Worst Methods. The top factors affected are manpower and handling processes. The Pape Rodbundith & Sopadang (2021) aim to help the industry understand the current situation and identify necessary solutions, while also providing policy and practice for practitioners to utilize air cargo capacity effectively.

The authors have argued that in many cases it was the machine which cleared an object due to its different nature of packing and it was a human being that caught a suspicious cargo. That brings in the significance of the human factor in the safety and security of the Cargo (Bartodziej, 2017; Bo Feng et al., 2015; Klindokmai et al., 2014).

The literature here below shows a crucial role of LEAs in the whole process of cargo handling right from its origin to destination. The focus is mainly on-air cargo and its linked tentacles facilitating the whole process while perusing trade among states. Air cargo is not a confined process but an expanded phenomenon including a wide array of services involved (Bo Feng et al., 2015). It contains a shipper, forwarder, mobiles involved in land transportation, an airline freighter and finally; a consignee (Derigs et al., 2009). All these components are interlinked with each other in a perfect loop working together to perform a whole task. The main component is an airline freighter that carries cargo load and travels around the globe but to connect airliner which shipper there is required a mid-man which is called as “the forwarder” (Marian et al., 2022). To make sure that cargo reaches the freighter in time, land transport is used which mainly consists of trucks and trawlers. The land part of this whole phenomenon connects the cluster of industrial complexes spread across the country to airports via roads and highways (Ramcharan, 2011).

Airlines also provide several services like capacity storage, receiving, packaging, loading, sorting, transporting and consultation as well. The cargo is categorized on priority level such as its

type and time requirement (Derigs et al., 2009). With this requirement and categorization, the rates also vary like general cargo, special cargo, perishable cargo, and high value commodities and AVI (live animals) all have different rates of shipment demanded by airliner (Nobert & Roy, 1998). In this whole process the load is being checked and stored in warehouse for freighter to be carried out and delivered to consignee once it reaches destination. It is also observed that the current literature is emphasizing a clear distinction between cargo and passenger operations (Ramachandran & Tiwari, 2001).

Another major factor in this whole loop is the role of law enforcement agencies. They ensure the integrity of ports by curtailing all possible options and loopholes which can let dangerous material pass their national borders. Since air travel has increased the process of globalization and changed the whole world into a small town; the airport security forces face emerging challenges every new day Ranging from the menaces like terrorism and movement of dangerous material, the contrabands, black money, illicit drugs and illegal immigrants also fall in the domain of LAEs to curb them down (McCray, 2013). In Pakistan there are number of law enforcement agencies that are working in this regard such as ASF, ANF, Pakistan Customs and FIA etc. they work in collaboration with each other to maintain an integrity of screening filters placed for trapping the movement of any illicit material, in or out of national borders. The main actor among them is airport security force which follows the ASF Act 1975. The preamble of ASF act enshrines that “it is expedient to provide for the constitution and regulation of airport security force for ensuring security of all aerodromes, airports, aircrafts and civil aviation installations, and for the maintenance of law and order there in, and for the matters connected there with” (ASF Act, 1975).

Alongside the ASF couple of other agencies as mentioned above also provides their services like intelligence and manpower such as FIA deal with all those intelligences which can curtail the domestic nexus of drug and contraband paddlers (FIA Act, 1974). Pakistan Customs ensures that no such material passes the national borders which are illegal and coming through back door. The smuggled commodities can put a huge burden on a state's economy as it benefits the buyer and purchaser alone, while excluding state (Customs Act, 1969). The role of ANF is very candid from its name that it deals with the movement of narcotics which can be considered as the weapon of societal destruction (ANF Act, 1997). These all-security agencies play their role in a very systematic way by forming a strong nexus at every level of the cargo loop. They ensure the security and safety of not only cargo but the whole value chain by collaboration.

CHAPTER 3

RESEARCH METHODOLOGY

In the previous chapter some of the relevant literature is mentioned and skimmed to provide a comprehensive understanding of the study. This chapter mainly highlights those methodological tools carried out and employed throughout this study. This research mainly follows a qualitative research design while perusing the descriptive analysis. The study demands an extensive application of qualitative research in order to find out the role of human factor in cargo handling. The decision of employing this research design is also to find out the role of law enforcement agencies in maintaining safety and security of cargo handling. For this reason, the subjectivity of the respondents is very necessary as there is no secondary data present in an ample amount regarding this subject.

3.1 Research Design

The research at hand is qualitative and I opt for this methodology for the reason to understand the role of human factor in cargo handling. The role of law enforcement agencies in the safety and security of cargo requires the subjective discourse of the respondents. So, this study sought to find out the views, understanding and experience of individuals working in the cargo handling sector. This study aligns the philosophical paradigms of research such as axiology, ontology, and epistemology for the better understanding of primary aspect of the respondents while providing the nature of reality as subjective.

3.2 Universe and Population of the Study

The sample and the universe of this study are limited to Islamabad International Airport. Although the study aims at finding the role of human in cargo handling while streamlining towards the role of law enforcement agencies in safety and security of cargo handling. For that purpose, 20 individuals are taken as the respondents from law enforcement agencies and general cargo handling company named as mensy. The main reasons behind confining this study to just only one airport of Islamabad are financial restraints, limited resources and travel cost. The respondents were selected on the basis of their role in cargo handling and as according to the objectives of my research. For the process of general cargo handling, number of people for cargo handling agency are selected from all levels. For analyzing the role of LEAs, various personals from different agencies are selected. The respondents are from all ranks in order to grasp the main concept and to provide a comprehensive understanding of human factor in cargo handling.

The population for this study mainly consists of 20 respondents who are selected by using consecutive sampling technique. 15 of the respondents are from law enforcement agencies to find out the role of LEAs in safety and security of cargo. They are interview while using a proper interview guide and the questions asked were mainly of the open ended in nature to find out the comprehensive subjectivity of the respondents.

3.3 Sampling and Sample Size

Various types of sampling can be used while employing qualitative research design such as quota, purposive, snowball and consecutive sampling (Noy, 2008). In this research the technique of purposive sampling from non-probability sampling grounds is used as it involves those

respondents who are selected on purpose. This sampling technique is very relevant for this study because

Consecutive sampling involves taking ‘every subject that meets the selection criteria over a specified time interval’. It is usually considered the best of the nonprobability techniques and is very often practical (Daniel, 2011). The reason behind choosing the consecutive sampling technique was to include the sample that fulfilled and met the selection criteria of my research work i.e., working-class students.

In qualitative research, the sampling technique and size depend on the data's nature and structure (Crang, 2003). Data collection is halted when similar responses are found, and saturation occurs when 20 respondents are interviewed. In this study, 20 respondents were interviewed, resulting in a sample size of 20. Students were identified as working-class based on subjective, objective, and reputational measurement criteria. Subjective measurement involves an individual's perception of their class, while objective measurement sets specific socio-economic standards (Ball, 2010). Objective measurement has multiple proportions when classifying students as working-class.

3.4 Theoretical Framework

This study utilizes ‘Incapacitation Theory’ espoused by Zimiring and Hawkins in 1995 (Zimring & Hawkins, 1997). This theory assumes that it is the duty of state to protect its citizens from breaching law by ensuring steady enactment of law and order and most importantly the implementation of penalty. This theory focuses on the restriction of person’s liberty through the means of incapacitation and punishment which can reduce the future crime rate. This study follows

the same contour and analyze the role of law enforcement agencies in ensuring the safety and security of air cargo handling in Pakistan.

CHAPTER 4

ROLE OF HUMAN FACTOR AND LAW ENFORCEMENT

AGENCIES IN THE SAFETY AND SECURITY OF CARGO IN PAKISTAN

4.1 Introduction

This chapter in detail highlights the Role of Human Factor in the management and security of the Cargo. A series of interviews have been conducted due to shortage of existential data on the subject pertaining to the Cargo management in Pakistan. The people who have been part of this interview process are currently employed in at the Islamabad International Airport new and old. They have on field knowledge of the matters related to Cargo. This research is mostly based on the primary source of data and shall contribute to future studies. Various interviewees have shared their perspective, shedding light on the aspects otherwise unknown to many.

During the interview process I came across number of filed officers as well as the workers. What I have come to understand is that the working condition of the staff is quite good. There are 4 shifts a day with different staff working in all of these shifts. Neither of the shifts exceeds 8 hours of a single individual. The staff is cared for and is given the time to eat and rest to ensure that their level of productivity is not compromised. Regarding the safety aspect of their jobs, they are properly trained; an environment of safety culture is induced, so that they can work in a safe manner. No staff can become part of our team without prior training and once the supervisor of a trainee allows him to work, only then he is allowed to start working.

The staff is taken care of in a proper manner as they are the backbone of the entire Cargo management institution. The vigilance and good work reflect upon the image of the entire Cargo world. A slight slip by the staff can end badly and reflect poorly on the image of the entire

institution. This is precisely why the one thing that will be observed throughout the interview is the fact that there is integrity, unity, vigilance and caution among the players of this institution.

4.2 History of Air, Land and Sea Cargo

Regarding the History of Air, Land and Sea Cargo, it is assumed that the history is as old as the history of Pakistan itself. The Cargo system of Pakistan was developed soon after the independence of Pakistan. Pakistan's history of air, land, and sea cargo transportation is closely linked to the country's transportation infrastructure and economic growth. Air cargo transportation began with the establishment of Pakistan International Airlines (PIA), initially focusing on passenger transport. As trade and economic activities grew, the airline also began carrying cargo. Pakistan's main airports, such as Jinnah International Airport and Allama Iqbal International Airport, became significant hubs for air cargo. With globalization and international trade expansion, demand for air cargo services increased, leading to the growth of dedicated air cargo carriers and cargo facilities at major airports (Fung et al., 2005).

