



INDIVIDUAL RESEARCH PAPER

**“NON-INTRUSIVE INSPECTION AT SEAPORTS AND AIRPORTS:
CHALLENGES AND WAY FORWARD”**

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PREFACE

The Non-Intrusive Inspection (NII) has immense potential for not only turning around the dwell time of Pakistan Customs but contributing enormously in trade facilitation and revenue generation simultaneously. The concept of NII was introduced by the United States of America in the wake 9/11 attacks and it is rightly called as the pioneer of this system. however, the concept is relatively new in the developed world as it requires considerable infrastructure and use of technology and trained work force for its operations. In Pakistan an initiative for NII was taken in the year 2019 with the assistant of Japan International Cooperation Agency but it failed to yield the desired objectives due to multiple reasons. Pakistan Customs has now envisioned an NII for the sea ports and airports and has put in place an institutional and legal framework for this purpose. Based upon literature review and primary data collection, and interviews of the stake holders the paper will explore the strategies for successful implementation of the NII in Pakistan

DEDICATION

I am indebted to the Director General, Director and faculty members of the Pakistan Customs Academy, Karachi for extending the opportunity to learn and divulge upon the topic which is very important in the future strategies of the Pakistan Customs for enhanced trade facilitation and faceless enforcement. Mr. RahmatUlla Vistro, Director Transit Trade (HQ), Karachi provided detailed input and guidance in preparation of the paper. I am thankful to him for continued support and guidance. I am also thankful to the consistent support provided by the staff of the Pakistan Customs Academy.

EXECUTIVE SUMMARY

With the phenomenal increase in volume of trade and enhanced security threats, there is a growing need of robust Non-Intrusive Inspections at all international borders. Pakistan Customs being a guardian of the economic frontier of the country has always been the lead agency in implementation of technology based solutions in accordance with the international best practices. Pakistan Customs with the help of Japan International Cooperation Agency installed 3 scanners at the ports of Karachi. The scanners were standalone and not integrated with the WeBOC system of Pakistan Customs and due to absence of well-defined regulatory framework, the scanners became non-operational. The scanners capacity was also inadequate in juxtaposition with the quantum of the trade. The Federal Board of Revenue has now notified Directorate of Transit Trade (HQ), Karachi as regulator of the NII. The Directorate is now working to make the available resources operationalize. In addition, a robust NII system is envisioned to ensure that no additional time and cost is accrued which are the basic requirements of an efficient NII system. The system will be centralized and integrated with the WeBOC system. For this purpose, new scanners under Integrated Transit Trade Management System and Pakistan Raises Revenue Project are being purchased to meet the requirements of sea ports, land border stations and international airports. However, there are many challenges in the implementation of the NII as the needs of the sea ports and status of the related infrastructure, land border stations and airports are different and require phased intervention keeping in view the volume of cargo at different stations. A way forward has been given to make the NII a success in terms of trade facilitation and enforcement.

GLOSSARY OF TERMS

PCS	Pakistan Customs Service
NII	Non-Intrusive Inspections
JICA	Japan International Cooperation Agency
KICT	Karachi International Container Terminal
PICT	Pakistan International Container Terminal
SAPT	South Asia Pakistan Terminal
KPT	Karachi Port Authorities
AI	Artificial Intelligence
CIP	Central Image Repository
TEU	Twenty-Foot Container Equivalent Unit
USA	United States of America
AGV	Automated Guided Vehicles
PRRP	Pakistan Raises Revenue Project
ITTMS	Integrated Transit Tarde Management System
MeV	Modules d'Enregistrement des Ventes

