



Nepal National Single Window: Towards a Paperless Trade Regime

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Abstract

The Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific (CPTA), which entered into force on 20 February 2021, is a UN treaty deposited with the Secretary General of the United Nations. The treaty aims at accelerating the implementation of digital trade facilitation measures for trade and development. Nepal is not yet a party to the treaty, but it has been making efforts, mostly unilaterally, to digitalize trade processes and create a paperless trade regime. The most important of these has been the progress made in the establishment and operationalization of the Nepal National Single Window (NNSW). The COVID-19 crisis has further expedited the implementation of a paperless trade regime. However, advancement in the implementation of paperless trade in Nepal has generally been within the border, mostly excluding the cross-border exchange of data and documents. The NNSW system allows the exchange of cross-border documents and data, and hence should be exploited. Making the current administration of paperless trade seamless and expanding it to cover paperless trade will require legislative reforms, institutional strengthening, harmonization and standardization of data and documents, and proactive engagement in bilateral and regional forums to develop cross-border paperless trade systems. Importantly, acceding to the CPTA could support and strengthen Nepal's paperless trade system.

Keywords: Paperless trade, Nepal National Single Window, Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific, trade facilitation

JEL Codes: F10, O22, O38

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1. Introduction

In the past few decades, rapid advancements in information and communication technologies (ICT) have radically transformed the world. It is difficult to find an area of the society and economy, whether commercial or non-commercial, that has not been touched upon by the ICT revolution. An important development of the ICT revolution has been in the area of digitalization. Going digital has become the most important priority today given the various advantages of digitalization such as reduction in cost and time, accessibility of people to services that were earlier out of reach due to geographical or other constraints, transparency, and good governance, and so on. Digitalization in the area of trade facilitation is also being promoted by various multilateral and regional organizations such as the World Trade Organization (WTO) and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). Several countries, mainly the advanced ones, have made most trade facilitation processes paperless as far as practicable.

The WTO Trade Facilitation Agreement (TFA) is the only multilateral agreement on trade facilitation. It entered into force on 22 February 2017. The TFA covers all the important aspects of trade facilitation and cooperation among WTO members. Among other things, it emphasizes electronic means of communications and transactions for trade facilitation, such as advance lodging of documents in electronic format for pre-arrival processing; electronic payment of duties, taxes, fees, and charges at customs; and establishment of single window and use of ICT to operate the single window as far as practicable. Nepal accepted the WTO TFA on 24 January 2017.

Similarly, several organizations such as the World Bank, Asian Development Bank (ADB), United Nations Conference on Trade and Development (UNCTAD) and UNESCAP, among others, have been promoting paperless trade and providing technical and other required support to many countries for its adoption. UNESCAP has also been requesting its member countries to sign/accede to/ratify the 'Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific,' which entered into force on 20 February 2021. According to UNESCAP's estimates, full implementation of cross-border paperless trade could reduce trade costs by 10-30 percent of existing transaction costs in the Asia-Pacific region. Nepal is yet to sign the agreement.

Nepal has been making efforts, mostly unilaterally, to digitalize trade processes and create a paperless trade regime. It introduced the Electronic Transactions Act (ETA) in 2006 and its supporting ETA Rules in 2007 that paved the way for many transactions to be performed through electronic means in place of the traditional, paper-based transactions. Similarly, it provisioned for and implemented several reforms in relation to customs, including making many customs processes paperless, during the course

of implementing several iterations of the Customs Reform and Modernization Plan. It has also identified actions in the 'Digital Nepal Framework' that would help make trade processes paperless. Despite these efforts, challenges remain in the full implementation of paperless trade in Nepal, more so for cross-border paperless trade, which have been aptly covered in the 'Readiness Assessment for Cross-Border Paperless Trade: Nepal' conducted by UNESCAP in 2019.

There have been some developments in Nepal in relation to advancing towards a paperless trade regime during/after the Readiness Assessment for Cross-Border Trade was undertaken in 2019. The most important of these has been the progress made in the operationalization of the Nepal National Single Window (NNSW). Hence, while this study discusses Nepal's efforts overall in moving towards a paperless (including cross-border) trade regime, it mainly focuses on the NNSW. As we will see later, advancements made within NNSW are still related to domestic aspects of paperless trade, and very little has been achieved in terms of cross-border paperless trade. We discuss the challenges and offer some way forward.

2. Overview of trade facilitation implementation in Nepal

An unfortunate feature of Nepal's trade landscape is its high trade cost and consequently low trade-competitiveness, primarily because of the poor state of the road and transport infrastructure, a difficult geographical terrain, cumbersome procedures, and landlocked geography. While some features like landlockedness cannot be altered and some features like the weak state of infrastructure take significant time to overcome, there are trade facilitation measures that can be undertaken relatively faster and which produce significant returns, such as measures that circumvent unnecessary processes and documents through streamlining or digitalizing trade processes and documents. This section looks at Nepal's progress in implementing these latter kinds of trade facilitation measures, based on the data produced by the United Nations Global Survey on Digital and Sustainable Trade Facilitation 2021 (GSDSTF).³

The GSDSTF covers 58 trade facilitation measures under four broad categories—general trade facilitation measures, digital trade facilitation measures, sustainable trade facilitation measures, and other trade facilitation measures— and thus, goes

³ <https://www.untfsurvey.org/>

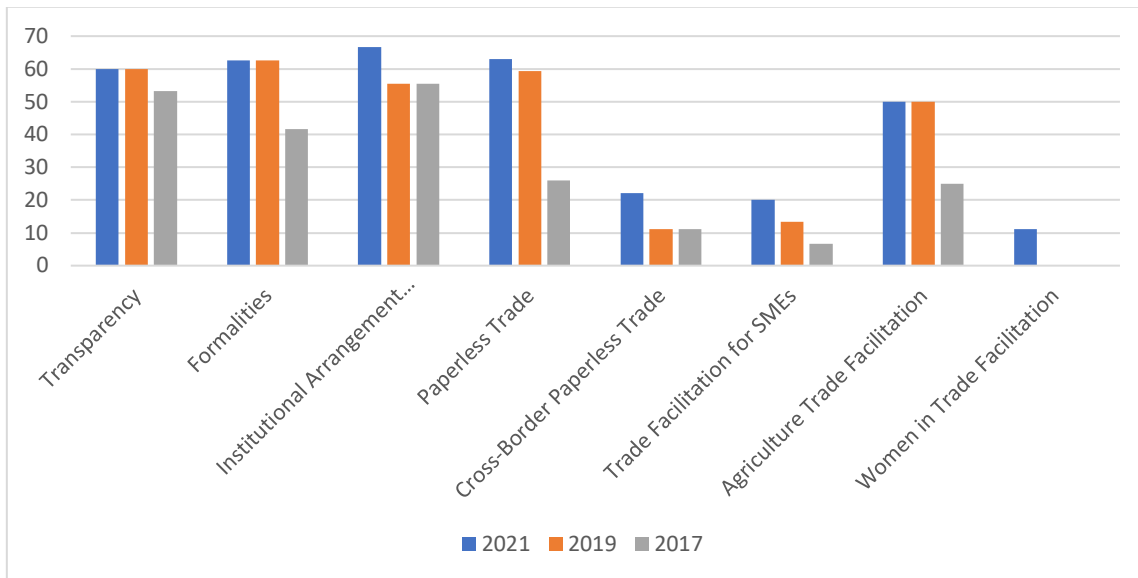
beyond the WTO TFA package of measures (ESCAP, 2021). These four broad groups of measures are divided into 11 sub-categories.⁴

Nepal has shown significant progress in implementing trade facilitation measures over the years in the different categories (Figure 1). The biggest improvement was seen in 2019 when it had implemented 50.5 percent of the trade facilitation measures compared to 34.41 percent in 2017 (Figure 1). Further, by implementing 54.8 percent of the trade facilitation measures in 2021 compared to 50.5 percent in 2019, Nepal has made further progress, with the largest improvements seen in the area of institutional arrangement, cross-border paperless trade, and women in trade facilitation. Nepal's progress was slightly better than the average of the least-developed countries (LDCs) in the Asia-Pacific region at 52.33 percent.

Despite such progress, Nepal lags behind the progress in trade facilitation achieved by other regional groupings such as Economic and Social Commission for Asia and the Pacific (ESCAP) countries (65.85 percent), South and South-West Asia countries (63.12 percent), and landlocked developing countries (LLDCs) in Asia-Pacific (59.73 percent). Nepal's underperformance is particularly with regard to the implementation of 'women in trade facilitation' measures (11.11 percent), 'trade facilitation for SMEs' measures (20 percent), and cross-border paperless trade measures (22.22 percent) (Figure 2). Nepal's performance is close to the ESCAP average in 'institutional arrangement' measures (66.67 percent) and paperless trade measures (62.96 percent) (Figure 2). Nepal has also made decent progress in the implementation of transparency measures (60 percent) and formalities measures (62.5 percent), but it lags behind comparator regional groupings with regard to the implementation of these measures (Figure 2).

⁴ General trade facilitation measures include the sub-categories 'transparency measures', 'formalities measures', 'institutional arrangement and cooperation measures', and 'transit facilitation'. Digital trade facilitation measures include 'paperless trade measures' and 'cross-border paperless trade measures'. Sustainable trade facilitation measures include 'trade facilitation for SMEs measures', 'agriculture trade facilitation measures' and 'women in trade facilitation measures'. Other trade facilitation measures, a new sub-category added in 2021, include 'trade finance facilitation measures' and 'trade facilitation in times of crisis' measures.