Pakistan's land cargo transportation history can be traced back to ancient trade routes, such as the Silk Road, which connected the region to Central Asia, China, and the Middle East. Modern road and rail networks played a crucial role in land cargo transportation, with the construction of Pakistan Railways in the late 19th century and the expansion of road networks in the post-independence period facilitating goods movement across the country. The Karakoram Highway, connecting Pakistan to China, also opened up a vital trade route.

Pakistan's strategic location along the Arabian Sea has led to a long history of maritime trade, with the port city of Karachi being a center of commerce. Modern seaports, such as Karachi Port and Port Qasim, have greatly enhanced the country's sea cargo capabilities, serving as key

entry and exit points for goods moving to and from Pakistan. The government has invested in upgrading port infrastructure to accommodate larger vessels and improve cargo handling efficiency.

However, each Cargo system has its own strengths and limitations. Therefore, each respondent explained it in a different manner.

One of the Respondent (P1) said that, *“the history of cargo is very old. It is a quick service, if you want to send something to a destination – like a parcel, that it is send quickly. Through airline, water and land for that all the things are taken safely to the destination.”*

The parcel delivery depends mostly on the medium chosen by the sender, according to the responder.

Another Respondent (P3) explained, *“It depends on customer’s need and calculations. Therefore, according to their needs we calculate what type of cargo would be less costly than other cargo whether its land, sea or an air cargo. Then they decide to select the cargo which would be cheaper and quick reachable for him according to their need.”*

The parcels are sent through different means, first based on the choice of the customer, and then based on the options provided by the Cargo service provider.

4.3 Significance of Human Factor in Cargo Handling

As we have discussed before the significance of Human Factor in Cargo handling is immense, now this will be observed in the form of the interviews taken from the Cargo people.

A Respondent (P3) explained that, *“Without human involvement the day-to-day activities of cargo handling are close to impossible. From checking the cargo to loading it all requires human effort.”*

Human involvement is the backbone of any institution. Excluding them can have immense impact on the structure of any institution.

Another respondent (P2) told us, *“Human factor plays a vital role in the safety and security of cargo handling and therefore, it is necessary to keep them mentally and physically healthy and sound for their work.”*

According to the above-mentioned respondent, the factor of Human being is the most vital element in the maintaining of the security and safety of Cargo.

A respondent (P4) explains, *“Human factor is most important in cargo handling process. Without this factor it is impossible. Every person has a specific role in this process. Every person can help improving this process by completing their duties.”*

Similarly, the Respondent has shared similar views on the Human Factor in the Cargo handling and Management.

Another respondent (P4) said that, *“Human factor is important for any industry, because if there is no human then work isn't possible. Machines have a limit; they are a thing. And in the aviation industry, in cargo handling, there is a lot of dependence on humans. That is because in every department, from acceptance to the flight departure, everyone has a role. Some do the physical check, some check through the machines, some are attendants according to the flight, some do buildup, some look after its department. Everyone has their own role in the cargo. Human factor is very important for the aviation industry and the cargo.”*

Respondent has spoken in detail about how Human beings are the backbone of any society and how no society can thrive without their active role.

Respondent (P5) told us that, *“Human factor, sir, in our field has a lot of importance. If your staff—holders, your white collar your blue collar—if their health is good, they can give you their hundred percent result. If their health is not good, they will not give you an output like that. That is why human factor plays a great role in our field. This is why whoever is perfectly well, we prefer them to the normal people. Human factor is very important in this line of work.”*

Human factors come in all sorts of ranks, even a janitor contributes positively in pointing out an anomaly which otherwise a machine would disregard.

Another respondent (P6) spelled out, *“If we talk about the role of human in the safety of security in a nutshell, we say that if we cannot work as a team or work without humans, our operations will not be succeeded regarding to secure the cargo safety. The Importance of human factor in the process of handling Cargo the first one is general worker because our all work is depending on them. Whether it’s on terminal, export, import, cargo whatever is under the domain of our aviation field it all managed by our general worker which assure the whole safety in all circumstances.”*

Human Factor is not talking about an individual; on the contrary it is a collection of team work put together to make the work of the institution better.

A respondent (P10) narrated that, *“Human factor is our main asset at all terms whether its screening, customs checks, cargo verification, packaging of cargo or to deal with any type of wrong activity, so we say that human factor is our main stream actor in all circumstances under our domain.”*

The significance of human involvement in cargo handling is evident in interviews with cargo people. Without human involvement, daily activities of cargo handling are nearly impossible, and it is the backbone of any institution. Human involvement plays a vital role in the safety and security of cargo handling, and it is essential to keep them mentally and physically healthy and sound for their work. In the aviation industry, cargo handling relies heavily on human involvement, as everyone has a specific role in the process. Human factors come in various ranks, from janitors to general workers, who contribute positively to detecting anomalies that machines would ignore. The importance of human factors in cargo handling is not just about an individual, but a collection of teamwork that makes the work of the institution better. Human factors are the main asset in all aspects of cargo handling, including screening, customs checks, cargo verification, packaging, and dealing with wrong activities.

Human beings are the assets of any society, there could be some problems associated with them but that does not eliminate their significance all together. Cargo handling is a complex and dynamic field that relies on human involvement for various reasons. Humans possess the ability to make complex decisions based on various factors, such as safety, efficiency, and customer needs. They can adapt to unpredictable environments and find creative solutions to problems that may not be programmed into automated systems. Safety and security are crucial in cargo handling environments, and human workers are essential for tasks such as inspecting cargo for potential hazards, identifying irregularities, and taking appropriate security measures. They can also respond to emergency situations and handle potentially dangerous cargo with care. Customer interaction is crucial in cargo handling, as they understand their specific needs and address any concerns. Human workers can provide personalized assistance and ensure customer satisfaction, which is important for building and maintaining business relationships. Unconventional cargo handling is essential,

as it involves handling specialized cargo that may not fit neatly within automated systems' parameters. Regular maintenance and troubleshooting are necessary for automated equipment, and human technicians perform maintenance tasks, diagnose issues, and make repairs. Coordination and communication are essential for effective cargo handling, as they coordinate efforts among different teams, including warehouse staff, truck drivers, and customs officials. Human workers can navigate the complex regulatory landscape, ensuring accurate documentation and declarations. Flexibility is another advantage of human involvement in cargo handling. Automated systems are often designed for specific tasks, but human workers can fill in gaps and handle tasks that fall outside the scope of automated systems. Human judgment and intuition are essential for making nuanced decisions based on experience and the context of the situation. By incorporating human involvement in cargo handling, organizations can ensure the smooth operation of their operations and maintain long-term business relationships.

4.4 Human Factor: Reduced or Enhanced

Upon the question of whether the human factor is reduced or increased in cargo management, the respondent (P8) said that, *“No not at all. Human factor is very important and their role can neither be excluded nor can their significance be denied.”*

Another respondent (P9) replied to this question by saying that, *“If we reduce the human factor, the on-time delivery of the cargo will be affected. This is because with no human involvement the cargo would not be able to be accepted, scanned, or sent to the flight on time. When it doesn't reach the flight on time, the flight requirement and the system will be disturbed.”*

The client will be disturbed. The receiver will be. Because of all these things, the human role should not be decreased, but increased.”

Human factor matters a lot as it expedites the process of on time delivery of Cargo. The more the number of people working, the speedy the process will be.

“As u know that our state condition regarding the economy and its capacity that we are unable to afford as compared to other international countries which are full of technological devices for checking and scanning. But we have a general staff worker who works in two shifts for the sound safety and for to measure different disciplines. If we talk about DGs or senior officers, they all work as an observer. But the general workers are the main element in our domain who works prominently by giving facilitations to them. This way they make the work more relaxed for u and remain comfortable and happy through facilitations. If u want to remain safe from any type of damages, it is necessary that u should facilitate and accommodate general workers by taking some good steps to provide different types of easiness.”

The main crux or the main argument remains the same throughout every interview and that is the importance of Human factor. Their significance can't be denied and their number should not be decreased as it will not contribute in a positive but rather a negative manner. Complex decision-making, adaptability, unconventional cargo handling, regulatory complexity, ethical considerations, customer interaction, maintenance and troubleshooting, flexibility and innovation, job creation, human touch, unforeseen situations, and contextual understanding are some of the challenges faced by human workers in cargo handling. Automated systems struggle to make nuanced decisions in dynamic environments, while human workers possess the adaptability to handle these unforeseen circumstances and find creative solutions. Human workers are better equipped to navigate and interpret complex regulations, while ethical considerations and customer

interaction are crucial for responsible handling of hazardous materials. A balanced approach that leverages technology to enhance human capabilities and streamline processes while retaining human expertise and adaptability is likely the most effective way forward. While automation can improve efficiency and reduce repetitive tasks, a complete reduction of human involvement in cargo handling is not desirable due to the industry's complexity and multifaceted nature.

4.5 Machines or Humans: Substitute or Not

Another major issue that comes in one's mind is that whether machines are a better substitute for Humans or not. Well obviously, machines are important but they cannot be a replacement for human beings. Machines can at times not make intelligent decision due to its limited thinking, however, a human being can. The response gathered from the various field officers was no different in this regard.

One officer (P11) said that: *“There is no alternative to humans and the machines are limited. There are many things that are accepted that the machines can't check, until a human doesn't check them physically. The machine is just provided by a command. It is limited to the command. There are many things for which we depend on the humans instead of the machines. Both things have their roles. Machines are important in the cargo industry and humans are needed very much in the cargo industry for their own role.”*

Another Respondent (P9) claimed that: *“Machine is far better because we manualized the machine once and it will work automatically according to the instructions, moreover in a modern world the machines are working much as compared to human, which also reduce the cost, human effort and work more perfectly than humans and it also helps to assure that the things will be operationalized on a right and effective way without any error.”*

The response of both the above respondents corresponds with each other claiming that machines are important no doubt but they can never be a replacement for human beings.