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INTRODUCTION

Customs around the world is the lead agency for regulating and controlling movement of goods across the international borders. The regulations are placed keeping in view health and safety of the general public as primary concern. Other than that, tariff regimes, relationships with other countries and protection of infant local industry also have a pivotal role in defining a country's trade regulatory framework. To implement these regulations, Customs has different means of ensuring that these laws are enforced in letter and spirit. Physical inspection at port of destination or origin is one way through which goods meant for export/import are physically checked by Customs staff for verifying the veracity of the declaration made by the exporter/importer. Physical inspection has traditionally been the most effective tool to detect mis-declarations worldwide. However, physical inspections have a down side and cause undue delays, are time consuming and increase cost of doing business. For the very reason and with advent of technology, the developed world has moved towards least physical inspections at ports of entry/exit. Use of technology based solutions has replaced the traditional inspections to ensure safety and security of the cargo. United States of America is one of the pioneer country for introducing Non-Intrusive Inspections at ports after 9/11. In Pakistan the concept is relatively new. Pakistan Customs has developed an indigenous computerized system which clears consignments on the basis of its Risk Management System. Currently, more than 50% of the cargo is being cleared through Green Channel, however, no scanning is being conducted to verify the declarations as an additional check on the RMS. Similarly, no scanning of cargo destined for upcountry dryports and Export Processing Zones is being done. Although three scanners were installed in Karachi with the assistance of JICA but these have been of little use. In this backdrop, the paper will be exploring the potential of the non-intrusive inspections at seaports and the challenges in its implementation.

STATEMENT OF PROBLEM

With the introduction of web-based clearance of goods in past two decades (PACCS then WeBOC), the percentage of physical inspection of goods has dropped considerably doing away with the requirement of 100% examination of 100% cargo. However, we are still far behind in the ease of doing business index. Pakistan was ranked at 108th position in Doing Business Index 2020 while India stood at 62nd. Customs clearance time is one of the criteria of judging a country's performance in this index and a considerable amount of time and cost

is incurred during physical inspection of goods. World over, the idea of “invisible customs” is gaining ground for maximum trade facilitation to bona fide trade. Border agencies face many challenges and are today operating in an era of unprecedented change. An increasingly volatile global travel and trade environment combined with new security and public health threats, make for a challenging and evolving operating environment that requires close observation, and coordinated and far-reaching responses.

To be successful in this era of instability and rapid change, border agencies need to evolve their processes, human resource, and technology while ensuring that border experiences and processes are fully digitalized, and made as seamless and contactless as possible for legitimate travellers and traders. To achieve this end, installation of Non-Intrusive methods and technologies are necessary to be introduced at points of entry/exit for providing a seamless and swift processing environment to legitimate trade and passengers while identifying illegal trade using these technologies at the same time.

SCOPE OF STUDY

This study will focus on the non-intrusive inspections methods being adopted by Pakistan Customs at seaports for import/export and transit cargo. Moreover, the study shall also look into available physical assets and the challenges in implementation of NII. At the end some recommendations shall also be made for effective and expeditious implementation of NII.

METHOD

The paper would follow a combination of descriptive and analytical methods. Quantitative data such as trade statistics will be used along with qualitative research that includes identifying the bottlenecks in the implementation of NII from the perspective of various stakeholders. The research will be based on primary sources in shape of interviews of the stakeholders as well as secondary sources such as earlier research, books, newspaper etc.

Section-1

1.1 What is Non-Intrusive Inspection

World Customs Organization in its Guidelines for Non-Intrusive Inspection (NII) defines NII as *“Non-intrusive Inspection technology (NII technology) refers to technical equipment and machines such as X-ray or gamma-ray imaging type equipment that allow the inspection of cargo without the need to open the means of transport and unload the cargo”*

1.2 Types of NII:

There are different types of NII technologies used by Customs across the world to inspect cargo without the need to physically unload the cargo from the vessel or opening the container. Although the main purpose of all types of scanners is same, however, the difference in various types of scanning machines lies in their ability to scan specific types the cargo, ancillary infrastructure requirements and time taken in the scanning. Following are some of the types of scanners which can be used at sea ports for scanning purposes.

1.2.1 Fixed or Gantry Scanners:

Fixed units are the most expensive form of scanner and typically operate with an energy level of 6 MeV. This high energy level provides a clear image and deep penetration of cargo. A fixed unit consists of more than just the scanner. Due to the high energy of the systems and possible scattering of X-rays, the entire system must be housed in a purpose-built building with concrete walls of sufficient thickness to provide adequate shielding. The building may also require safety doors for the entrance and exit. The entire construction of this unit must also include the control room facility for the computer equipment and image interpretation and may include ancillary office accommodation. The system is quite expensive in terms of actual unit price including the facility that must be constructed to house it.