Figure 1: Nepal's trade facilitation implementation over the years (2017–2021)



Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2021

Implementation of digital trade facilitation measures

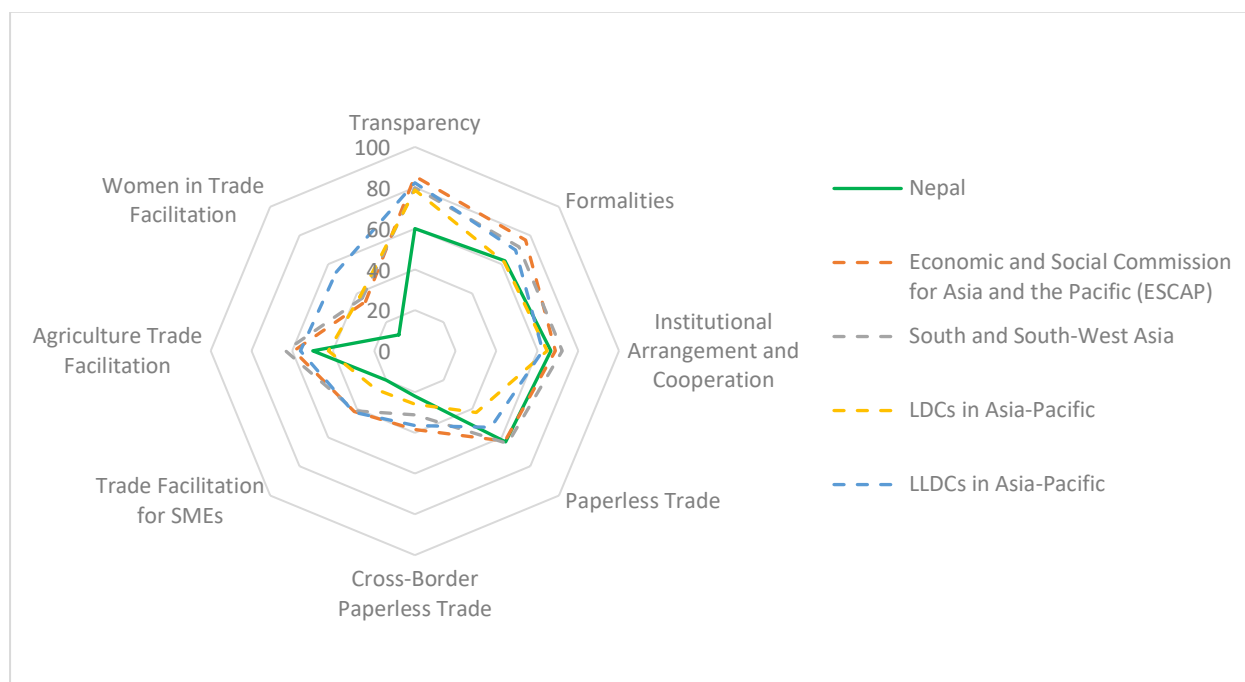
Below we look at Nepal's progress in implementing digital trade facilitation measures, which is the focus of our study.

Paperless trade measures

Nepal has made slight progress in implementing paperless trade measures. It implemented 62.96 percent of paperless trade measures in 2021 compared to 59.26 percent in 2019 (Figure 1). The country has fully implemented 'automated customs system', 'internet connection available to customs and other trade control agencies', and 'electronic submission of customs declarations'.⁵ But the implementation of 'electronic application and issuance of import and export permit', 'electronic submission of air cargo manifests', and 'electronic application and issuance of Preferential Certificate of Origin' remain partially implemented. Implementation of 'e-payment of Customs Duties and Fees' remain in a planning stage, according to the GSDSTF; but our study finds that this has been initiated on a pilot basis (see Section 4). Likewise, while the GSDSTF finds that the 'electronic single window system' is in planning stage, our study finds that it has come into partial implementation through what is known as Nepal National Single Window (NNSW). Finally, the measure 'electronic application for customs refunds' has not been implemented according to the GSDSTF.

⁵ See, UN Global Survey on Digital and Sustainable Trade Facilitation, 2021. Available at: <https://www.untsurvey.org/economy?id=NPL>

Figure 2: Implementation of digital and sustainable trade facilitation measures in Nepal, 2021

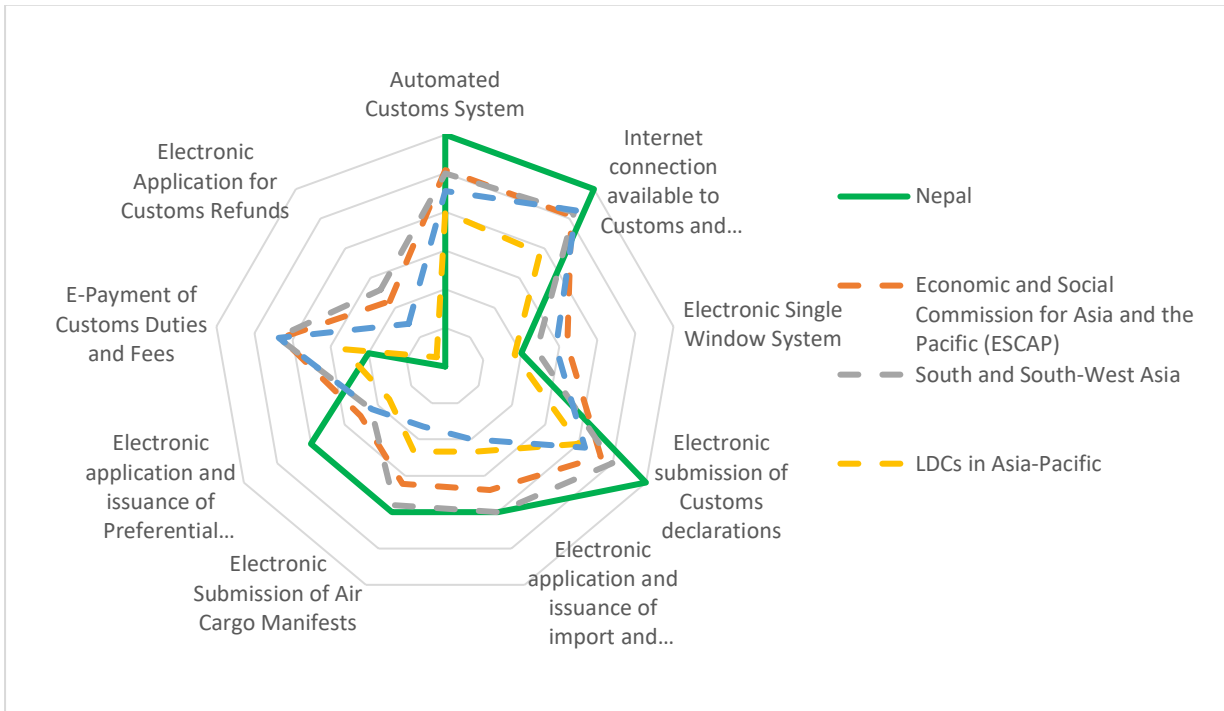


Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2021

According to the GSDSTF, Nepal has generally performed better than the comparator regional groupings in the implementation of 'paperless trade measures' except for 'e-payment of customs duties and fees', 'electronic application for customs refunds', and 'electronic single window system' (Figure 3). However, with the recent implementation of 'e-payment of customs duties and fees', albeit on a pilot basis (described in Section 4), and partial implementation of the electronic single window system (see Section 3 and Section 4), Nepal is making further progress in implementing paperless trade measures.

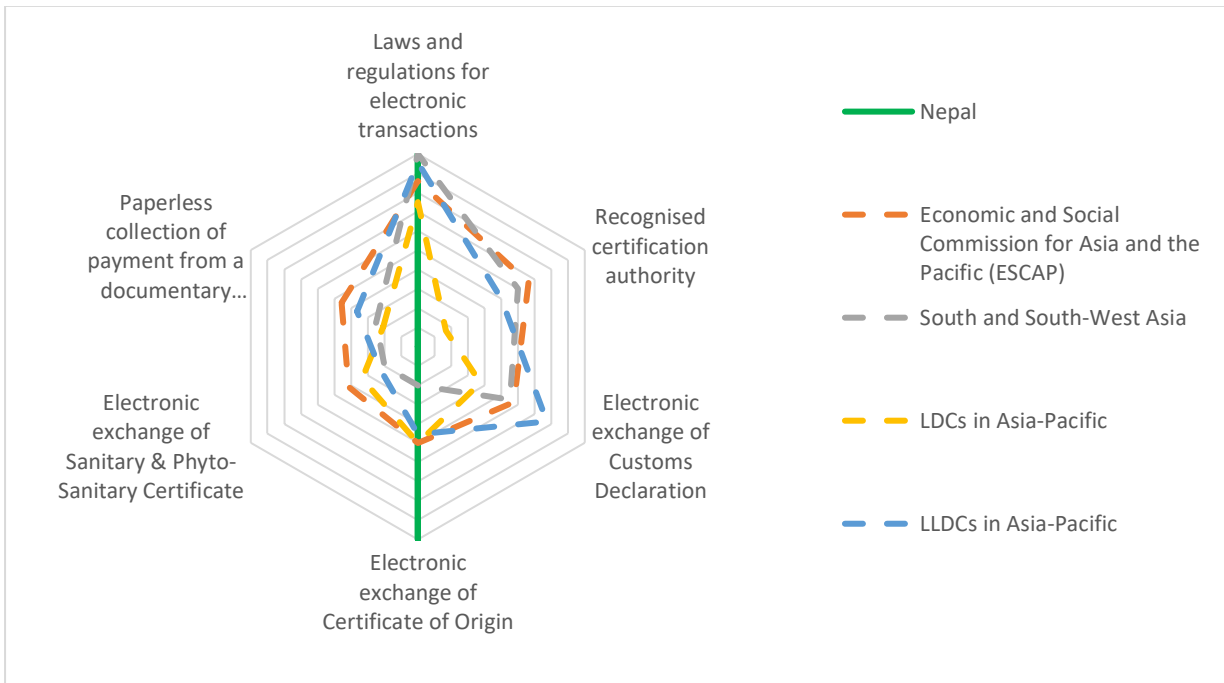
Regarding the implementation of 'cross-border paperless trade' measures, Nepal made some progress in 2021, but the level of implementation at 22.22 percent remains poor. Compared to other regional groupings, Nepal lags behind in implementing most of the 'cross-border paperless trade' measures (Figure 4).