A Respondent (P13) said that: *“If we talk about European countries they all are well managed and disciplined countries and handle these cargo systems by installing machines because they have well developed systems assets, capital by which they installing modern technologies day by day to counter certain things in cargo and in aviation field, they also have large number of warehouses in their countries, it seems that in that type of countries machines are well performed and better than humans at certain work. But when we talk about Pakistan as compared to European countries, I think humans are better as compared to machines because we r lack of capitals, technologies, machines and having a smaller number of warehouses in our country for cargo purpose so we say that in Pakistan humans are better.”*

According to this respondent, dependency solely on machines might suit the western countries but this type of system is not suitable for countries like Pakistan where people have learned the ways to cheat a machine. In Pakistan, humans have strengths and limitations in various sectors, including adaptability to local conditions, complex decision-making, unconventional tasks, interpersonal skills, cultural understanding, job creation and social impact, ethical and moral decision-making, local context in agriculture, education and skill development, community and tradition, and human services. Human workers possess generations of knowledge about local conditions, while machines struggle to replicate these skills. Humans excel in making decisions in situations that are not explicitly defined by algorithms or rules, and are better equipped to handle unconventional tasks in sectors like agriculture, construction, and artisanal crafts. Therefore, in a country like Pakistan, Human Factor is the best suitable one.

4.6 Steps to Enhance Human Performance

There are surely flaws in the work done by the human being but there are also ways to improve the performance of the human beings. Upon asking about the steps or ways to enhance the Human performance different types of responses were recorded.

A Respondent (P13) suggests that, *“In house safety security culture, trainings, awareness regarding the safety and security of the cargo. Share and don’t hide anything, share any kind of information with their superiors.”*

Another respondent (P12) suggests that, *“By giving the staff and officers various facilities as well as by giving them different trainings and awareness.”*

Respondent (P13) suggested that, *“Firstly, everyone must do their job vigilantly, secondly, everyone must be properly aware of their duty and they must perform their duty accordingly. Otherwise, there must be the fear of some incident. Trainings in this regard take place from time to time.”*

The above-mentioned respondents have laid emphasis on the fact that the Cargo management staff and officers must be well equipped in order to do their jobs properly. This could only be achieved if they have the proper training for it.

Respondent (P15) told, *“The training and experience of the cargo staff is the most important thing. In order to ensure safe conduct of cargo it is vital that the safety and security of the human training to mitigate threat and how to perceive and react to threat must take place occasionally.”*

Another respondent (P14) said, *“The training and experience of the cargo staff is the most important thing. In order to ensure safe conduct of cargo it is vital that the safety and security of the human training to mitigate threat and how to perceive and react to threat must take place occasionally.”*

A respondent (P11) narrated, *“The main thing to maximize the performance of humans in maintaining the safety and security of air cargo is by providing proper training and our department is providing complete training to the whole staff on monthly and annually basis.”*

One respondent (P17) exclaimed, *“Provide training to staff to maximize the performance of humans in maintaining the safety and security of air cargo.”*

Previous respondents had no different opinion as compared to the previous respondents and thus they also laid emphasis on the trainings of the staff.

Respondent (P18) told, *“The training is most important. You must be trained in all aspects, according to security, cargo buildup, acceptance, flight attendant. There should be awareness sessions. The more training and motivation you give to the staff, the safer and sound the cargo will go to the destination.”*

A respondent (P16) claimed, *“We see all the systems for that. First of is the training. There are trainings for the staff at cargo handling; have they done all the courses; do they have awareness about the security threats? And secondly do they have the awareness of the security? And if they have a lack somewhere, we conduct refresher courses, we send our instructors who guide them; so that, there are no lacks in their trainings.”*

Respondent said that yes training is important but the awareness regarding the importance of their job and the security of the entire country's image depending on their work is also very important.

Respondent (P19) said that, *“Training is the main thing here for this. Until the staff is trained, they can't do the work properly. Our work is as so, we are directly linked to the aircraft, we ourselves go to the aircraft, and we reach there. So, until you have the basic training—if you haven't taken the basic training, you can never do your work, do the work properly. That is why the main this is to have training. Also, awareness, we need it, about thing that we don't fully... what they say, you can't do your hundred percent. Two things are what cover it for you, awareness and the training. These are the two main things. If you have good training, you can save yourself as good, you can save your cargo as much, you can save your airline as much, and you can save your humans as much. These are our main things.”*

The respondent explained in detail as to what and how much each of the training matters for the members of the Cargo team. Respondents were asked about the type of SOPs that must be followed and when should they be followed.

A respondent (P20) explained, *“By giving proper trainings, tests, awareness regarding SOPs to the staff and the officers involved in the Cargo management.”*

One respondent (P11) explained, *“Physical health, fitness, training sessions, monthly weekly briefings regarding awareness and how to handle errors.”*

Another respondent (P20) narrated, *“Through training of awareness and to follow the discipline of security checks and by giving a training of safety for to secure the environment and*

make sure that the staff worker more knowing about suspicious activity and what are insecure for the safety, to counter them and to make a zone safe it just done only by giving a training to them.”

Respondent (P18) remarked, *“To maximize the performance of humans in maintaining the safety and security of air cargo weekly training for staff. Conduct awareness sessions for staff and give briefing to the staff.”*

The respondents speak about the same issue and that is time to time trainings and workshops of the officers as well as the staff of the Cargo. To improve human performance in cargo handling, a holistic approach combining training, technology, process optimization, and management strategies is essential. This includes providing comprehensive training programs for cargo handlers to improve their knowledge of cargo types, handling techniques, safety protocols, and regulatory compliance. Additionally, ongoing training should focus on soft skills such as communication, teamwork, problem-solving, and customer service. Automation and technology integration can be implemented to streamline data entry, documentation, and communication processes. Standardization procedures can ensure consistency and reduce errors. Real-time data and analytics can be provided to cargo handlers, allowing them to make informed decisions based on accurate information. Task allocation and specialization can be done based on workers' strengths and skills, with specialized roles created for specific cargo types or tasks.

Safety and ergonomics should be prioritized, with proper training on lifting techniques, hazardous material handling, and safety protocols. Investing in ergonomic equipment and designing workspaces can minimize physical strain and prevent injuries. A continuous improvement culture should be fostered, with cargo handlers encouraged to provide feedback and suggest process enhancements. Performance recognition and incentives should be implemented to boost motivation and job satisfaction. Communication and collaboration should be promoted, with

open communication among cargo handlers, supervisors, and management to address challenges and share best practices. Career development opportunities should be provided, and wellness and work-life balance should be prioritized. By adopting a holistic approach that combines training, technology, process optimization, and a supportive work environment, cargo handling can improve efficiency, safety, and customer satisfaction.

4.7 Reason behind Lack of Information on Cargo in Pakistan

The major issue faced by myself throughout the research was the lack of information which is required to work on the Cargo sector of Pakistan. The respondent who spoke on the matter highlighted that this mostly because of the security situation of our country most of the airlines prefer keeping their information to themselves. Therefore, it is very difficult to get hold of secondary data on the internet.

Respondent (P15) explained: *“Due to the condition of our country as compared to other countries, all airlines have their own SOPs, manual, checks etc. and they all mention those SOPs online on their official pages online for people”*

Inadequate awareness of cargo handling can have significant negative effects on the supply chain and overall business operations. This includes safety risks, damage to cargo, delays in delivery, regulatory non-compliance, financial losses, customer dissatisfaction, operational inefficiencies, environmental impact, loss of competitive advantage, training costs, supply chain disruptions, and legal and regulatory consequences. Incorrect cargo handling techniques can lead to accidents, injuries, and damage to goods, while inadequate knowledge about proper handling procedures can result in damage during transit, financial losses, and delays in delivery. Inefficient cargo handling practices can also lead to increased operational costs, customer dissatisfaction,

operational inefficiencies, and environmental impact. Companies that lack awareness of best practices in cargo handling may struggle to compete effectively in the market, leading to higher training costs and supply chain disruptions.

4.8 Role of Various Institutions to Ensure Safety and Security of Islamabad International Airport

Islamabad International airport is the busiest airport in Pakistan. Flights are coming in and going out of the country, as well as flying domestically. The security of Islamabad International Airport is the utmost priority of all the Law Enforcement Agencies. Upon seeking perspective on the role of various institutions in ensuring the safety and security of Islamabad International Airport the point of view gathered was quite similar.

According to Respondent (P15) said that, *“It is a good question as every department of the airport has their own dedicated protocol of working. Most of the staff joins after passing the necessary training. There are some on job trainings which are part of the job. Then proper communications with other agencies working on the field is also very important, which means all the law enforcement agencies of Pakistan, Intelligence Bureau, and Special Branch, etc. Establishment of strong relation with these institutions for a smoother working is very important. Any threat perceived by any department must be shared with the other department in order to strengthen the security of the airport. Wherever law enforcement is necessary, security must be enhanced there. There are different checks and balances, different patrolling teams are there, then check posts are there for security purposes, cargo point has a dedicated check post, administrative blocks have their own check posts. They have all been told that if there is a nefarious activity going on anywhere, it must be reported to the Airport Security Force (ASF) so that it can be dealt with*

immediately. Awareness must be created that share any wrongdoing and not hid it, even if a mistake has been made, report it immediately for timely action.”

This respondent was quite thorough in his elaborate description of how the role of various law enforcement agencies comes into play where the security of Islamabad Airport is concerned.