A major consideration for fixed units is that, by definition, containers must come to them. This means there must be sufficient space for vehicles waiting to enter the facility to park and to manoeuvre. Furthermore, there must be satisfactory access roads to and from the unit that must accommodate all kinds of cargo. Due to these constraints, it has been found that fixed units are better suited to open space areas where protection of scanning system is required such as desert areas. Due to the hazardous rays, the driver leaves the truck on the trolley in case of Gantry scanners and then trolley takes the vehicle and container into the scanning tunnel. The entire process is time taking and on average, time taken in taking the container in

the scanner area, scanning of container and its interpretation takes approximately 10 minutes. At best, the fixed scanner can scan 150 containers in 24 hours which makes it unsuitable for ports having significant quantum of cargo.

1.2.2 Drive Through or Pass through:

Drive through or pass through scanners are the improved version of the relocatable scanners. These types of scanners operate at 6MeV. The fixed or gantry scanners were built in central locations of the ports and containers were transported from the terminals to the scanning facility. Because of the ever-increasing numbers of containers to be handled, the throughput limitations of fixed gantry scanners resulting from relatively slow scanning speeds became a problem in busy seaports and other border crossing point (BCPs). Drive-through systems deliver a much higher throughput, by increasing scanning speeds and allowing truck drivers to remain in the cab of the truck while driving the vehicle carrying container during scanning. These systems incorporate many safety precautions to ensure that the driver is not exposed to direct or unacceptable levels of radiation. It is estimated that drivers may pass through such scanners at least 10,000 times annually without exceeding permitted radiation dose levels. The disadvantage of drive-through systems, however, is that the driver's cab is not normally scanned. The scanning of the cargo starts after the driver cabin. Drive-through systems are capable of scanning between 120 and 150 containers per hour, with a drive-through speed of around 5km to 15 km per hour. In practice, throughput may be lower due to local logistical considerations. This higher speed, relative to traditional scanning systems, will have consequences for the specification requirements as the speed will influence the penetration, resolution etc. capabilities. This factor must be taken into account, therefore, within the programme of requirements, although the quality of imaging at high speeds continues to improve.

A good quality reliable Optical Character Recognition (OCR) system, for recognizing and recording container numbers is a very important part of a drive-through system. It is necessary to make a good match between the container and the saved scan image.

1.2.3 Mobile

The image quality of the latest generation of Mobile scanners compares favourably with 6 MeV fixed or re-locatable scanners. Mobile scanners typically operate at energy levels of 3 - 6 MeV. No platform is required for mounting the scanner as in the case of fixed and drive through scanners. Mobile scanners are easy to relocate and capable of being deployed

speedily and require no more than 30 minutes to be ready for operation after their arrival on location. They are particularly useful for road sides where cargo may cross at a number of points miscreant's elements are searching for the weak points to avoid inspection sites. The fact that they can move to different locations at very short notice makes it more difficult for the smugglers to avoid scanning controls by shifting border entry points. Mobile scanners can be used for make shift arrangements and for anti-smuggling activities where ever required.

1.2.4 Train Scanning:

A train scanning system is comparable to a drive-through system. The difference is that train scanning systems are specifically built for scanning cargo/ tank wagons, or containers loaded onto trains. First generation train scanners were only capable of scanning at a very low passing speed. Scanning systems with a passing speed of 05 – 15 kilometres per hour are now commonplace. Train scanning systems are used in various situations, most commonly at BCPs between two countries. A good quality reliable optical character recognition (OCR) system, for recognizing and recording container numbers is also an important requirement for a train scanning system. It is necessary to prepare one data set by making a good match between the container number and the saved scanned image.

1.2.5 Radiation & Nuclear Material Detection System:

While many ports/border crossings may already use dedicated Radiation Portal Monitors (RPM's) to detect illicit trafficking of radioactive/nuclear materials, scanner suppliers offer the option of a radioactive/ nuclear material detection system together with their X-ray scanning systems. Passive detectors are incorporated into the scanning process, providing an integrated cargo scanning solution. These are not intended to replace RPM's, but can allow for a more informed analysis of radioactive/ nuclear material alarms by using the information provided by the X-ray image, to provide additional information on the location of the source within the container.