Figure 3: Implementation of paperless trade measures in Nepal, 2021



Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2021

Figure 4: Implementation of cross-border paperless trade measures in Nepal, 2021



Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2021

According to the GSDSTF, Nepal has partially implemented 'laws and regulations for electronic transactions' and 'electronic exchange of Certificate of Origin'. Other measures, which include, 'recognized certification authority', 'electronic exchange of customs declaration', 'electronic exchange of sanitary & phyto-sanitary certificate', and 'paperless collection of payment from a documentary letter of credit' are not implemented at all, according to the survey. However, we find that the 'electronic exchange of sanitary & phyto-sanitary certificate' has been partially implemented as Nepal recently exchanged an e-phyto certificate with Mexico through the NNSW (see Section 4).

Thus, Nepal's progress in implementing trade facilitation measures overall has been satisfactory. It has yet to implement a significant portion of the measures to catch up with other regional groupings. This indicates that there are significant avenues for making progress in the implementation of trade facilitation measures in Nepal. Regarding the implementation of digital trade facilitation measures, Nepal has made remarkable progress in implementing 'paperless trade' measures, generally outperforming comparator regional groups. However, there are serious gaps in implementing 'cross-border paperless trade' measures. Our study also corroborates this finding. While there has been significant progress in paperless trade administration at the domestic level through the implementation of e-customs and NNSW, only limited progress has been achieved with regard to cross-border exchange of trade related data and documents. We discuss these themes in the next sections.

3. Initiatives, policies and plans driving paperless trade in Nepal

3.1 Major paperless trade initiatives

Nepal's foray into the paperless trade regime started primarily with customs automation in the form of electronic customs (e-Customs). While customs automation, primarily the installation of the Automated System of Customs Data (ASYCUDA), was initiated in 1996 with the financial support of the Asian Development Bank (ADB), a major breakthrough in paperless trade was achieved in 2009 when the handwritten customs declaration form was replaced by the system-generated customs declaration form through the broker module of ASYCUDA (initiated by customs agents in Birgunj customs and subsequently rolled out to other customs offices) (GoN, 2019). Through gradual upgrades, e-Customs that uses ASYCUDA World (referred to as Nepal Customs Automation System (NECAS) in Nepal) is now implemented in almost all the customs points in the country. There are plans to upgrade e-Customs to achieve full automation of customs processes.

Apart from e-Customs, some paperless trade systems and processes have been running through the involvement of different government and non-government agencies, which are highlighted below:

- **Paperless certificate of origin (COO):** The Trade and Export Promotion Centre (TEPC) has been operating the Registered Exporter System (REX), an online system for the issuance of certification of origin for EU-bound export items. Similarly, the Federation of Nepalese Chambers of Commerce and Industry (FNCCI) had initiated an electronic COO programme since July 2019 on a pilot basis, but it had not become fully operational and had not been integrated with ePayment (ESCAP, 2019). FNCCI's e-CO is now a part of the NNSW. The TEPC is also in the process of integrating with the NNSW (more on this in the next section).
- **Paperless trade initiatives in international transit:** Because of Nepal's landlocked geography, its third-country trade takes place through ports in India. For Nepal's transit trade, paperless customs declaration has been implemented between Nepal and India on a pilot basis, which covers limited ports (ESCAP, 2019). Under the Electronic Cargo Tracking System (ECTS) arrangements, the ports of Kolkata, Haldia and Visakhapatnam support the online filing of documents for the movement of containerized traffic using railways (ESCAP, 2019). Likewise, Nepal Rastra Bank (NRB), Nepal's Central Bank, transmits the letter-of-credit (L/C) details to the Nepalese Consulate Office in Kolkata and the Kolkata customs through email. Similarly, Nepal's Department of Commerce exchanges, through e-mail, details on Nepal-bound cargo (cargoes covered under advance payment, TT or Bank Draft) to Nepalese Consulate Office in Kolkata and Kolkata customs (ESCAP, 2019).

The biggest step towards paperless trade, however, has been the recent development and operationalization of the NNSW, which aims to integrate all the major stakeholders and trade processes in a single portal in a way that all trade documents and processes could be executed in a paperless format. Before we discuss in detail the NNSW, we provide highlights of relevant policies and laws in relation to paperless trade in Nepal.

3.2 Policies and plans concerning paperless trade in Nepal

There are no specific plans and policies on paperless trade in Nepal. A few of the plans and policies that cover other areas have a bearing on paperless trade. We discuss some of these important plans and policies below.

3.2.1 Information and Communication Technology Policy

Leveraging information and communication technology (ICT) for socio-economic development has become important for all the countries across the world. In Nepal, the Information and Communications Technology (ICT) Policy, prepared in 2015,

aspires to make ICT accessible and affordable to all⁶ and use ICT for sustainable and inclusive socio-economic development⁷. Likewise, the Policy acknowledges the potential of using ICT in the area of good governance and public service delivery and has specified it as one of the policies⁸. Several provisions in the Policy have a bearing on the development of paperless trade, which include widespread accessibility and expansion of ICT technology, including in rural and remote areas (Section 11.1 and Section 11.2); formulation of a compatible legal and regulatory framework for the advancement of business transactions carried out through electronic means (Section 11.7.3), development and effective operation of payment infrastructure services and online payment and settlement system that is secure, interoperable, accessible, and that adheres to international standard (Section 11.7.9 and Section 12.7.3); development of telecommunications infrastructure, including broadband network, wireless backbone, terrestrial microwave frequency, etc. (Section 11.11); and formulation of e-Government Master Plan to use ICT in the area of governance and service delivery (Section 11.7).

3.2.2 Digital Nepal Framework

Likewise, elements of paperless trade feature strongly in the Digital Nepal Framework, which is the government’s blueprint that provides a roadmap regarding the leveraging of digital initiatives for economic growth, innovative solutions to solve society’s challenges, and for Nepal’s enhanced participation in the global economy (GoN, 2018).⁹ Particularly, Digital Nepal Framework includes the development of a single window as one of its priorities. It aspires for the development of a single window that facilitates trade through easy submission of regulatory documents and towards an enhanced level of trade facilitation through data harmonization, cross-border data exchange, and document simplification and standardization (Table 1).

Table 1: Paperless Trade in Digital Nepal Framework

	Development of single window for business and industry promotion
Solution	Implementation of a single window system will enhance the trading community’s convenience and efficiency as traders will be able to submit their regulatory documents at a single site or location. The regulatory documents may be customs declarations, applications for import/export permits, and other supporting documents such as certificates of origin and trading invoices.

⁶ Objective 1 of the ICT Policy (Section 9.1)

⁷ Objective 2 of the ICT Policy (Section 9.2)

⁸ Objective 17 of the ICT Policy (Section 11,17)

⁹ Digital Nepal Framework encompasses eight sectors and 80 digital initiatives.

	Through electronic interface like government portals or websites, traders can meet their service delivery at a single delivery point which will reduce transaction cost of regulation and also transparency in services.
Stakeholders	<ul style="list-style-type: none"> • Government <ul style="list-style-type: none"> – Customs – Permit-issuing agencies – Ministries (and other trade monitoring bodies) • Banking and insurance community
Timelines	Medium Term
Outcomes	<ul style="list-style-type: none"> • e-single window and paperless trading • Cross-border data harmonization and exchange • National data harmonization • Document simplification and alignment • Reduced transaction cost • Improved customer satisfaction

Source: Digital Nepal Framework 2019 (GoN, 2018).

3.2.3 Customs Reform and Modernization Plan

Implementation of paperless trade in Nepal has been mostly driven by the policies related to customs. This started with the development of e-Customs. Policies related to paperless trade have now been expanded to include other government agencies (OGAs) and non-government stakeholders. These policies aim to transform paper-based trade into paperless trade through fully automated e-Customs and a national single window that connects all the stakeholders and the corresponding trade processes.

Nepal initiated reform and modernization of its customs in 2003 with the preparation and implementation of its first three-year work plan. Since then, five iterations of customs reform and modernization strategies and action plan (CRMSAP) have been implemented, and the sixth one is underway. During this period of the past 18 years, the government of Nepal undertook a number of measures to reform and modernize trade processes at customs, including measures to make many of these processes paperless. For example, it implemented the various modules of ASYCUDA, which, among other things, reduced a big amount of paperwork. Likewise, during the fourth CRMSAP (2013–2017), the Department of Customs (DoC) prepared the e-Customs Master Plan (e-CMP) to modernize e-Customs and make customs clearance increasingly paperless. During the fifth CRM plan period, which ended mid-July 2021, Nepal implemented the ASYCUDA World, which has provided a solid base for even better automation of customs. Currently, ASYCUDA World system is implemented in all major customs points in Nepal, thus covering 99.8 percent of Nepal’s international trade. The release and renewal of EXIM code certificates now happen through the automated system, and fees for the same can be paid electronically.

According to the Department of Customs, there are challenges that need to be overcome for an even better trade facilitation, including for cross-border e-commerce. To overcome these challenges, some of the measures that have been identified are: making customs inspection process paperless and reducing the time required for clearance of goods at customs; reducing the number of existing documents necessary for customs clearance; implementing e-payment; and implementing fully automated system so that all necessary documents could be submitted in electronic form (GoN, 2021). The 6th CRMP has been prepared to implement these measures.