One respondent (P17) said, *“Basically our security department is only related to our own organizations and doesn’t cover the security of the entire airport. Our organization comprises of one cargo department and Cargo department consists of three sections: Domestic Cargo, Import and Export Sections. The basic measures taken by us are excess control and the screening of the Cargo. These are the measures taken to ensure the safety and security of the export cargo.”*

Another respondent (P16) said, *“Basically our security department is only related to our own organizations and doesn’t cover the security of the entire airport. Our organization comprises of one cargo department and Cargo department consists of three sections: Domestic Cargo, Import and Export Sections. The basic measures taken by us are excess control and the screening of the Cargo. These are the measures taken to ensure the safety and security of the export cargo.”*

A respondent (P16) told that, *“Our force which is deployed at the airport is trained by our academy and it is trained in all aspects of security. The equipment installed here has walkthrough gates and scanning machines for security. Passengers or any individual will enter through walkthrough gates. Walkthrough gates detect explosion. In the machines, the goods for luggage or cargo are scanned and all the goods will be loaded in the plane after passing through the machine. After all these security measures are adopted, the cargo is safe and secure.”*

Aforementioned respondents laid emphasis on how much the various agencies are playing their part in safeguarding the airport as well as ensuring that Cargo transportation takes place smoothly.

Respondent (P17) said, *“Our department provides uniform and ID card for each staff member for our identification that makes them different from others and easy to identify that they are staff members. Proper search is made to ensure the security.”*

Another respondent (P20) narrated, *“The main thing is that if we have duty on any of the entry gates, we will check passes of every individual. Without pass we will not allow anyone to enter. For safety factor we check that the person is wearing safety shoes, proper uniform and have all the safety equipment. Safety is the main objective in the airport for every staff.”*

Respondents have a similar take on the matter of Cargo security related to ASF and GHA.

Respondent (P15) exclaimed, *“In that matter, sir, the cargo is dealt with by the ground handling agents, the GHA, who work with different airlines. We periodically survey them; we monitor all the handling systems. For this we have scanning systems at the airport, so we have a scanning system here. The scanners take basic and advance training from the ASF academy, and take a refresher every year, and after that we certify them, and then they are able to do cargo scanning, or have a license of cargo scanning. Secondly, we monitor them, that whatever cargo is being sent forward after scanning, when it reaches the air site or the flight, we check the copy of the airway bill there; it has been stamped by the proper scanners, by the ANF and is cleared by the customs staff. We check all three things, from all three departments, then we tally the airway bill with the shipment going; the pieces written, and the marking on the shipment and that on the airway bill is the same. Then we allow it for the flight.”*

Respondents believe that the role of the ASF, ANF, GHA and Customs all is very vital in the Cargo security. If this role is not met with in the right manner, then there will be security lapses which will result in major issues.

A respondent (P19) told, *“We have different shed of checks in our cargo complex like in main entrance and other checks in which we deploy our staff members to verify the identifications of people and also registered the cargo mobiles (cars) after all these checks and verifications we allow them to place cargo materials in our desk.”*

Respondent (P20) claimed, *“ANF basically examines all the cargo work on the airport to control, remove and prevent narcotics products to get departure. ANF plays its role and completes its verification process and departs cargo after verification.”*

Respondents elaborate the role of the various security offices operating on the Airport. Pakistan's various institutions play a crucial role in ensuring the safety and security of cargo throughout its journey within and across borders. These institutions include Pakistan Customs, Civil Aviation Authority (CAA), Ministry of Commerce, Ministry of Interior, National Logistics Cell (NLC), Customs Clearing Agents and Freight Forwarders, and Chambers of Commerce and Industry. Each institution plays a vital role in enforcing regulations, implementing safety measures, and facilitating secure and efficient cargo handling. The Ministry of Commerce sets trade policy formulation, promotes export-import procedures, and facilitates international trade agreements. The Ministry of Interior ensures the security of cargo movements, particularly for sensitive or hazardous materials. The National Logistics Cell provides logistics and transportation services, while Customs Clearing Agents and Freight Forwarders manage documentation, customs clearance, and transportation logistics. These institutions work together to promote trade and commerce by providing information and support to businesses engaged in cargo-related activities.

4.9 Separate Wing for Air Cargo

This was another important question placed before the Cargo audience which spoke of whether there was a special wing dealing with the Air Cargo system on Airport. To which I received different responses.

Respondent (P16) claimed that, *“As such there is no wing that is dealing separately with Cargo handling, ASF is indirectly handling the cargo while CAA is managing all ground operations so that’s where their role comes in. The scanners through which the cargo passes are approved by the ASF. They are not ASF employees they are GHA employees and they give an exam to CAA before joining the team of Cargo Handling.”*

Respondent (P18) explained, *“Our Cargo is of three different types, one is imported cargo which comes from outside of Pakistan, then we have export related cargo which deals with outgoing cargo, then we have domestic cargo which deals with locally transported products. These could be products, food items and at times dead bodies as well.”*

One respondent (P17) narrated, *“There is no separate wing of ASF but staff’s duty changes with the passage of time. Staff’s duty changes every week so that the staff won’t aware about the place completely to do any mishap.”*

Another respondent (P20) told, *“There is no separate wing. The staff on the gate gets briefing about the cargo handling and do check and balance and then move the cargo to apron area.”*

A respondent (P19) said, *“Yes, there are three sections of the GHA. There is the import department and export department, and the domestic. So, we have separate sections according to domestic and the import and export in the international.”*

Another respondent (P15) narrated, *“No, sir, for this all of our staff is trained for the security measures. We provide them basic training and then we have specialization courses. We provide them to all of our staff, so that where ever the staff is deployed, they don’t have the problem of unfamiliarity; that they haven’t seen this work. So, all the staff, even at the cargo gate, they have an in charge of the inspector rank, for who it is compulsory to have fifteen to twenty years of service. Under him is a body searcher who searches the vehicles and the people, the man power— staff, and who is going in. Thy check the catering going in as well; so, all of the staff is qualified and trained.”*

A respondent (P20) exclaimed, *“Yes, of course we have separate wings as u know that we have export quality material which move from our country to other and also have an import shed and they both have separate sops and separate wings to work.”*

Another respondent (P15) told, *“Yes, we have three types of wings, first we have domestic wings which deals with the domestic cargo, then we have second type of wings named as import section which deals with the import items which comes from the abroad, at last and third wings is known as export wing which deals with the export item for the purpose of export cargo.”*

A respondent (P18) claimed, *“We have different departments (wings) like IT department which deals regarding IT protocols, acceptance department which deals with import cargoes and Operation department which deals with different operations regarding checks.”*

Another respondent (P16) said that, *“Other than ANF, we have Pakistan customs. After scanning ON ASF, the cargo is again scanned before flight according to manifest and again re-checks whether there is anything illegal or not allowed according to international rules.”*

All the 10 respondents had a similar response and that was that there is not a particular department dealing with Cargo. However, there are departments which are concerned with the imports and exports of the Cargo.

The Air Cargo audience asked about the existence of a special wing dealing with the Air Cargo system at the airport. The respondent stated that there is no separate wing, but staff's duty changes weekly to prevent mishaps. The GHA has three sections: import, export, and domestic. All staff are trained for security measures and have a body searcher who searches vehicles, personnel, and catering. The airport has domestic, import, and export wings, with different departments like IT, acceptance, and operation. Pakistan customs also handles cargo after scanning on ASF and re-checks for illegal or prohibited items according to international rules. All respondents agreed that there is no specific department dealing with Cargo, but there are departments concerned with imports and exports.

4.10 Protocols Employed in Cargo Handling

Every department has their own standardized protocols which they employ and follow in order to conduct smooth affairs of everyday. Similarly, the Cargo department in Pakistan has its own standardized protocols. However, what these protocols are was asked from various interviewees who responded differently.

Respondent (P20) said that, *“When the hiring process starts, we update it on the website as well as publish it in the newspaper. In the past the application process was more paper work*

related however, nowadays the application process of the new workers is done through online process. A criterion has been defined online and so they apply for that job in accordance with their qualification and experience. Once your application has been shortlisted then you are called in for the initial interview, initial test, and medical test. Physical tests are conducted including running and some other vigorous tests to check if the candidate is fit or not. Once shortlisted from all these lists of tests, a candidate is once again brought before a panel for final interview and once he or she clears that interview they are put up for one-year training prior to the actual job. These trainings are conducted in different areas, and once they successfully complete these trainings, only then are they hired for the actual job. ASF is not directly involved in the cargo area because Cargo area is related to land work and it is not related to the air work. The work related to the land side is associated with Civil Aviation Authority (CAA). They also have their own dedicated security check and once you cross them only then are you allowed to move towards the Cargo area. Hence, wherever your cargo arrives or the perishables or any other commodity for that matter (whether it is Jerrys, TCS or any other company), they have to pass through various scanning processes. No incoming or outgoing courier can pass through these companies without getting the authorization of the CAA approved scanners. The scanners used by these companies are pre-approved by the CAA and ASF and afterwards they are used for the scanning purposes. So here ASF isn't directly involved but rather indirectly involved. As once all the ground process of security checks including: various filters, scanners and sniffer dogs has been done, only then is the cargo placed on the plane. So once the boarding starts, that's where the role of ASF comes in."

P20 was quite thorough in his description as to how the Protocols of Cargo actually work. These protocols included even the hiring process of the Cargo staff as well as various trainings programs given to them.

A Respondent (P19) explained, *“First of all, we receive the cargo, we check its air bill number, it is being weighed. After being weighed it is passed through security check, and then it is handed over to us by the agent. After scanning we let the special dogs to sniff the cargo for any illicit product or drug. The next thing that we do is load the cargo on the containers and we pass it on to the plane for boarding. Before boarding the plane there come an ASF security check which is the final check before the cargo is boarded.”*

Another Respondent (P17) claimed that, *“We check the cargo physically to see that whether the cargo is even safe to be brought on board, afterwards the cargo is put up for security clearance, once that’s done the cargo is being booked. Once all this is done then the buildup process according to the airline rule book is followed and then the airline tells us how we should buildup the cargo.”*

Above mentioned respondent thoroughly shed light on how the Cargo received is firstly properly checked before it is sent off to its desired location. Once the Cargo is declared safe only then is it deemed safe for dispatching.