Section-2

2.1 Why Non-Intrusive Inspections are important?

NII is essential for ensuring smooth flow of the trade and speedy clearance of cargo without compromising on the security and revenue generation aspects. The use of technology has replaced unnecessary physical examination in the developed world. The WeBOC clearance system of Pakistan Customs is based on Risk Management System. currently more than 50% of the import/export cargo is being released through Green channel. The RMS position of the previous two years is given below:

RMS Position Last Two Years Container Wise

Container wise	Imports			Exports		
	2020-21	2021-22	Diff	2020-21	2021-22	Diff
Green	47.80%	56.58%	(+) 8.78	75.60%	83.12%	(+) 7.52
Red	31.86%	23.53%	(-) 8.33	18.34%	7.41%	(-) 10.93
Yellow	20.34%	19.89%	(-) 0.45	6.06%	9.47%	(-) 3.41

RMS Position Last Two Years Goods Declaration Wise

GD Wise	Import			Export		
	2020-21	2021-22	Diff	2020-21	2021-22	Diff
Green	40.8%	47.63%	(+) 6.83	70.3%	75.58%	(+) 5.28%
Red	40.5%	35.59%	(-) 5	23.6 %	14.77%	(-) 8.83
Yellow	18.6%	16.78%	(-) 1.82	6.1%	9.65%	(-) 3.55

The NII may also replace the physical examination of the consignments marked through red and yellow channel especially the single item consignments. There are mainly two objectives of the NII:

- I. Scanning of import/export cargo based on the selectivity criteria of Risk Management System.

- II. Scanning of Bonded Cargo especially Transshipment cargo, Afghan Transit Cargo, Interport Movement, consignments meant for Export Processing Zones etc.

The efficiency of any system lies in its ability to cut cost and time during processes at port. The NII envisioned for the Ports in Pakistan is now planned in such a way that containers are scanned without causing any additional cost or time for the trade. The process and salient features of the NII system for the sea ports and dryports are as under:

I. Process of NII at Seaports for Home Consumption/export consignments:

All import containers after discharge from the ship shall be taken to the Drive Through or Pass Through Scanner on the same truck. After scanning, containers shall be staked thus no additional time and cost accrue on account of handling or transportation. On the other hand, the export containers, shall be scanned at the Pre-Gate stage at the time of entry in the Port and for this purpose, Drive Through scanners shall be placed at the pre-gate area separately catering the needs of the export consignments. The NII will work on container irrespective of GD filing status. The NII system shall be integrated with the WeBOC system of Pakistan Customs and IT systems of Terminal operators. An Optical Character Recognition system shall be installed to read the container number and save the image on the characters of container number. If the GD is already filed, the interpretation report and scanned image shall become a part of the GD. In case GD is not been filed, the image shall be saved in the Central Image Repository (CIR) and upon GD filing, if the container is marked for scanning by the RMS, the GD will fetch the saved image from CIR and both shall simultaneously appear on the screens of officials for interpretation. This will save the importers/exporters from additional cost and time required for re-grounding

II. Process of NII at dryports:

The scanned images shall be saved in the Central Image Repository CIR for cross matching at the dryports or port of exit in case of transit cargo. The CIR data may be further used for the purpose of audit and machine learning through artificial intelligence. For the purpose of cross matching, an Image Matching Software shall be incorporated in the system. The software shall compare the image taken at the port of entry in Pakistan and image taken at the port of destination. 20 to 30 percent margin shall be given on account of changes in pattern during the road journey due to road conditions. In case variation in the images is above allowed percentage, the

consignment shall be marked for physical examination. After the entry of consignment at dryport, the scanning image taken at the port of entry shall already be a part of the GD. The Directorate may again interpret the scanned image at the request of the concerned dryport authorities after matching both scanned images. The image will specifically highlight the specific areas where variation is found. In case, the Collectorate is satisfied with the interpretation, the container will be released on completion of other formalities otherwise it will be marked for examination.

2.2 Central Control Room:

A Central Monitoring and Control Room shall be established in the Directorate of Transit Trade (HQs), Karachi. Risk Management System shall select the container for NII. After scanning, the scanning image shall appear randomly on the screen of officials. The officials shall have 10 minutes for interpretation of the image and in case the same is not done in the given time, system will automatically send the image to the supervisory officer. The purpose is to ensure integrity. The concept of Drill Image shall also be introduced as a tool to check the alertness, competitiveness and efficiency of the officials. A fake image shall be sent to the officials after every 10 to 15 images to cross match the interpretation with the pre-defined interpretation.