The goal of the 6th CRMP has been stated as 'guaranteeing a responsible customs administration' and its destination would be 'establishing the identity of a modern customs administration accountable to the needs of 21st century traders'. To achieve this, customs processes would be geared towards paperless customs clearance.

An objective of the customs regulation that is currently being drafted is reducing the number of documents that are required for customs clearance of goods. Accordingly, the 6th CRMP purports to reduce the delays and duplications in global supply chains that are due to requirements such as submitting documents numerous times and undertaking physical inspection of goods. It aims to achieve automation of all customs clearance processes. The implementation of Nepal Customs Automation System (NECAS) has already made many of the processes automated, but not fully yet. To achieve full automation, it has been envisaged that during the 6th CRMP, facilities available in ASYCUDA World will be fully utilized. Further, the NNSW, which enables receiving online licenses, permits, certificates and other documents (LPCO) that are necessary for the conduct of international trade, will be implemented. Moreover, all government agencies and private sector organizations involved in international trade will be brought into the NNSW system.

To achieve this, the focus of the 6th CRMP would be, among others, the following:

- Developing appropriate information technology infrastructure that would contribute to trade facilitation and implementing NECAS in 29 customs offices.
- Expanding the implementation of the NNSW system so as to provide at once and through the same entry point all the information related to export, import and transportation of goods by all parties associated with international trade and transport.
- Expanding access of traders to online customs clearance.
- Ensuring electronic payments in all customs offices equipped with ASYCUDA World and having the necessary banking infrastructure.
- Consolidating data management through automation of the processing of almost all customs declarations for both imports and exports.
- Preparing the base to convert paper-based customs clearance into paperless clearance in select customs offices by making arrangements for the inspection of documents and inspection of goods by separate officials.

- Ensuring the integration of NNSW and NECAS systems. For this, UNCTAD (developer of ASYCUDA on which NECAS is based) and Webb Fontaine (developer of NNSW) are working together.
- Developing NNSW as an integral part of Nepal's international trade by expanding it to all the customs points through which exports and imports take place.

The 6th CRMP also plans to implement digital signature in customs.

Nepal's customs administration has signed a mutual cooperation agreement with China's customs administration. The process of signing similar agreements with Bangladesh and India is in progress. These agreements should enhance cooperation among the customs offices in these countries, including in the facilitation of cross-border paperless trade.

To develop, implement and expand NNSW, the 6th CRMP has identified the following activities:

- Arranging devices in data centre necessary to implement NNSW system.
- Integrating NNSW, NECAS and revenue collection/regulation agencies' systems.
- Providing training to stakeholders on the use of the NNSW system.
- Providing devices necessary to implement NNSW to agencies associated with NNSW.
- Integrating associated agencies' own systems with the NNSW system. In case any agency does not have its own system, then developing a separate module and integrating it with the NNSW system.
- Evaluating and certifying the quality of NNSW system.

3.3 Legal and technical readiness and challenges

Below, we describe in brief, the legal and technical readiness, and challenges for cross-border paperless trade in Nepal.¹⁰

3.3.1 Legal readiness and challenges

Nepal's Electronic Transaction Act (ETA) of 2006, and the supporting Electronic Transaction Rules of 2007 are the fundamental legislation guiding paperless trade. ETA (and the corresponding Rules) establishes the validity and authenticity of electronic records and digital signatures and recognizes the legal equivalence of electronic information and documents as well as digital signatures to their paper-based counterparts.¹¹ However, the ETA is criticized for "having notable gaps in their

¹⁰ For a detailed understanding of the technical and legal readiness concerning cross-border paperless trade in Nepal, refer to ESCAP (2019), whose assessments are still mostly valid.

¹¹ Section 3, Section 4, and Section 5 contain these provisions. Find the ETA at <https://www.lawcommission.gov.np/en/archives/category/documents/prevailing-law/statutes-acts/the-electronic-transactions-act-2063-2008>

coverage” and for being rigid and bound to a particular technology (ESCAP, 2019). For instance, the functional equivalence established by ETA (and the Rules) is not unequivocal as several procedures must be fulfilled to claim equivalence (ESCAP, 2019). Furthermore, Nepal's sole reliance on the Public Key Infrastructure (PKI) system of digital certificates and digital signatures, as provisioned by ETA, risks compromising technological neutrality given that the legally valid digital certificates and digital signatures can only be made available through the government-operated PKI system (ESCAP, 2019). There are also ambiguities regarding the legal recognition of electronic customs documents¹² and electronic certificates of origin (ESCAP, 2019); however, this issue appears to be getting addressed given that the NNSW has moved forward through creating functional equivalence of paperless documents such as COO. Likewise, data confidentiality, in the context of data protection, has been found to be a notable gap under the current provisions in ETA (ESCAP, 2019). While these might not be serious issues during the current expansion of paperless trade at the domestic level, these legal gaps might prove to be significant barriers once the ambit of paperless trade is expanded to include cross-border document and data exchange.

The Customs Bill, which will replace the current Customs Act, is pending in Nepal's parliament for approval. The Bill has several provisions that would provide the impetus for paperless customs clearance. Most importantly, it has provisions in relation to the operation of the NNSW system. One of the provisions thus stipulated is making it mandatory for the identified agencies involved in international trade to perform their tasks through the NNSW system. It also stipulates that the Customs Department can prepare guidelines or working procedures in relation to the NNSW system.

The Information Technology (IT) Bill has also been pending in the parliament for the past three years. Several provisions in the IT Bill, if retained when enacted, would help make progress towards paperless trade. For example, it has provisions in relation to digital signature; public service delivery and receipt through electronic means; legal validity to publication, documentation, and transaction through electronic means; etc. Expediting the enactment of the IT bill that includes new provisions conducive to paperless trade as well as introducing new legislative frameworks in the area of data protection, cybercrimes prevention, electronic contracts, etc. (ESCAP, 2019) is required to enhance the legal readiness for an efficient cross-border paperless trade regime. Finally, the NNSW itself is not supported by a solid policy or legal framework. It currently has limited legislative support in the form of amendments (addition of new provisions) to the Customs Act, 2007, and the corresponding Customs Rules (through Finance Act 2021/22)¹³. Recently, the Department of Customs has introduced a directive—National Single Window System Operation Directive, 2022—for the

¹² According to ESCAP (2019), "only e-customs declarations are expressly recognized and regulated

¹³ Specifically, Section 89 (e) was added in the Customs Act to make temporary provision for the implementation of NNSW, and Rule 66 (f) was added to direct trade-related agencies to provide the required documents and information through NNSW.

operation of NNSW (GoN, 2022). The amendments and the directive designate the Department of Customs (DoC) as the agency implementing the NNSW (until any other agency for the implementation of the NNSW is not specified) and require agencies integrated into the NNSW to provide license, permits, certificates, and other recommendation and information (LPCOs) through NNSW. While the Customs Bill, upon enactment, may provide the needed legal impetus for pushing forward the agenda of paperless trade through its legal recognition of NNSW, a separate legislation dedicated to the NNSW could provide a robust legal and institutional backing to NNSW, thus providing NNSW with the resources and influence necessary to advance paperless trade reforms.

3.3.2 Technical readiness and challenges

ESCAP (2019) found the technical readiness in Nepal for cross-border paperless trade at a basic level. Primary concerns included paperless trade being mostly limited to e-Customs; a basic level of ICT infrastructure that needs to be upgraded; absence of electronic payment system; limited business process re-engineering, data harmonization and standardization (only carried out for DoC), limited awareness and capacity building programmes; and the limited and restricted practice of data and document exchanges at cross-border level (ESCAP, 2019). While technical readiness has slightly improved through the implementation of NNSW, which, according to our consultations, supports the exchange of data and documents at the cross-border level, and the development of e-payment systems for trade-related payments, including for e-customs (which has recently been launched on a pilot basis)¹⁴, many of the other identified challenges remain and so needs to be resolved for the implementation of cross-border paperless trade.

4. Paperless trade and Nepal National Single Window

4.1 What is a single window?

A national single window, in the context of paperless trade, can be understood as a single electronic platform, where different documents, data, and information required for cross-border trade (which can be business-business, business-government, government-government, and possibly pertinent non-government agencies), can be exchanged between the concerned stakeholders. A single window, in the context of international trade, has been formally and most commonly defined as “a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single-entry point to fulfil all import, export, and transit-related regulatory requirements” (UN/CEFACT, 2005). Expanding the definition, a single

¹⁴ This is slightly elaborated in the next section.

window is an electronic single window if the information and documents are submitted to a single-entry point, which is an electronic platform. Furthermore, with rapid advances in the area of ICT, all single window facilities have invariably been electronic single window facilities, which create a paperless trading environment (Tsen, 2011).

A single window facility is believed to produce benefits for both the government and businesses. Theoretically, governments benefit through “better risk management, improved levels of security and increased revenue yields” as a consequence of enhanced trader compliance and businesses benefit from “transparent and predictable interpretation and application of rules, and better deployment of human and financial resources” (UN/CEFACT, 2005), which results in reduced time and costs associated with trade and ultimately in increased trade competitiveness. Furthermore, in the case of the electronic single window, the overall community benefits through significantly reduced greenhouse gas emissions, as demonstrated by Duval and Hardy (2001). Empirical estimates also support the benefits of a single window facility. For instance, the introduction of a single window system by the Republic of Korea in 2010 was estimated to have produced around US\$18 million in direct benefits and the companies based in the Republic of Korea also benefitted from significant competitiveness arising from rapid and predictable turnaround times (UNNExT, 2012).