Respondent (P18) told, *“There are different protocols regarding the handling of cargo. We are handling two types of Cargo: one is importing Cargo while the other is export cargo. The procedure for export cargo we have the acceptance of Cargo, screening of cargo, and then build up warehousing, then the movement of the cargo from the shed to the aircraft. This basically is the procedure and protocol we follow for the export cargo. Regarding all aspects of the cargo, we*

ensure safety and security at every step of the protocol. We do so to ensure the customer satisfaction and furthermore to ensure the safe arrival of the cargo at the destination.”

Respondent have mentioned the step-by-step process of the Cargo checking and it's booking.

Respondent narrated, *“When the cargo is scanned, it becomes secure. After that, when it has to be moved to the plane, it is accorded and that accord remains with the cargo until the cargo is loaded into the aircraft.”*

Respondent (16) exclaimed, *“We locate the goods to CPO. They check the products. Then we go and take our documents from the crew. After that we check what are things came for cargo and what are the measure to secure these goods. Our first priority is dead bodies. Second priority is ICG products. And the third priority is mails. And then we do work with the general cargo.”*

One Respondent (P17) told, *“Any shipment or container leaving and planning to load goods with the help of ULDs. Firstly, it comes to our department and then we put our department stamp and then we have to tally the manifest and also check the cargo position. We then check how many bulks of products are there tally them with the record and after following all these SOPs we then allow ULDs to move to the apron.”*

Another Respondent (P20) claimed, *“The protocols of cargo are first of all ASF, then ANF, shipment and RCS, and the GHA handles the cargo.”*

Respondents have not only talked about the Cargo booking, but also the checking process. They have also mentioned the primary and secondary roles of ANF and ASF in all this process.

Respondent (P16) said that, *“Firstly, we inspect the cargo handling and then custom inspectors do their inspection and ANF staff are the representative. They verify and examine the cargo and then put stamp on it. Then we scan the cargo and move to the apron.”*

Respondent (P15) elaborated, *“For the cargo handling, like i told you before, GHA, ground handling deals with different airlines. They give all the facilities to the airlines, including cargo. Other than that: holding, passenger luggage, taking the passengers to the plane, bringing them back, tickets, all the things are provided by the ground handling agents. Their cargo system is that whatever shipment comes first, their security staff checks if they have the airway bill. If they have the airway bill, and the marking of the pieces is accordingly, and the number of pieces is in accordance with the pieces written in the bill, they unload the pieces in their shed.”*

Another respondent (P19) explained, *“Agents come to us with cargo from various different airlines. Among them is Air Blue he, there is serene, gulf—whichever is the one we are landing. We weight them first of all. After weight we enter them on our bill. Then after that they further go on to make their ANF. After ANF, they then go to customs. After passing through this whole process, they hand over the bill to us. After taking the bill we scan it. This is our process of cargo.”*

Respondents discuss various agents who are involved in booking and how sometimes there are discrepancies and anomalies which mean that the declaration of the Cargo and the actual Cargo are not the same.

Respondent (P20) narrated the fact that, *“The process according to our protocols for cargo handling, our team is already there to taking initial steps like, the first step in it is a security internal check for every coming equipment at spot and to make a bill entry on our official register and to note the air bill number and also note their concerning clearance agency, piece, weight and*

charges. Second step is scanning, ETTD+ dog sniffing and a particular staff which move from point to the airplane. Other checks include ASF Check, Flight internal check; but in Pakistan things like that are not too much advance as compared to other countries, but we try our best under our domain regarding the equipment which move from Pakistan to abroad that we should apply these all checks as a particular precaution through which all cargos were load in safe and sound condition”

Another Respondent (P19) told, “The process for the export purpose, we took initial security check of cargo by following every single protocol than its move to ASF check point after confirmation from that we move to the air ramp and load it on the flight. At that stage our staff is here for the verifications of every single permit and tags than our whole check and balance protocols will be completed from our side and then we hand over to the airline staff who further checks and verify by their own than they load to aircraft for destination. So, we say that this is security check for export process.”

A respondent (P17) said, “Firstly, our security staff permit the cargoes to follow the rules regarding checking the permit copy and undertaking. Also verify the goods manager’s name and from which goods office it came. Then we check the weight of cargo material after these initial securities check our staff refer these cargos to ANF for other checks. Under ANF protocols then it further refers at third stage to the custom staff for further checks under the domain of custom protocols. After all these checks we immediately move cargo material to scanning and then place on our ware house, so we say that all protocols have been followed, this the acceptance of cargo can take place. At last, we moved these cargos to the particular flights for which they came. So, this is the first check of our system. Our second system of check is screening in which we screened all the materials then we move to the third check in which include ETD (explosive trace device)

and ED (explosive detector) in which also include sniffing dogs as well under ED. These two checks ETD and ED are compulsory checks for Europe countries.”

Respondents talk about what happens when there is a something explosive in the Cargo. The respondents explained how in this case they contact the bomb disposal department as well as the fire brigade to overcome any fire.

Pakistan's cargo handling protocols ensure safe, efficient, and compliant movement of goods within and across its borders. These protocols include customs clearance and documentation, cargo inspection and verification, hazardous materials handling, security protocols, containerization and stowage, quarantine and health regulations, customs valuation, trade agreements and tariffs, quality and standards compliance, electronic documentation and data exchange (EDI), and container tracking and visibility. These protocols aim to protect national security, public health, and compliance with international trade regulations, while enhancing safety, security, and transparency in cargo handling operations. By adhering to these protocols, Pakistan's cargo handling operations are more efficient, safer, and more transparent, ultimately benefiting national security and public health.

4.11 Dangers Associated with Cargo Maneuver

Regarding the danger associated with the Cargo, not much was spoken for by the respondents, however, there was one perspective which came to light and it was, *“The main dangers attached with cargo maneuver is Explosives. Explosives or any weapons can go in the cargo, so security checks are put in place to avoid such risks.”*

4.12 Checks and Filters to Ensure Safety and Security of Cargo: Law Enforcement Agencies

The role of Law Enforcement Agencies is quite important when it comes to placing various checks and filters in order to ensure the safety and security of Cargo. This topic will highlight the various prospects and challenges attached to it. Various officials have given variety of responses to elaborate the role of the Law Enforcement Agencies in safety and security of Cargo.

Respondent (P11) said, *“Well ASF and CAA have different mechanisms to cope with the threat detection. For instance, ammunition requires separate protocol while explosives require separate protocol. In case of explosives ASF might call fire brigade in advance; bomb diffusing squads will be called upon. Similarly, if it is related to GHA then they will inform ASF immediately and will follow their certain protocol to eliminate the threat.”*

Another respondent (P13) said that, *“Yes, absolutely, we use scanners to check for any anomalies in the cargo. Through scanning many ambiguities are identified at the very primary stage. After that the cargo is put before sniffer dogs which further identify any illicit product.”*

Respondent (P10) told that, *“As compared to any other institutions dealing with cargo, the checks and balances in our organizations are paid more heed. First of all, there are CCTV camera planted everywhere, our security staff is extremely vigilant, they are very trained because their training is being under taken from time to time. All this minimizes the factor of human error by a great deal. We have a systematic way of handling the matter; we have properly trained security guards, most of whom are retired army officials.”*

A respondent (P17) explained, *“First of all, we carry out two types of screening of the cargo: First to control and restrict the narcotics and secondly explosives. To address these kinds*

of transactions we carry out various screening screenings and scanning of the cargo. We have got specific equipment and specific dogs for this purpose. Secondly, we carry out the strict access control by placing the cargo in a very strictly monitored area and no unauthorized person is allowed to enter that area except for the authorized personnel who have been given access for the handling of the cargo.”

Respondents speak about different types of Cargo checks any type of parcel or package goes through. The stages of screening an international cargo goes through is the most important task. The domestic package is also checked properly, but an international cargo has direct link with the image of the country.

Respondent (P19) told us that, *“Checks include scanning machine, physical search, and usage of a special tool (Khoji). After all these security checks, the cargo ship is sent for loading.”*

Another Respondent (P17) said, *“Firstly, when the cargo is arrived, we verify each item manually. Check for damaged products. If any item is damaged, we have to create a report for damaged things and then send report to the department. And then we put location tags on the product and then again verify to detect for any mistake. Our security staff also work with us.”*

A Respondent (P19) told, *“Checks include valid company pass and ASF pass, electronic machines to check luggage to prevent any danger inside the airplane.”*

Respondent (P15) told, *“Our security checks are, first of all, the cargo that is ported is ported under security surveillance. They have the details mentioned. Then, the first check is when we do the physical check ourselves. Then the second check is scanning. The procedure after scanning is after scanning it goes back to the buildup where they do the ETD and EGD. Then after buildup, the shipment is sent to the flight safe and sound with the squad.”*

Another Respondent (P20) said that, *“Like I have told you before, we keep checks; we monitor the check bill, and manage everything according to the bill. Then we have a sniffing system, that we call the investigating system (Khoji System). At the cargo gate, our staff tally the shipment pieces and their marking to bill according to the piece number. They also check if the shipment is opened from somewhere, or has been configured in anyway. Okay. Then after that we have our own investigator (Khoji), is what we call it. The staff uses that by going around all four sides of the shipment to check for explosives or narcotics. We clear it in this way.”*

Respondent speak about what are the various stages of screening that a parcel goes through. Special attention is paid to the international package as it needs to be checked so that the content matches the declaration form.