To ensure transparency, only limited fields which are necessary for interpretation shall appear on the screen of officials without further details of the importers/exporters etc. The official shall be given structured fields for reporting instead of generalized reports to avoid confusion. The image and interpretation report shall be saved with the GD in compressed form for future reference.

2.3 Benefits of the NII:

NII, when used intelligently has many benefits some of which are as follows:

- (i) Using NII instead of physical inspection of goods saves time and cost of the importers, exporters, terminal operators and customs.
- (ii) Physical inspection of goods requires a lot of resources of customs and terminal operators. They need to put in human resource on physical inspection of goods who can be placed for more productive work as most of the times specially in case of single item which has to be assessed on weight is as per the declared description and weight.
- (iii) Less physical inspection means less congestion at ports which ultimately translates into lesser dwell time.

- (iv) It can detect potential radioactive material which otherwise cannot be detected with naked eye on physical inspection.
- (v) Concealments in cargo can be detected using appropriate NII technology.
- (vi) Heavy machinery and equipment which cannot be otherwise taken out of containers due to the volume and weight can be easily scanned.
- (vii) NII saves passengers' time at customs controls at airports where passenger luggage is checked in background.
- (viii) Government revenue is secured as mis-declared and non-declared items can be detected using NII.
- (ix) NII will promote a culture of integrity and transparency of the whole clearance system
- (x) Lastly, use of technology is the only solution to improve the working of system as future lies in use of technology.

2.4 NII in other Countries:

An effort has been to examine the extent to which other countries in the developed world and regional countries are relying on the use of technology. In this regard, United States of America has been selected from the developed world and India and Bangladesh from the region.

2.4.1 VNII in United States of America:

The United States is the pioneer of the NII and has the most advanced system scanning system in the world Custom and Border Protection (CBP) provides security and facilitation operations at 328 ports of entry throughout the country. CBP is one of the pioneer of use of Non-Intrusive Inspection (NII) technologies to conduct inspections of cargo and conveyances for contraband items after 9/11. Each year, more than 11 million maritime containers arrive at US seaports. At land borders, another 11 million arrive by truck and 2.7 million by rail Scanners have been installed on all entry/exit points to detect and prevent contraband, including drugs, unreported currency, guns, ammunition, and other illegal merchandise, as well as inadmissible persons, from being smuggled, trafficked, or otherwise imported contrary to law, into the United States while having a minimal impact on the flow of legitimate travel and commerce. CBP is also using NII in the country of origin to identify high-risk shipments in order to concentrate its inspectional resources on them. Pakistan, Tijuana (Mexico) and UK were the first countries where scanning facilities were installed in

2001. The IC3 facility at Port Qasim is the first one to become operational. The CBP inspectors work in nearly 20 foreign ports to help ensure the security of U.S.-bound cargo before it disembarks. The use of NII is a major tool for ensuring security of cargo destined for US without create undue hindrances and delay in the movement of cargo.

2.5 NII in Regional Countries (India and Bangladesh):

India follows a rudimentary procedure of scanning at seaports whereby result of scanning is stamped on Equipment Interchange Receipt as per Indian Customs Area Regulation, 2009. The scanning image is not uploaded in the system as per these regulations, however, any suspected container is marked for 100% examination. However, it is imperative to note that Indian Customs owns scanning assets not only at seaports but also at airports apart from having a separate section named Container Scanner Division in customs which is headed by an Assistant or Deputy Commissioner of Customs.

In Bangladesh Section 197B of Customs Act provides for scanning of all import cargo before clearance unless any cargo is exempted from scanning. Currently, the National Board of Revenue (NBR) has 11 container scanners across the country which is very low compared to the required number. On the other hand, the time for replacing some of the scanners is nearing. Seven scanners are used at seven out of 12 gates of the Chittagong port, one scanner is deployed at the inland container depot of Kamalapur in Dhaka, one at Mongla seaport and two in Benapole land port. Currently, Bangladesh Customs physically examine 10-15% of the imported consignments. The NBR is going to procure 13 full-fledged container scanner systems costing Tk 633 crore for introducing a non-intrusive inspection system that will expedite the release of export and import items. These systems would include scanner, weigh bridge, radio portal monitor, and central and regional imaging system.