The benefits of an electronic single window facility could be more important for landlocked developing countries (LLDCs) like Nepal, which encounter naturally high trade costs through their landlockedness.

4.2 Nepal National Single Window (NNSW)

Nepal National Single Window (NNSW) is an electronic platform for the exchange of documents and data used in Nepal's international trade. It aspires to bring the Department of Customs (DoC) and more than 40 trade-related government agencies (referred to as other government agencies or OGAs) into a single electronic platform. In terms of its institutional makeup, there is an NNSW sub-committee, which is headed by the DoC's Director General, and has the representation of other stakeholders from government agencies (including MoICS) and private sector associations (ECPA, 2019). The implementation of paperless trade systems has broad political support from two major agencies—MoICS and DoC (ESCAP, 2019). However, as mentioned in the preceding section, NNSW currently lacks robust legislative support and a permanent institutional structure¹⁵.

The NNSW project is part of the Nepal Regional Trade and Transport Project funded by the World Bank. The NNSW is being developed by the Webb Fontaine Group, a company that specializes in implementing trade facilitation systems and solutions.¹⁶ The formal agreement between the government of Nepal and Webb Fontaine was

¹⁵ As mentioned in the preceding section, DoC has been designated as the implementing authority of the NNSW for the interim period until other arrangements are made.

¹⁶ https://nnsww.gov.np/trade/downloadBrochure?brochureName=recommend_approve_lpcp.pdf

signed on May 2019, and NNSW, while an on-going project, started partial implementation on 26 January 2021.

Operated by the Department of Customs (DoC), NNSW started the first phase of its implementation with three other agencies integrated into its platform—Department of Food Technology and Quality Control (DFTQC), Plant Quarantine and Pesticide Management Centre (PQPMC), and Department of Livestock Services (DLS). Phase 1 of the contract with Webb Fontaine was concluded successfully in October 2021, with other government and non-government agencies and systems integrated into NNSW (see Table 2 and Table 3). Phase 2 of the project is scheduled to last until 30 March 2022, and Phase 3 until 30 June 2022¹⁷ by which all the OGAs (over 40) are expected to be connected to NNSW.

Currently, five government agencies and four non-government agencies that issue trade-related LPCOs (License, Permit, Certificate and Others) along with financial institutions that provide trade-related financial services have been integrated into NNSW (see Table 2). Likewise, some of the systems that are necessary for cross-border trade have also been integrated into NNSW (see Table 3).

Table 2: Agencies and corresponding LPCOs/processes with status of their integration into NNSW and/or implementation

S.N.	A. Government Agencies	Corresponding LPCOs/processes
1	Department of Customs (DOC)	e-customs (ASYCUDA/Nepal Customs Automation System) (fully implemented)
2	Department of Food Technology and Quality Control (DFTQC)	Food import permit (fully implemented); clearance certificate (partially implemented—in select border points); test report (not implemented—not integrated into NNSW)
3	Plant Quarantine and Pesticide Management Centre (PQPMC)	Phytosanitary certificate for exports (fully implemented); entry permit for importing plant and plant-based products (fully implemented) ; release order for imports of plant and plant-based products (partially implemented—in select border points)
4	Department of Livestock Services (DLS)	Import permit/export permit for import/export of live animals and livestock products (fully implemented)

¹⁷ <https://nns.gov.np/trade/adminNews/list?lang=en>

5	Department of Archaeology (DoA)	Clearance Certificate (Certificate of Curio Products) (fully implemented)
	B. Non-Government Agencies	
6	Federation of Nepalese Chambers of Commerce and Industry (FNCCI)	Certificate of Origin (partially implemented)
7	Confederation of Nepalese Industries (CNI)	Certificate of Origin (partially implemented)
8	Nepal Chamber of Commerce (NCC)	Certificate of Origin (partially implemented)
9	Federation of Handicraft Associations of Nepal (FHAN)	Valuation Certificate (needed for the issuance of COO for handicraft products) (fully implemented)
10	27 'Class A' (Commercial) banks and 8 'Class B' (Development) Banks	Online receipt of applications for financial instruments and corresponding documents; and recording these transactions in NNSW (partially implemented—banks are increasingly moving to the NNSW platform)

Source: Consultation with NNSW Program Implementation Unit (PIU), Department of Customs

Table 3: Systems in other OGAs that have been successfully integrated into the NNSW through API

S.N.	Agency	System	Functions
1	Department of Customs (DoC)	Nepal Customs Automation System (NECAS)	e-customs
2	Financial Comptroller General Office (FCGO)	Revenue Management Information System (RMIS)	e-payment
3	Inland Revenue Department (IRD)	Integrated Tax System (ITS)	Issuance of Permanent Account Number (PAN)

4	Office of Controller of Certification (OCC)	Authentication and Validation Server	Digital signatures and certificates
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Source: NNSW PIU

Efforts are underway to develop the NNSW system for all the other trade-related OGAs. NNSW system has already been developed in some agencies awaiting integration into NNSW (see Table 4), while system development is happening in other agencies (see Table 5) and pending in some agencies (see Table 6).

Table 4: Technically ready stakeholders (system has been developed) but not yet live

S.N.	A. Agencies on the verge of going live	Functions in NNSW
1	Department of Transport Management (DoTM)	Issuance of 'Conformity of Production Certificate' for import of vehicles
2	Department of Industry (DoI)	Issuance of Exporter Importer Code (ExIm Code); Recommendation letter for importing raw materials; Recommendation of Technical Committee (for issuance of Certificate of Origin applicable for exports to India)
3	Department of Electricity Development (DoED)	Recommendation letter for import under concessional duty for "construction equipment, machineries, tools and spare parts thereof required for the generation, transmission, distribution, operation and maintenance of hydropower plants" when imported by the concerned hydro-electricity project or the contractor thereof
4	Alternative Energy Promotion Centre (AEPC)	Recommendation letter for import under concessional duty for "construction equipment, machineries and spare parts thereof required for the generation, transmission, distribution, operation, and maintenance of the electricity from solar and wind energy"

5	Trade and Export Promotion Centre (TEPC)	Certificate of Origin (primarily concerning Generalized System of Preferences (GSP) schemes)
6	Investment Board Nepal (IBN)	Recommendation letter for import under concessional duty for “construction equipment, machineries, tools and spare parts thereof required for the generation, transmission, distribution, operation and maintenance of hydropower plants” when imported by the concerned hydro-electricity project or the contractor thereof” for projects that are approved by IBN
	B. Other agencies that are technically ready but not yet live	
7	Ministry of Home Affairs (MoHA)	Recommendation letter for exemption of duty and fees on certain goods such as arms, communication equipment, etc. imported by Nepal Police or the Armed Police
8	Ministry of Defense (MoD)	Recommendation letter for exemption of duty and fees on certain goods such as arms, communication equipment, etc. imported by Nepal Army
9	Ministry of Communication and Information Technology (MoCIT)	Recommendation letter for exemption of duty and fees on certain communication related goods imported by Nepal Police and Armed Police; ink imported by domestic printing (press) industry; cables and batteries imported by rural telecommunication service provider or government/private sector agencies to be operated by establishing a telecommunications service for the purpose of installation of exchange or extension of network
10	Ministry of Health and Population (MoHP)	Recommendation letter for exemption of customs duty on certain goods such as medical equipment imported by government hospitals, community hospitals and non-profit hospitals
11	Ministry of Education, Science, and Technology (MoEST)	Recommendation letter for exemption of customs duty on certain goods such as vehicles used for

		the transportation of students, imported by community teaching institutions
12	Department of Tourism (DoT)	Recommendation letter for exemption of customs duty on certain goods such as the first importation of tent, climbing rope, items to be used only in climbing, special camping crockery, cutlery, rucksack, camp, and piton imported by trekking agencies for own-use; initial importation of certain goods by star hotels or resorts as per an approved scheme for the construction of hotel, etc.

Source: NNSW PIU for stakeholders list; ESCAP (2019) and GoN (2020) for agencies' functions in NNSW

Table 5: Agencies where system development is at a later stage

S.N.	Agency	Functions in NNSW
1	Department of Drug Administration (DDA)	Registration of pharmaceutical products (including the ones that needs to be imported); Import permit for importing pharmaceutical products; Recommendation letter for the import of pharmaceutical raw material, equipment, and machineries
2	Department of Consular Services (DoCS)	Issuance of recommendation letter for customs exemption on diplomatic goods
3	National Bureau of Standards and Metrology (NBSM)	Issuance of Certificate of Nepal Standards for import/export of products which require mandatory compliance with Nepal Standard (NS); Recommendation letter to import weight measurement instruments
4	Nepal Telecommunication Authority (NTA)	Issuance of Type Approval Certificate for imports of mobile phones or routers; recommendation for allowing imports of telecommunication equipment

Source: NNSW PIU for stakeholders list; ESCAP (2019) and GoN (2020) for agencies' functions in NNSW

Table 6: Agencies where system development is pending

S.N.	Agency	Functions in NNSW
1	Nepal Rastra Bank (NRB)	Facilitating the release of goods by sending L/C documents to the ports
2	Ministry of Industry, Commerce and Supplies (MoICS)	Overall regulation of trade
3	Ministry of Law, Justice, and Parliamentary Affairs (MoLJPA)	Sharing of information and reports
4	Department of Revenue Investigation (DoRI)	Sharing of information and reports
5	Department of Commerce, Supplies and Consumer Protection (DoCSCP)	Issuance of import license for arms and ammunitions; import license for tobacco related products; No Objection Certificate for importing small shipment from third country without L/C; Recommendation letter for imports by government agencies and NGOs. Application Interface Integration between NNSW and DoCSCP.
6	Department of Forests and Soil Conservation (DoFSC)	Issuance of CITES* certificate (export permit) for allowing export of specimen of species that are in the endangered list (live animal or plant or any part or derivatives of a species listed in the CITES Appendices)
7	Department of Mines and Geology (DoMG)	Issuance of LPCO
8	Office of Company Registrar (OCR)	Application Interface Integration between NNSW and OCR
9	Department of Immigration (DoIm)	Sharing of information and reports
10	Department of Money Laundering Investigation (DoMLI)	Sharing of information and reports
11	Civil Aviation Authority of Nepal (CAAN)	Sharing of information and reports

12	Nepal Copyright Registrar's Office (NCRO)	Sharing of information and reports
13	Nepal Intermodal Transport Development Board (NITDB)	Necessary facilitation for dry ports' operators
14	Nepal Transit and Warehousing Company Limited (NTWCL)	Sharing of information and reports; integration may follow, if needed
15	Film Development Board (FDB)	Issuance of recommendation for customs duty exemptions on certain items
16	Nepal Freight Forwarders Association (NEFFA)	Sharing of information and reports
17	Customs Agents Federation	Sharing of information and reports

* *Convention on International Trade in Endangered Species of Wild Fauna and Flora.*

Source: NNSW PIU for stakeholders list; ESCAP (2019), GoN (2020), and NNSW for agencies' functions in NNSW

4.3 NNSW and the shift to paperless trade system

We describe below the details of the trade documents and processes that have moved into the paperless trade system through integration into NNSW.