Respondent (P18) said that, *“There is walkthrough gates, first of all. There are many CCTV cameras around here. Second is our scanning. Whichever shipment comes in, is handed over, we scan it. Without that—no shipment goes without scanning. All shipment is scanned. These three are the major factors.”*

Another respondent (P16) told us that, *“In this our first check is internal security check then a ETTD process, but in some cases ETTD process depends on the requirements of some countries”*

Respondent (P15) narrated, *“Our first specific check is walk through gate after that our security staff already deployed at entry gate for the purpose of physical check by metal detector whoever comes to this check point. Same as this type of walk-through gate is also deployed in our office as well for our own staff checking and verifications for the office members at the time of office entry and execution too.”*

Respondent (P20) said that, *“If we talk about cargo check here, we have scanning machines in which includes some process like ETD and EDD process and at last check point is dog sniffing for the suspicious materials than our security check process is being completed. Moreover, our staff also move with cargo from the ramp to the aircraft at the time of loading process, so these are some special measures taken by our management for the purpose of smooth security checks.”*

A Respondent (P17) told us that, *“Physical search, ETT, ETD, Screening, 64 cameras coverage, Security guards are also deployed on different checks points as well.”*

The respondents discuss what means are employed to check the cargo; this includes, sniffing dogs, detectors usage, physical search, screening and more. Sniffing dogs, trained in detecting specific scents associated with contraband or hazardous materials, are employed at cargo facilities, checkpoints, and borders to identify illicit substances. Advanced detection technologies, such as X-ray machines, gamma-ray scanners, and explosive trace detectors, are used to examine cargo without physically opening containers. Physical searches are conducted when suspicion arises or detection methods indicate anomalies, verifying the accuracy of declarations and ensuring compliance with regulations. Trained personnel physically inspect cargo containers, packages, and shipments to identify hidden or unauthorized items. These searches verify the accuracy of declarations and ensure compliance with regulations. Screening involves a combination of visual inspection, scanning, and technological detection to ensure cargo safety and compliance. This comprehensive approach helps authorities identify and mitigate potential risks, prevent smuggling, ensure compliance with regulations, and maintain the safety of cargo handlers, transportation personnel, and the general public. These methods are integral components of a comprehensive security strategy within the logistics and transportation industry.

4.13 Novel Threats to the Safety and Security of Cargo

Threats emanating from various Cargoes being exported and imported are quite evident. Therefore, the Law Enforcement Agencies are confronted with major challenges. These challenges range from Narcotics export or import, contraband, illegal arms and more. In many cases money laundering cases are also caught. These interviews will shed light on what kinds of security threats are faced by the Cargo department.

Respondent (P15) said that, *“Since the threats from terrorism and other similar threats are emerging so ASF encourages GHA to keep the training of their staff up to date. The more awareness is there the sharper and vigilant you will be regarding the emerging novel threats. Timely trainings must be conducted, up-to date scanning machinery must be introduced, awareness, communication between all the agencies are some steps taken to tackle with novel threats. Timely action must be taken against any kind of threats that emerge from time to time.”*

Similarly, another respondent spoke about the novel security threats faced by the Cargo department in the following manner:

Respondent (P15) explained, *“The threats could be either internal or external both occurring as a result of human error which is quite normal. Internal threat could be related to jealousy to show the incompetency of some employee another employee might add something in the shipment. Since I have mentioned that our security is very vigilant so this is highly unlikely kind of a threat. Regarding external threat, we use sniffer dogs, security cameras so there has not been any such incident which can be accounted for having been a massive blow to the safety of cargo.”*

Another respondent (P18) narrated, *“Normally the threats emanating include the fact that in writing the cargo displays something else, but upon inspection something entirely different comes up.”*

The following respondent not only spoke of the novel security threats faced by the Cargo department but the measures taken by the department to tackle with those novel threats.

Respondent (P16) told, *“Of course keeping in view, the situation of Pakistan and the region, first of all the most alarming threat is the security threat. We are ensuring this threat elimination with the help of the airport security force and the civil aviation authority vigilance team, our own department’s security team. All measure we have taken all physical deployments, CCTV cameras, all types of screening and all sorts of necessary security checks have been deployed by us. The most important and most critical threat is the security threat and we are ensuring the complete elimination of this threat with our security measures.”*

The respondent below spoke of how Pakistan is challenged with a plethora of security challenges which can also be seen reflecting upon the Cargo. People use airports for transporting their illicit packages. In some cases, they even get successful which then has serious repercussions for Pakistan and the Law enforcement agencies.

Respondents have discussed the various threats faced by the Cargo department. In most cases what happens is that the declared item and the packed items don’t match due to which there comes a lot of problem.

Respondent (P20) narrated, *“New threats include Cyber-attacks, harmful/dangerous goods hidden inside the cargo and undeclared things inside the cargo.”*

A Respondent (P17) exclaimed, *“We check whether the person demanding the items is authorized or not. To verify that the person is authorized we check document of the person and the custom card. After verification the person can get their demanded things.”*

Another Respondent (P18) told, *“Pallet lashing should be strong. Luggage should not be un-tight. Polythene should cover the whole luggage. Make sure that ULDs are not damaged and working properly.”*

Respondent (P18) claimed, *“In regards to cargo handling, we have the most danger of cyber-attack in the IT department. Then if something is shipped that is dangerous to the security of the aircraft. There are internal safety measures, whatever equipment that we are using is not damages or things like that. These things re important to our safety.”*

The above-mentioned respondents have highlighted some new types of threats which are related to Cyber Security. This is a rather more malevolent as it hacks into the system and many illicit parcels get authorization due to some glitch in the system.

Respondent (P16) said that, *“Since the ground handling agents are civil employees, and are not linked with the law enforcement agencies, we monitor them and check them when they accept the incoming shipment—what is their acceptance system. Then how is their scanning system. And then after acceptance what methods they apply on it—if they do or not, and if they do, do they do it in the proper way or not. We do these things in written form so that there is no—so that we are clear from the passenger’s side and their baggage. All the measures we have taken—the walkthrough gates, scanning machines, pass system that we have put etc. So that we can give hundred percent securities compliance, if there is a loop hole or weakness on the cargo side, hundred percent securities are not possible. There we manage the system ourselves so we monitor*

it, and on this side, their staff uses the CCTV system, and we keep checks on it and all the other things; if they are adopting the proper ways of security and if they are being followed or not. If there is any lack somewhere, we give them guidance, and provide them our own observations as well.”

Respondent spoke of problems unrelated to threat but due to improper packaging by the sender damaging the goods and causing the cargo a lot of trouble. Therefore, it becomes really important that manual checking of the parcels is done.

Respondent (P19) elaborated, *“Dangerous goods come here. There are few things, not everyone has the knowledge about these things, there are some dangerous goods hidden in them. Like oil, like paint—these, not everyone knows about these, but in our language, these are those, they can endanger our planes. These are dangerous goods— they’re called dangerous goods.”*

A Respondent (P16) explained, *“In this case, the main threat is cyber-attacks, which mainly attacks our channel and the consequence is that our channel regarding the checks will be damage at the spot and properly destroy and stop working too, and at same time who apply cyber-attack their channel will be start working for their own needs.”*

Respondent discuss the threats faced by the Cargo which are sometimes insider threat, sometimes a cyber-attack or in worst case scenario a package of explosives unraveling. Cyber-attacks were once again brought to the attention as they have become a new type of challenge. This also speaks how machines can never be a better alternative of human beings.

Respondent narrated the fact that, Firstly, we should handle the documents process that we have to verify whether its original or bogus documents or any hidden object which is invisible some time for us, like hidden weapons or any type of gases which was not been declared by person

in documents or in a first check at the time of verification, and also a poor packaging of cargo are the emerging threats for us. Cyber-attacks, Insider threats, hidden items and many more types of threats we see in cargo handling.”

4.14 Most Frequent Illicit Items Caught

Illicit items in air cargo are items that are prohibited, restricted, or illegal to transport due to safety, security, legal, or regulatory reasons. These items can pose risks to aircraft, crew, passengers, and the general public. The list of prohibited or restricted items can vary by country and airline, but generally includes explosives, weapons, hazardous materials, narcotics and drugs, counterfeit goods, endangered species and wildlife, biohazardous materials, currency and monetary instruments, cultural artifacts and antiques, counterfeit and illegal goods, perishable items, and items endangering flight safety. Explosives and Incendiary Devices are strictly prohibited due to their potential to cause serious damage or explosions onboard. Weapons and ammunition are typically prohibited or heavily regulated, with special permits and arrangements required for transporting firearms legally. Hazardous materials, such as toxic substances, flammable gases, corrosive materials, and radioactive materials, are also restricted due to their potential to cause harm, contamination, or fires. Illegal drugs, controlled substances, and narcotics are strictly prohibited, subject to stringent security measures and legal consequences. Counterfeit products, endangered species and wildlife, biohazardous materials, currency and monetary instruments, cultural artifacts and antiques, counterfeit and illegal goods, perishable items, and items endangering flight safety are also prohibited.

When people send out parcels whether to be shipped domestically or overseas, in both cases foul play is a possible occurrence. It could range from illicit activity to Narcotics to Contraband or even illegal weaponry at times.

Respondent (P16) said that, *“Due to less awareness among the cargo members sometimes illicit weapons, bullets, used bullets and some nonprescription drugs and other illicit banned products pass through scanners. However, if proper checks and balances, proper trainings and up to date equipment for scanner is used then this can be prevented. Sometimes these proper training pay off as many illicit items are confiscated timely both on the cargo side and the passenger side.”*

Another Respondent (P19) explained, *“Firstly, we strictly follow the SOPs, the reporting mechanism of our department is excellent I must add. It means that not only the security staff but even if a sweeper observes a nefarious activity, he will right away report it to his senior right away. We report to our line manager and then he pursues the matter ahead.”*

Respondent (P16) narrated, *“If we find out that an illicit cargo is being shipped, we inform ANF and all security agencies operating on the airport right away.”*

Respondents spoke of the fact that there was not anyone particular item that was frequently caught up in the Cargo checking. The illicit items mostly included contrabands and illegal weapons being shipped off.