Section - 3

3.1 NII in Pakistan:

Pakistan Customs has been using scanning facilities for inspection of goods since long. In case of import cargo, industrial raw material such as paper scrap, iron and steel scrap and likewise items of industries were scanned instead of physical inspection of cargo. This purpose was to facilitate legitimate trade after keeping in view the profile of the importers. The scanning image could only be uploaded in the WeBOC system or in case of One Customs manual system was enclosed with the paper Goods Declaration (GD). Any discrepancy found during scanning is also mentioned by the Scanning Officer (examiner). Then the Appraising Officer would also check the scanning image uploaded/enclosed. Moreover, transit cargo destined to or originating from Afghanistan is also scanned at point of entry and exit for safety of cargo.

Moreover, at airports luggage and passengers have been installed on both arrival and departure side there are scanners owned and operated by Airport Security Force (ASF) which are also used by Customs for detection of any contraband or illegal goods.

The above process, though using scanning images is rudimentary in nature as human intervention is involved in capturing, analyzing and decision-making processes. World best practices and World Customs Organization (WCO) guidelines provide for end-to-end solution for scanning. Pakistan Customs has also realized this handicap and tried to bring in institutional and technological changes which would be discussed later in the paper.

3.2 Physical Assets:

For a long time, Pakistan Customs did not own any physical NII assets other than handheld radiation detectors donated by aid agencies and depended on terminal operators at ports and ASF's scanners at airports for scanning. The images taken were not integrated to customs computerized system and record of same was not readily available due to its nature. In 2018, Japan International Cooperation Agency (JICA) donated 3 state of the art scanners and allied infrastructure at East Wharf, West Wharf and Port Qasim. These NII terminals were donated by Japan to improve cargo security and to facilitate trade. The scanners, however, could not be used optimally for various reasons including lack of connectivity with WeBOC, limited scanning capacity, lack of trained officials, non-existence of provisions for repair and maintenance of the scanners etc. resultantly, the scanners remained non-operational and now require major repair to become operational. The Directorate of Transit

Trade (HQ), Karachi has forwarded working to the Board for provision of funds to make these scanners operational. These scanners are gantry scanners and currently installed at the pre-gate stage of the Ports and can be used for the scanning of the export cargo at the time of entry in the Port.

Moreover, under Integrated Transit Trade Management System (ITTMS), scanners are to be installed at land border stations of Torkham and Chaman. Eight scanners have been purchased which are yet to be installed after completion of the infrastructure requirements. Four scanners (two gantry scanners and two pass through scanners) will be installed at each station.

Apart from these, Pakistan Raises Revenue Project (PRRP) has a component for provision of Automated Entry/Exit System and NII. The Directorate of Transit Trade(HQ), Karachi has proposed purchase of six new Drive through scanners from PRPP. Moreover, 4 luggage scanners are also being purchased for installation at Lahore, Karachi, Peshawar and Islamabad airports. It is imperative that all major ports of entry and exit be equipped with latest NII technology in order to facilitate legitimate trade and bona fide passengers while ensuring safety and security through employing modern means of inspection.

3.3 Legal Framework:

Before the year 2022, responsibility for operations and maintenance was not clearly defined in law for the scanners owned and operated by Pakistan Customs. However, Directorate of Transit Trade (HQ), Karachi has been entrusted with the task to establish “Customs Integrated Scanning System” under SRO 1017(I)/2022 dated 14-07-2022. The aforementioned SRO also empowers the Directorate to operate and maintain all customs scanners across the country. In short, all matters related to scanning have to be dealt by the Directorate.

This is a commendable step in the right direction as without a legal framework, role of any field formation was not clearly defined in law with regards to operations and maintenance of scanners already available which led to unfortunate deterioration of some of the scanners.