Certificate of Origin

Currently, three private sector associations—FNCCI, CNI, and NCC—and a government agency—TEPC—are entrusted with issuing the certificate of origin (COO), a crucial document that establishes the originating status (country of origin) of products. There are five major strands of COO that are issued in Nepal: COO used for exporting products to non-Indian countries (third countries) on an MFN-basis ('third country COO' in domestic parlance), COO used for exporting to India, COO used for exporting to China, COO used for exporting to SAFTA countries on preferential terms, and COO used for exporting to GSP countries on preferential terms.

While some progress has been made to make the COO paperless through integration into the NNSW, only third country COO has been integrated into the NNSW so far. The third country COO (issued by FNCCI, CNI, and NCC) can now be issued through the NNSW. Traders can log into their NNSW portal (web-based interface), submit the required documents electronically, which will then be accessed by the issuing authorities (FNCCI, CNI, and NCC) in their NNSW portals. Furthermore, the issuance of COO for handicraft items requires commercial invoice certification from FHAN. This can also now be done through NNSW. However, the payment related to the issuance

of NNSW has not been integrated into the NNSW yet. While the payments can be made electronically through the available money transfer wallets, the issuing agencies still have to manually settle the payments in the absence of an integrated payment system.

Box 1: Traders gain access to paperless trade in Nepal

Nepal National Single Window (NNSW), a web-based interface, uses a Single Sign-On (SSO) authentication, which allows users to securely authenticate and access multiple services through a single set of credentials. First-time users need to register their organization with the NNSW, which is a completely online process. The traders need to provide the details of the organization, including EXIM codes and PAN numbers, and upload the electronic copies of supporting documents that verify the identity of the organization and the applicant.

After successfully registering an account with NNSW, users need to log in to their NNSW portals and request the available LPCO through the portal. Users will select the type of LPCO that they want to request, provide required information about the concerned commodity, upload the required supporting documents, and make online payment (currently only available for government services). Supporting documents include general trade document such as proforma invoice as well as other documents that could expedite the approval of LPCO, which currently includes Certificate of Analysis (COA); Food Safety and Standards Authority of India (FSSAI) Certificate; Good Manufacturing Practice (GMP) Certificate; Hazard Analysis and Critical Control Points (HACCP) Certificate; India Import Export Code; International Organization for Standardization (ISO) Certificate; Lab/Scientific Rationale Report; Product Literature, etc.

The LPCO request will then be forwarded to the concerned agencies, which will review the application, and then approve the LPCO release. The traders can also track the latest status of their LPCO application through the NNSW portal.

Source: NNSW brochures and website

There is a general consensus among the issuing authorities that this system of paperless COO has reduced time and cost, but they point towards some challenges as well. The biggest challenge has been traders' reluctance to abandon their old ways and resistance in using the ICT means, partly due to the lack of required digital skills. However, the training programmes that are being carried out by Webb Fontaine Group and the business associations are believed to gradually ease this constraint. Likewise, another challenge is that while this has obviated the need for paper documents in Nepal, paper documents are still demanded by importing countries. For instance, it

was pointed out during our consultations with the CNI that during a recent shipment of yarn to Turkey, The Turkish authorities cleared the shipment only after a physical copy of the COO was provided to them. While the explicit reason for this was not provided during our consultation, our surmise is that the lack of digital signature in the documents issued by the NNSW (it uses a username/password system for authentication but does not yet include digital signatures) is perhaps to blame for the importing countries still demanding physical copies.

Other categories of COO are still not integrated into the NNSW. GSP-related COOs are issued only by the government agency TEPC, which is yet to be integrated into the NNSW¹⁸. COO for China-bound exports have to be filled in a document provided by the Chinese embassy and is not integrated into NNSW. Likewise, SAFTA-related COO is also not integrated into the NNSW. Finally, COO for exports to India requires valuation from the Department of Industry (DoI) and is yet to be integrated into the NNSW—it will possibly be integrated into the NNSW once DoI is connected to the system, which is expected to happen soon.

Other LPCOs issued by government agencies

Three agencies—DFTQC, PQPMC, and DoL—that issue the bulk of LPCOs with regard to Nepal's international trade, have been successfully integrated into the NNSW. DFTQC is responsible for issuing food import permits, a document that is required to be issued before the import of food-related shipments. Before the COVID-19 pandemic, traders had to make paper-based applications for food import permits at the DFTQC headquarter in Kathmandu. After the onset of the COVID-19 pandemic, applications for food import permits could be made through online means. Since the integration of DFTQC into NNSW, the issuance of food import permits has moved to an automated paperless system. While there were some issues initially, primarily the lack of technical readiness among the staff in relation to operating the system¹⁹, the food import permit has now completely moved into the paperless system, that is the NNSW.

Likewise, the entry permit required for importing plant and plant-based products into the country has also moved into an automated paperless system after the integration of PQPMC into NNSW. The phytosanitary certificate is also issued by the PQPMC through the NNSW, making the process paperless. Recently, PQPMC was also able to exchange ePhyto (electronic phytosanitary certificate) with Mexico using NNSW and International Plant Protection Convention's (IPPC) ePhyto platform. Similarly, the import permit for live animals and livestock products, issued by DLS, is also issued in a paperless form through NNSW.

¹⁸ There is a separate paperless process (Registered Exporter System or REX) based on the principle of self-certification, which administers COO for goods that are exported to the European Union (EU) member states. This process, which is overseen by TEPC in Nepal, is not yet integrated with the NNSW.

¹⁹ This was pointed out to us during a field visit to major customs points in February 2021.

A couple of other LPCOs, primarily related to the export of handicraft products, are also now issued through NNSW. Clearance certificate issued by the Department of Archaeology to verify that the goods being exported are not objects of archaeological significance is now issued in a paperless way through NNSW. Likewise, FHAN has started issuing the 'letter of no objection' required for the export of products using parts of domestic animals (e.g., products containing bones, horns, etc.) through NNSW. While a significant portion of LPCOs required for exporting handicraft products from Nepal have been transformed into the paperless system, a couple of required documents are yet to be integrated into NNSW. Recommendation letter issued by the Department of Mines and Geology (for items containing mineral products) and the recommendation letter issued by the Department of Forests and Soil Conservation (for items using forestry-based products) have to be obtained separately as these agencies are not connected to NNSW.

Unlike the case of LPCOs issued by non-government agencies (e.g., COO), an automated e-payment solution has already been developed for the processing of LPCOs issued by the government agencies through NNSW; thus, making the LPCO processing fully automated and paperless.

Along with the integration of DFTQC, PQPMC and DLS into NNSW, the issue of multiple import permits required for plant-based food products (e.g., wheat) and animal-based food products (e.g., milk) has also been solved. Earlier, many plant-based food products required dual import permits (from DFTQC as food product, and from PQPMC as plant product). Likewise, many animal-based food products required dual import permits (from DFTQC and DoL). This requirement had increased the time and cost of trade as the process was reported as being cumbersome by importers. Now, the ministry (MoALD) has designated a single concerned agency for issuing import permits with regards to the import of plant products, food products, and animal products. DFTQC has some reservations about this change on the grounds that sub-standard food products may get entry permits and indicated that multiple import permits would not be an issue since the import permit system has moved online now. However, other agencies believe that this is a positive reform and sub-standard products could still be regulated by concerned agencies during the customs clearance process.

Table 7 presents the summary of LPCOs currently issued in paperless form through the integration of different government and non-government agencies into NNSW.

Table 7: Electronic LPCOs issued through NNSW

S.N.	Description	Issuing Authority
1	Certificate of Origin (COO) (only one type of COO is currently issued through NNSW; COO related payment has not been integrated into NNSW).	FNCCI, CNI, NCC
2	Valuation Certificate (needed for the issuance of COO for handicraft products)	FHAN
3	Letter of no objection (for export of products using animal parts)	FHAN
4	Clearance Certificate (Certificate of Curio Products)	DoA
5	Import permit for food products	DFTQC
6	Import permit/export permit for import/export of live animals and livestock products	DLS
7	Entry permit for plants, soil, seeds	PQPMC
8	Phytosanitary Certificate	PQPMC

Source: Authors' compilations

Inspection and testing

Several food products, plant products, and animal products have to undergo inspection and testing before they are allowed entry into Nepal. Earlier, the clearance certificates that verified that the products adhered to Nepal's standards and were safe to consume or that the products were pest- and disease-free were issued in a paper format and the process was often tedious given that the clearance certificates had to be physically collected from the concerned agencies' office and delivered to the customs office. The integration of the concerned inspection/testing agencies—DFTQC (for food products), PQPMC (for plants and related products), DLS (for live animals and animal products)—into the single window has made the release of clearance certificates paperless and has eased the process. NNSW has developed inspection modules whereby the traders can request the inspection of their products at the chosen point of entry. However, not all border checkpoints are currently included in this module.