Another Respondent (P15) told, *“Keeping in mind our strict security checks, there is no particular item we frequently observe flowing in the cargo movement. However sometime ambiguity is observed in the declaration and the exact object in the cargo. Even that happens rarely to find differences and contradictions in the declared and actual cargo.”*

Another Respondent (P16) narrated, *“Narcotics is the most frequent illicit item or material being caught-up by your institution while maintaining the safety and security of cargo.”*

Another Respondent spoke of one particular item being regularly observed and that was the Narcotics which has given the Law Enforcement agencies a lot of challenge. Much of powder has been confiscated and much slips out of the fingers sometimes due to insider help or some smart way employed by the transporter.

Respondent (P20) told, *“First of all at this, the ANF, or the customs, we inform them. That we have checked this thing, it was going out. Usually, almost all the things—when we scan the shipment, everything in there can be seen. Even though we have the scanners, we still scan everything.”*

Another Respondent (P17) claimed, *“Narcotics is the most frequent illicit item or material being caught-up by your institution while maintaining the safety and security of cargo.”*

The respondents argue that less awareness among cargo members can lead to illicit weapons, bullets, used bullets, and nonprescription drugs passing through scanners. However, proper checks and balances, training, and up-to-date scanner equipment can prevent this and lead to timely confiscation of illicit items on both cargo and passenger sides. The respondent emphasizes the importance of following standard operating procedures (SOPs) and excellent reporting mechanisms in their department. Security staff and line managers should report suspicious activities to senior management and inform the ANF and all security agencies operating on the airport. The respondents explain that there is no specific item that is frequently caught up in cargo checking, but sometimes ambiguity in the declaration and exact object of the cargo can lead to differences and contradictions. Narcotics is the most frequent illicit item caught up, which

has given Law Enforcement agencies a challenge. Many powders have been confiscated and some slips out of the fingers due to insider help or smart transporter practices. The ANF or customs inform them that they have checked the shipment, and almost all items are visible when scanning the shipment.

4.15 Plan of Action on the Illicit Items Caught

In case of an illicit activity a penalty approved by the authorized departments comes into effect. This is most important as this eliminates the chance of any future wrongdoings in the Cargo department.

Respondent (P18) said that, *“We have specific procedures and steps if we come across any doubtful or suspicious package. Immediately we isolate that part of the shipment and we put that shipment in a specific area. We cordon off that area and we call all involved agencies, the shipper and our handling staff. Then we carry out the physical inspection of that shipment to ensure that the commodities are in accordance with the declaration. The role of customs is very important as they ensure that the export goods are in accordance with the rules and regulations set up by the airport security.”*

Sometimes when the threat that has come up is of a serious nature, the area is cordoned off in order to prevent the spread of the threat. The involved agencies, the shipper and our handling staff that was caring for the packaging and booking have to answer for it. Simultaneously action is also being taken.

Another Respondent narrated, *“The short- and long-term response with respect to some contraband transportation will be as per law.”*

Another Respondent (P17) told, *“The life of the passenger in the aircraft is the most precious. If there is any alert in the security checks, we hold the shipment in a segregated area. Then the related departments are contacted like we have the Pakistan Customs, ANF. They are called to check. If there is a high DG or PFC shipment is detected, civil aviation is also contacted on the matter.”*

Respondent speak of the plan of action that the Cargo department opts for in case of a foul play. These plans vary from some fine payable and most cases it results in arrest and confiscation of the illicit package being transported.

Respondent (P16) said, *“We hold them at the stage of scanning, when it’s detected by scanning devices after that we report to the departments of ANF (anti-narcotics force) and customs than they will deal with these suspicious cases by following protocols. Our duty is just to hold it and report to departments which deal with them and we separate the suspicious things as a precaution that it should not be mixed with other cargo materials.”*

Another Respondent (P20) narrated, *“First of all, there is a cargo check at the main transportation gate. Apart from this, they check the sales and other things at the same place.”*

In the event of illicit activity, penalties approved by authorized departments are implemented to eliminate the risk of future wrongdoings in the Cargo department. The department has specific procedures and steps in place to address doubtful or suspicious packages. These include isolating the shipment, placing it in a specific area, cordoning off the area, and contacting all involved agencies, shippers, and handling staff. The role of customs is crucial in ensuring export goods comply with airport security rules and regulations. Short- and long-term responses to contraband transportation are as per law. The life of the passenger in the aircraft is the most

precious, and if an alert is detected, the shipment is held in a segregated area. Related departments, such as Pakistan Customs (ANF) and civil aviation, are contacted to check the shipment. The Cargo department's plan of action in cases of foul play varies from fines payable to arrest and confiscation of the illicit package being transported. The department holds suspicious packages at the scanning stage, reports them to the anti-narcotics force (ANF) and customs departments, and separates them to prevent mixing with other cargo materials. Cargo checks are conducted at the main transportation gate, as well as at other locations, including sales and other items.

4.16 Technological Assistance to Address Emerging Cargo Related Threats

Technological assistance in today's world is most important. The advanced machinery and technology play a vital role in every sphere of life. Latest technology in Cargo department helps eliminate the minor errors due to which some foul play takes place. Cargo handling threats are constantly addressed through technological advancements, including advanced screening technologies, automated cargo inspection systems, and advanced sniffer technologies. Blockchain technology ensures a secure, transparent, and tamper-proof record of cargo movements and transactions, reducing fraud risk and ensuring supply chain integrity. IoT devices and sensors monitor cargo conditions in real-time, ensuring the safety of perishable or sensitive goods. Biometric authentication systems, such as fingerprint or facial recognition, enhance cargo security by allowing authorized personnel access to restricted areas. Predictive analytics and AI analyze data to identify potential security threats, helping authorities take proactive measures. Cargo monitoring platforms, cloud-based platforms, smart seals, drones, robotic systems, and cybersecurity solutions protect data and prevent cyber threats. Remote control and automation technologies enable operators to manage cargo handling equipment and processes from a distance, enhancing safety and efficiency.

Respondent (P19) said that, *“Technology includes walkthrough gates. These walkthrough gates are up to date and detect explosive/metal things and produce a sound when metal is detected. Scanning machines are also used. It scans on all sides of the luggage. Latest technologies are used to handle these threats.”*

Respondent (P20) explained, *“Yes, absolutely any kind of new input is highly encouraged. Whether it is training or AI inclusion is highly important. Improvement of any sort is highly important and will always be welcomed. Whatever maximum benefit can be reaped to improve the safety and security of the cargo is highly encouraged.”*

The respondent mentioned that technology includes walkthrough gates that detect explosives and metals, and scanning machines that scan luggage on all sides. They emphasize the importance of new input, such as training or AI inclusion, and encourage improvement to enhance cargo safety and security. They encourage any form of improvement to maximize benefits for cargo safety.

4.17 Governmental Efforts to Safeguard Cargo

Government plays a vital role as their involvement in terms of improving the level of efficiency of the Cargo Department as well as providing financial aid. According to the respondents the government is making quite an effort to make the Cargo Process as smooth as possible through various training programs and workshops.

Respondent said that, *“By government if you mean the CAA, which is a government institution, then yes different types of training workshops are being conducted throughout the year.”*

Another Respondent (P19) explained, *“Yes, government provide us with periodic training workshops and exercises while enhancing your capability to counter novel treats in cargo handling. ASF academy in Karachi provide every kind of security training to all the staff.”*

Respondent (P18) narrated, *“Our department provide us training. We have training rooms allocated. Different kinds of training are provided related to cargo handling.”*

The respondents have explained that yes, the government does play its part in providing fiscal aid but in most cases foreign training programs are also arranged by the government. This helps improve the efficiency of the Cargo department.

Respondent (P17) told, *“Yes, first of all we have the civil aviation department. They offer us training on a monthly basis. The ASF provides trainings for the security. The narcotics training is given monthly by the ANF”*

Another Respondent (P19) said, *“Yes, there are. I can tell you my own. I have obviously done the basic course from ANF, the law enforcement agency, and the advance course as well. Then there is BRC, which is bomb reconnaissance course, which i did from the civil defense. Then there is advance airport security course; there was a French team under the United Nations, they gave us this course. Such different courses and workshops take place frequently in the ASF academy, and it is the only institution of security in Pakistan which is registered. They conduct all these courses and we periodically provide these courses to all of our staff”.*

The periodic trainings are very helpful for the Cargo staff as it keeps them trained and decrease the element of mistake. The trainings help the employees of the Cargo department remain on track and be up to date on the matters related to their work.

Respondent (P18) narrated, *“Yes, government provide us with periodic training workshops and exercises while enhancing your capability to counter novel treats in cargo handling. They provide training about cargo handling process and how to overcome if any illegal thing happens through online sessions, live classes.”*

Another Respondent (P19) exclaimed, *“Training includes firing a weapon, use of weapons, how to overcome if any incident happens and other training exercises related to cargo handling.”*

The respondents spoke of different mechanisms to equip the staff with emergency matters and how they can remain on track. The training workshops and various field activities help greatly in this regard.

Respondent (P11) told, *“Indeed, there are mechanisms involved in equipping us with emergency response through training workshops. Furthermore, CAA invites foreign experts to train us regarding how to react in case of a threat that is completely new to us.”*

Respondent (P10) claimed, *“Yes, periodic training of all the departments of the airport is conducted from time to time in order to keep the staff up to date with the security features.”*

The government plays a crucial role in improving the efficiency of the Cargo Department and providing financial aid. The government provides various training programs and workshops to enhance personnel's capabilities in cargo handling. The CAA, a government institution, conducts various types of training workshops throughout the year, including periodic training workshops and exercises. The ASF academy in Karachi also provides security training to all staff. The government also provides fiscal aid, with foreign training programs often arranged by the government. Civil aviation departments offer training on a monthly basis, while the ASF provides security training. The ANF offers narcotics training, bomb reconnaissance courses, and

airport security courses. These courses are conducted frequently in the ASF academy, which is the only registered security institution in Pakistan. The periodic trainings are helpful for the Cargo staff, as they keep them trained and reduce the risk of mistakes. They help employees remain on track and updated on matters related to their work. The government also provides training on the cargo handling process and how to overcome illegal activities through online sessions and live classes. The government also equips staff with emergency response mechanisms through training workshops and field activities. The CAA invites foreign experts to train staff on how to react in case of new threats. Regular training of all airport departments is conducted to keep staff up-to-date with security features.