3.4 Challenges in the Implementation of NII:

There are many challenges in the implementation of the Non-Intrusive Inspections. The Directorate of Transit Trade (HQ), Karachi is now spearheading the initiative and in first

phase sea ports/land border stations shall be given preference. Some of the challenges are given below:

- I. Acquiring of sufficient number of latest/time efficient scanners in minimum possible time is essential for start of the project. The current number of scanners is insufficient. The JICA scanners are not even sufficient to cater the export cargo only and further scanners are required.
- II. No trained worked force with the capacity of interpreting the scanning image is currently available with Pakistan Customs. The newly appointed Inspectors are intended to be utilized for this purpose. However, comprehensive technical training is required both at national and international level to ensure correct reporting. The capacity building component is essential for successful working of the NII as even the best of the system fail to deliver the desired objectives in the absence of trained officials.
- III. Lack of connectivity with WeBOC is a challenge as the currently installed scanners are standalone. The Transit cargo is being scanned as per rules and so is the cargo at Airports/Air Freight Units, however, these are not integrated with WeBOC so the image is not saved. The image is also not interpreted due to non-availability of trained staff.
- IV. Lack of internet connectivity at border stations is also a challenge. Currently Torkham and Chaman have been selected for installation of scanners under ITTMS. The remaining stations having significant volume of trade such as Sust, Taftan are also required integration. However, stable internet connectivity in remote areas is a challenge as whole system will be centralized and without internet connectivity the system cannot work.
- V. Maintaining integrity of the Centralized system is also a major challenge. The Centralized system is envisioned for ensuring correct reporting without human interaction. Built in checks in the system are required to ensure correct and timely interpretation.
- VI. Hiring of technical persons for maintenance of the system and ensuring safe keeping of the data is also a challenge as the data will be huge.

WAY FORWARD

- I. Pakistan Customs has already started implementing customs integrated scanning system whereby scanners would be integrated with the WeBOC system. The Federal Board of Revenue (FBR) has planned to implement an Artificial Intelligence (AI) based centralized scanning of all imported cargo and automatic customs declarations verification system. The AI should be capable of identifying the single item consignments especially in export. The verification of declarations will be through intelligent system based analyses and inference based on cargo images and customs declaration data with color coding library. This Artificial Intelligence (AI) software is internationally available and is already being used by China, Latvia and Singapore.
- II. The system, which FBR intends to implement, would issue automatic alarm for cargo/declaration mismatch based on HS codes. The system would help determine replaced cargo, mis-declaration and evasion without physical and intrusive examination.
- III. The newly appointed Inspectors should be trained by the Pakistan Customs Academy for interpretation of the scanned image. The international component of the training from Pakistan Raises Revenue Project has been planned. The officials performing well in PCA may be selected for international trainings for first hand knowledge of international best practices.
- IV. Only Drive Through/Pass Through scanners should be purchased in future as these are time efficient and incur no additional costs.
- V. The connectivity with WeBOC should be developed at the earliest for optimum use of the NII. The Directorate General of Reforms and Automation, Karachi may develop the same on the input of the regulatory Directorate.
- VI. The internet connectivity at the land border stations be ensured as other wise the system will be no better than the earlier stand alone scanners installed by the Terminals.
- VII. A new way of using drive-through type of scanners is to use these in the environment of automated container terminals. These terminals are using Automated Guided Vehicles (AGV) in a restricted automated area, where drive-through Transmission X-ray scanners are integrated.
- VIII. To ensure transparency and integrity of the Centralized system, the techniques of Drill Images, absence of human interaction, structured reporting, time bound reporting should be ensured through administrative arrangements.

CONCLUSION

Deploying Non-Intrusive Inspection at customs points of entry and exit as per international best practices would not only save time and cost of legitimate trade and bona fide trade but also make Pakistan's ranking better in Ease of Doing Business. With the growing volumes and enhanced security compulsions, the traditional methods are fast becoming redundant and inconsistent with the new realities. Technology and AI based solutions are the only way forward as it only caters the security and revenue protection aspect but also a tool for facilitation of the genuine trade and passengers. Pakistan Customs, with the assistance of donor agencies is moving towards right direction in identifying the need for having a legal and institutional framework for NII technology which was previously missing. However, Pakistan Customs must adhere to a strict operation and maintenance regime with stringent timelines for its equipment/infrastructure to make NII a success story.

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