Banking services

The integration of banking institutions (27 'Class A' (Commercial) banks and 8 'Class B' (Development) Banks) into NNSW has reduced the paper requirements for certain trade-related banking activities. Particularly, the paper-based LPCOs that were required for providing financial instruments (FIs) such as LCs to importers to enable payment in foreign currencies are now replaced by NNSW-generated LPCOs, thus easing the documentation process.²⁰ Twenty-one banks have already started using NNSW to verify the financial instrument applications as well as to record the transactions in NNSW once the FIs are granted.²¹

E-payment linked to e-customs and NNSW

The payment for LPCOs requested through NNSW can be made through an e-payment system linked to NNSW, thus making the payment online as well as automated. Fee details of the concerned LPCO issuing agencies are displayed in the traders' NNSW portal, which can be paid through connect IPS²², an e-payment platform operated by Nepal Clearing House Ltd. (NCHL), which is a public company established under the leadership and equity partnership of the central bank of Nepal²³. While e-payment is already made available for government services (through government's Revenue Management Information System)²⁴, the e-payment module in NNSW for non-government services, particularly for the issuance of COO, is being developed through Nepal Clearing House Ltd. (NCHL), according to our consultations.

Furthermore, the DoC, which operates NNSW, has started an e-payment system for the payment of duties and other service charges. According to our consultation, the e-payment system, which is linked to e-Customs (ASYCUDA/NECAS) and FCGO's Revenue Management Information System (RMIS), both of which are integrated into NNSW, came into operation at Birgunj Dry Port, on a trial basis, on 16 December 2021. From 26 January 2021, the e-payment system has been fully integrated with DoC's ASYCUDA/NECAS through ASYCUDA/NECAS's integration with NCHL system and implemented in all major customs points of Nepal. Traders can now make customs-related payments using payment channels of NCHL or that of banks and e-wallets²⁵.

²⁰ <https://nnsw.gov.np/trade/adminNews/list?lang=en>

²¹ <https://nnsw.gov.np/trade/adminNews/list?lang=en>

²² For instance, see NNSW's YouTube channel <https://www.youtube.com/watch?v=sZdLn0mJPeA>

²³ See <https://nchl.com.np/>

²⁴ <https://nnsw.gov.np/trade/adminNews/list?lang=en>

²⁵ <https://connectips.com/knowmore/doc/>

Provision of digital signature

While the system for digital signature has already been developed in NNSW²⁶, it has not yet been implemented by any of the stakeholders that have been integrated into NNSW as per our consultation (as of 20 February 2022).

4.4 The proliferating use of NNSW

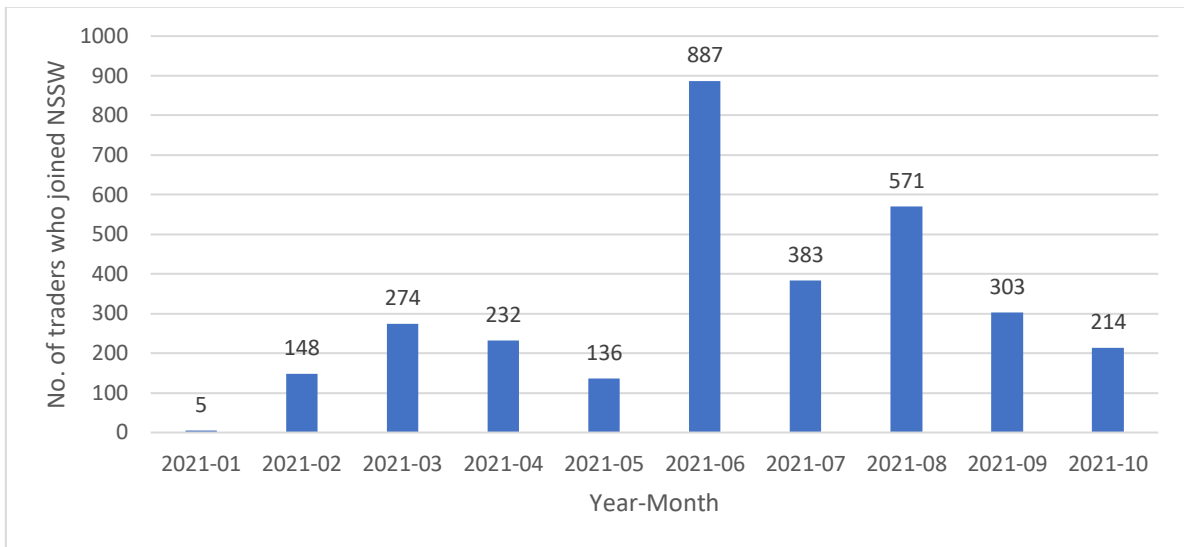
As of 31 October 2021, 3,153 traders had registered with the NNSW (as per the data obtained from Webb Fontaine). The number of new entrants peaked in August (Figure 5) as the training programmes proliferated and the use of NNSW became more common. An increasing number of traders appear to have joined NNSW since then as the use of NNSW has become more or less mandatory for processing LPCO documents issued by government agencies.²⁷

The use of NNSW to file LPCO applications has seen a significant proliferation in the later months of 2021 (Figure 6). COVID-19 was also instrumental in expediting this shift as the government-imposed lockdown measures made it virtually mandatory for traders to adopt ICT tools and as a result the use of NNSW gradually multiplied (Figure 6). For instance, as per the data obtained from Webb Fontaine, the electronic submission of LPCOs increased by 162.9 percent between July 2021 and August 2021 (Figure 7). Plant import permit and phytosanitary certificate (issued by PQPMC) represent the largest chunk of LPCOs requested. This is followed by the request for food import permits, which is administered by DFTQC. Currently, paperless COO (issued through NNSW) represents a trivial share of the LPCOs requested (as of October 2021), perhaps because of the late integration of the COO issuing agencies into NNSW. Request for e-COOs can be expected to increase in the coming months. Finally, only a few LPCOs have been requested through DoA (as of October 2021) given DOA's integration into NNSW had just happened then.

²⁶ For instance, see NNSW's YouTube channel https://www.youtube.com/watch?v=1sWAXK56x8&list=PL9_jBm_Pe9mMC2Qk0Te7rvXBRGCMpbnVL&index=17

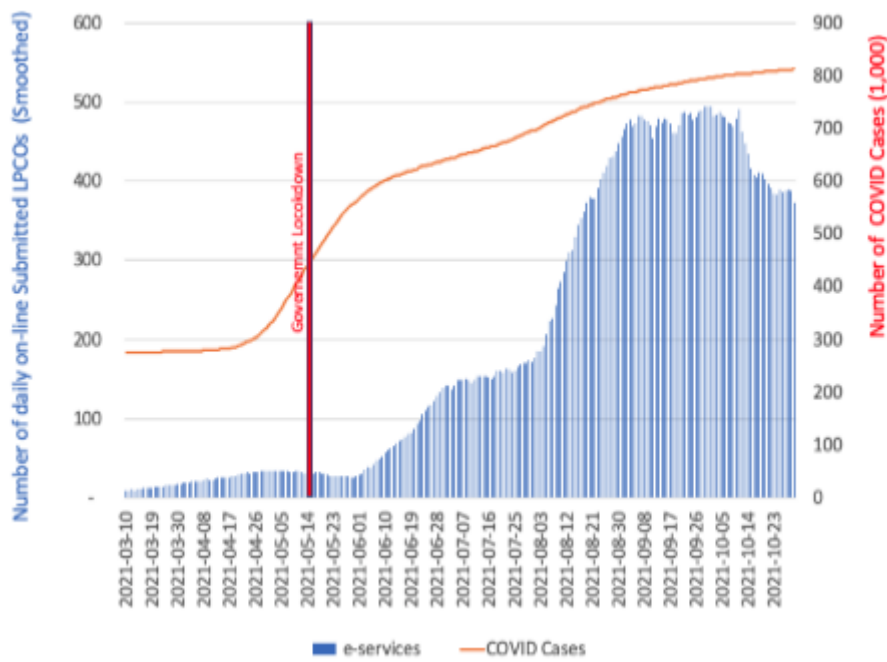
²⁷ While COOs are being issued both through NNSW (paperless) and through the previous paper-based system, LPCOs such as food import permits, and plant import permits are now almost mandatorily issued through NNSW.