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion and Conclusion

As it has been observed throughout the research that there are a lot of security challenges pertaining to the Cargo sector. These challenges vary from Cargo to Cargo and whether you package is being transported within Pakistan or abroad. Although great care is taken when a package is being couriered from one place to another, whether domestically or international. But when it comes to a package being exported out of the country, a lot of checking and scrutiny is done as anything going wrong can have serious implications for Pakistan. Due the arising security threats faced by Pakistan it has become vital that every Cargo that is being shipped out of Pakistan is properly and thoroughly checked.

Cargo handling is crucial for efficient operations due to its complexity, adaptability, safety, security, customer interaction, unconventional cargo handling, maintenance, troubleshooting, coordination, communication, regulatory compliance, flexibility, and intuition. Human workers possess the ability to make complex decisions based on factors like safety, efficiency, and customer needs, while also ensuring the safety and security of cargo. They can quickly adapt to changing circumstances and find creative solutions to problems that may not be programmed into automated systems. Additionally, human workers can provide personalized assistance and ensure customer satisfaction, fostering business relationships. Regular maintenance and troubleshooting are essential for maintaining and troubleshooting automated equipment. Communication and coordination among teams are essential for seamless cargo movement through the supply chain. Regulatory compliance is crucial for international cargo handling, and human workers can

navigate the complex regulatory landscape to ensure accurate documentation and declarations. Human involvement in cargo handling is essential for maintaining a competitive edge in the industry.

The history of air, land, and sea cargo handling in Pakistan is complex and relies on customer needs and calculations to determine the most cost-effective cargo type. The importance of human factors in cargo handling is significant, as they maintain security and safety. Human involvement is the backbone of any institution and is essential for maintaining mental and physical health. Human factors are the main asset in all aspects of cargo handling, including screening, customs checks, cargo verification, packaging, and dealing with wrong activities. One major issue faced by the cargo audience was the lack of information required to work in the cargo sector of Pakistan. The airport has different sheds of checks, where staff members verify identifications and register cargo mobiles. ANF plays a crucial role in controlling, removing, and preventing narcotics products from being released. The airport also has various security offices operating on the airport. The protocols of cargo include acceptance, screening, building up warehousing, and movement of the cargo from the shed to the aircraft. The protocols of cargo include ASF, ANF, shipment, RCS, and GHA. Damages associated with cargo maneuver include explosives, cyber-attacks, harmful goods hidden inside the cargo, and undeclared things. Governmental efforts to safeguard cargo involve improving the efficiency of the Cargo Department and providing financial aid. Challenges vary depending on the cargo and whether it is being transported within Pakistan or abroad. However, great care is taken when a package is couriered between places, whether domestically or internationally.

The checking process of the Cargo is also multi-layered. In order to have the chance of error completely removed the Cargo department goes through great lengths to ensure safety. First

of all, there is the advance x-rays that goes through the package displaying the image of the products inside on the screen. Whichever shipment is going is scanned with the single views and dues, so that the image is clear and the prohibited items can be identified. This is the first check and that eliminates any foul play. Second is the ETD of the shipment, which is involved with the testing of the cargo through a machine. This eliminates further chances of an error and the Cargo matches with the description of the declaration form. Third is the RCS department, which is dog sniffing. These dogs are highly trained and they can smell band outfits like narcotics from miles away. These dogs help a great deal in uncovering any concealed narcotic item.

The Ground Handling Agent (GHA) and Risk Strategy Control (RSC) must work side by side and vigilantly. RSC is universally been authorized with providing trainings, deliver sniffer dogs and conduct audits of the GHA and other departments for their smooth conduct of activities. Sniffer dogs of ASC are highly trained so once the cargo is laid down, they dog sniff them to ensure that no illicit item, any drug or anything unapproved is not in the cargo. Safety and Security of the Cargo being delivered domestically or globally is the collective responsibility of the entire Airport staff.

5.2 Recommendation

The significance of human involvement in cargo handling is evident in interviews with cargo people. Human factors play a vital role in maintaining the security and safety of cargo handling, and it is necessary to keep them mentally and physically healthy and sound for their work. A general worker is the main asset at all aspects of cargo handling, including screening, customs checks, cargo verification, packaging, and dealing with wrong activities.

Unconventional cargo handling is essential, as it involves handling specialized cargo that may not fit neatly within automated systems' parameters. Adaptability, unconventional cargo handling, regulatory complexity, ethical considerations, customer interaction, maintenance and troubleshooting, flexibility and innovation, job creation, human touch, unforeseen situations, and contextual understanding are some of the challenges faced by human workers in cargo handling.

The Air Transport Force (ANF) plays a crucial role in controlling, removing, and preventing narcotics products from getting departure. The ANF completes its verification process and departs cargo after verification. There is no specific department dealing with the Air Cargo system at the airport, but there are departments concerned with imports and exports. Dangers associated with cargo maneuver include explosives, hidden objects, and poor packaging. Law Enforcement Agencies play a significant role in placing various checks and filters to ensure the safety and security of cargo. They should handle documents, verify hidden items, and implement proper training to detect illicit items.

A holistic approach combining training, technology, process optimization, and management strategies is essential to improve human performance in cargo handling. The major issue faced by the research was the lack of information required to work on the Cargo sector of Pakistan. Respondents mentioned various sheds of checks in their cargo complex, such as the main entrance and other checks where staff members verify identifications of people and register cargo mobiles.

Less awareness among cargo members can lead to illicit weapons, bullets, used bullets, and nonprescription drugs passing through scanners. Cargo checking is not specific, but ambiguity in cargo declarations can cause differences and contradictions. In case of foul play, the Cargo department's plan is to hold suspicious items and report to authorized departments. Penalties

approved by authorized departments are implemented to eliminate the risk of future wrongdoings. Cargo handling threats are constantly addressed through technological advancements, including advanced screening technologies, automated inspection systems, and sniffer technologies. Governmental efforts to safeguard cargo are vital, as they contribute to improving efficiency and providing financial aid.

5.3 Limitations

This research in collaboration with the various interviews taken has helped a great deal in order to develop a better understanding of the Air Cargo system in Pakistan. In the beginning of the research a lot of problem was faced due to the unavailability of literature on the Cargo system in Pakistan. Now however, due to the interviews this literature gap was met with. But a lot of work needs to be done on the Land and Sea Cargo as well in order for the people to have a better understanding of the system.

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ANNEXURE-1

Bahria University Islamabad

Department of Humanities and Social Science

Research Topic:

Human factor in the Safety and Security of Cargo: A Study on the Role of Law Enforcement Agencies in Pakistan

Interview Schedule

Section A: General Characteristics of the Respondent.

1. Name (optional) _____
2. Age of the respondent _____
3. Gender affiliation _____
4. Place of birth _____
5. Respondent's socio-economic background (In classes, etc. Elite, upper, upper-middle, lower-middle, low) _____
6. Level of qualification (In years) _____
7. Marital status of the respondent _____

Section B: Questions associated to socio-economic conditions of the respondent.

8. Members of the family (In numbers) _____
9. Structure of respondent's family _____
10. Monthly income from this agency (In digits) _____
11. Other sources of income _____

12. Do you find your income appropriate in association with your needs and responsibilities?

Section C: Questions related to the role of LEAs in safety and security of cargo.

13. What is the basic measure taken by your institution to ensure the safety and security of (Islamabad International) airport?

14. What is the general process of employing your agency's protocols in complete process of cargo handling?

15. What are those specific checks and filters put by your institution to ensure the safety and security of cargo?

16. Do you have any separate wing which deals with the cargo handling?

17. What are the different dangers attached with cargo maneuver, and which one you take as the most dangerous as per your subjectivity?

18. What are the novel emerging threats, compromising the safety and security of cargo handling?

19. How far your institution is technologically advanced to cater these emerging threats?

20. What is your short- and long-term response with respect to some contraband transportation?

21. What is the most frequent illicit item or material being caught-up by your institution while maintaining the safety and security of cargo?

22. Would you like to add on some recommendations to enhance the watchdog of your agency with respect to safety and security of cargo?

Section D: questions regarding the respondent's orbit of authority and agency.

23. Rank of the respondent _____
24. What is your authority in correspondence with your rank?
25. Did you ever get an opportunity of some extra money for going blind on some illicit activity?
26. What are those loopholes causing hindrance while maintaining the safety and security of cargo?
27. Did you ever feel pressure from your up-rank which effected your duty?
28. Did you ever experience political indulgence, pressurizing you to go against your SOPs?
29. Do you find your agency supportive when it comes to the safety and security of cargo handling and the use of your power?
30. Is there any corruption on lower or higher level of your agency?
31. What are some lacunas in your agencies that must be filled to synergize its role?
32. Does government provide you with periodic training workshops and exercises while enhancing your capability to counter novel treats in cargo handling?

Section E: Questions related to the role of human factor in cargo handling.

33. What is the importance of human factor in cargo handling process?
34. With evolving world, do you think we must increase the use of AI in cargo handling?
35. Should we reduce the role of human factor in cargo handling, if yes, then to what extent?
36. Do you think, in cargo handling human is the most important yet vicious factor in loop?

37. What can be done more to maximize the performance of humans in maintaining the safety and security of air cargo?