Figure 5: User growth in NNSW



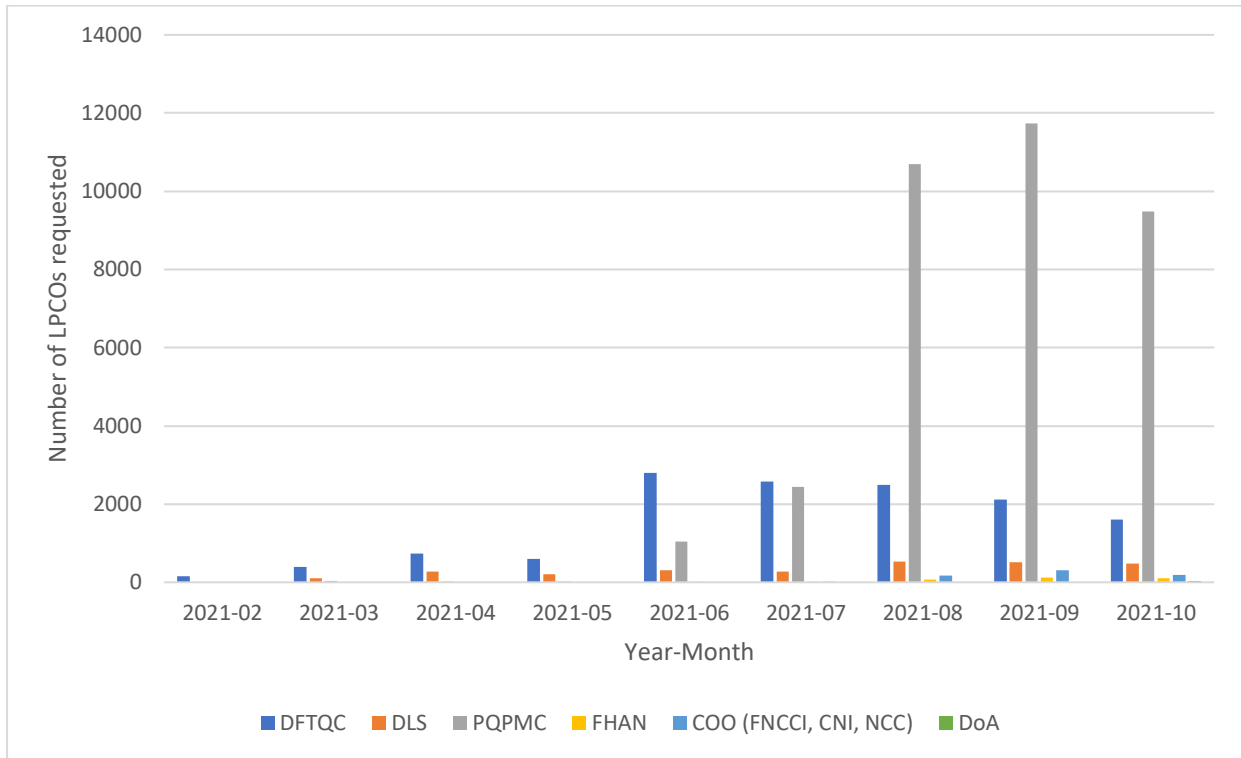
Source: Webb Fontaine

Figure 6: Comparison of daily on-line application for LPCOs submitted through NNSW before and after COVID-19 lockdown



Source: Webb Fontaine

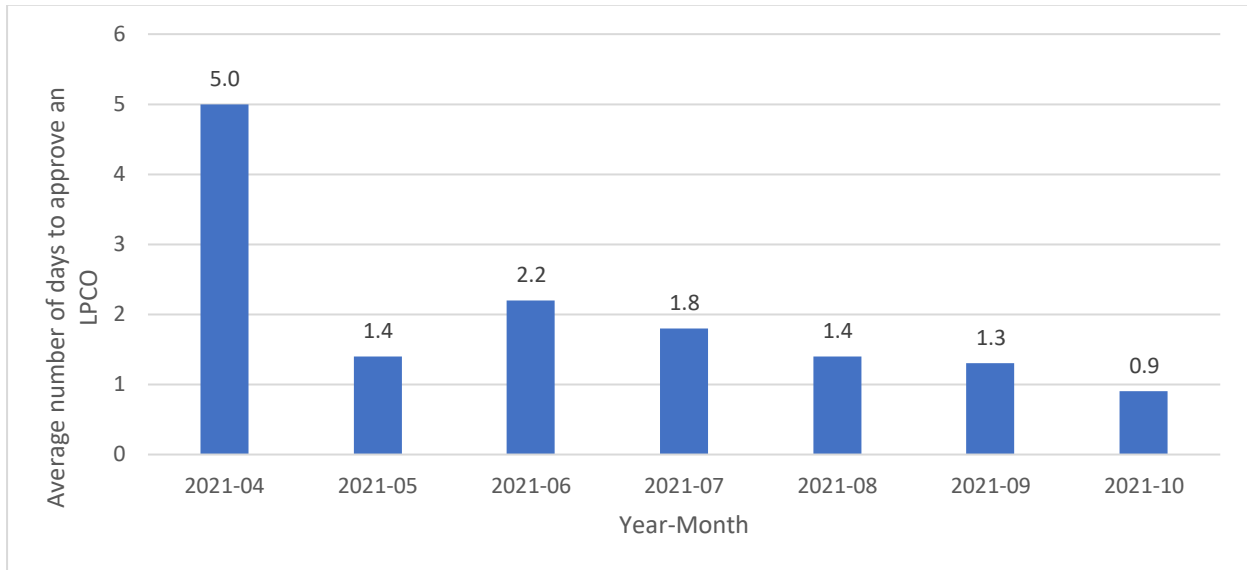
Figure 7: Monthly submission statistics of e-LPCOs



Source: Webb Fontaine

According to data obtained from Webb Fontaine, it takes an average of 1.4 days to approve an LPCO application through NSW. Around 52 percent of LPCO applications are processed the same day and 93 percent of LPCOs are approved within 3 days. Furthermore, the efficiency in processing LPCO applications has improved over the course of the implementation of NSW. For instance, it took an average of 1.3 days to approve an LPCO in September, which improved to an average of 0.9 days in October (Figure 8). This indicates that paperless processing of LPCO through NSW can produce significant efficiency gains and raising awareness about common causes for delays in issues or rejection of LPCO applications can enhance the efficiency gains further.

Figure 8: Monthly statistics on average number of days to approve an LPCO application

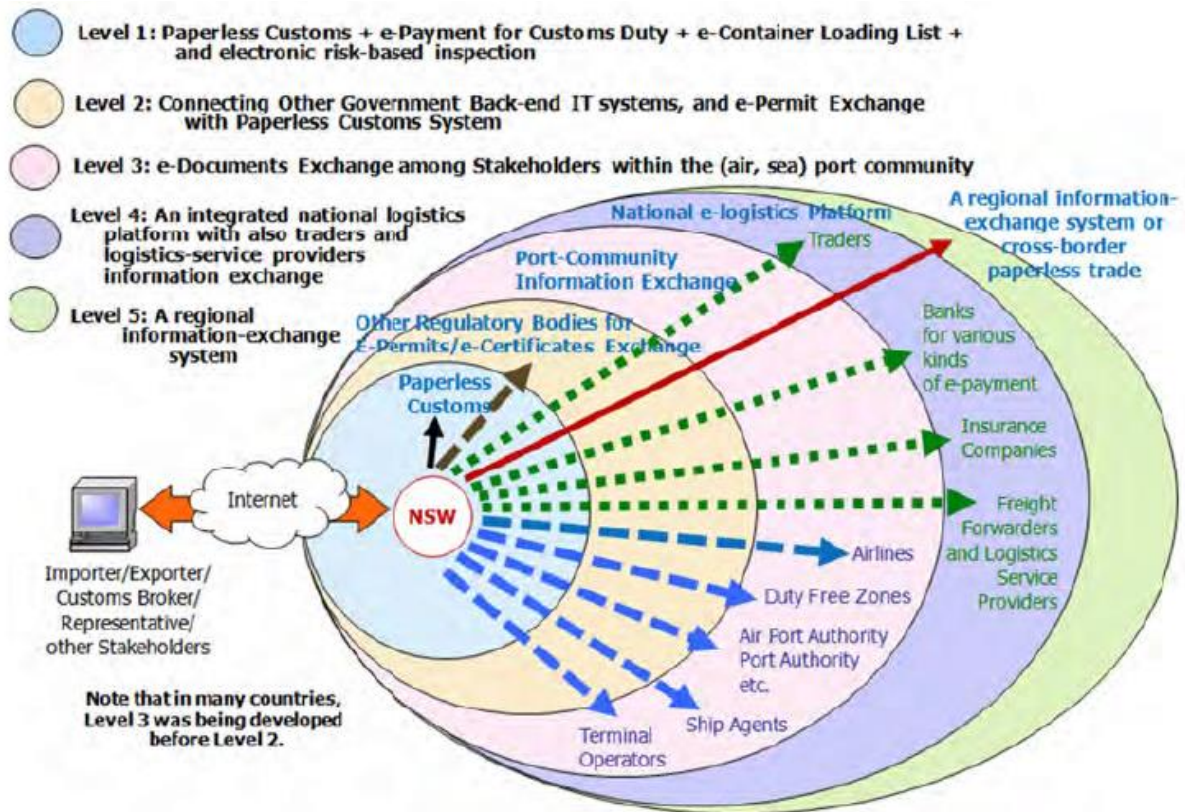


Source: Webb Fontaine

4.5 Challenges for the acceleration of cross-border paperless system

There has been an acceleration in the transformation of Nepal's paper-based trade processes into a paperless trade regime. However, the progress so far has been limited to the domestic exchange of trade-related documents, barring a few exceptions such as e-phyto certificate exchange between Nepal and Mexico. Most of the trade documents required for conducting trade remain paper-based (see Annex tables Annex 1.1–1.4). If assessed through the evolutionary model of single window development, which has been developed based on lessons generated from the experience of many economies around the world, Nepal's single window currently lies at a nascent level (treading along Level 2), with major development stages to climb to transform into a mature single window that efficiently facilitates cross-border paperless trade (see Figure 9).

Figure 9: Evolutionary stages of the development of a single window



Source: UNNEXT (2012)

The integration of trade-related agencies, documents (LPCOs) and other necessary systems into NNSW is currently ongoing at a decent pace and there are no significant foreseen challenges to the completion of this phase (level 2) of single window development. Furthermore, according to our consultations, NNSW supports the cross-border exchange of trade-related data and documents, an opportunity that has to be exploited. However, there are challenges that have to be addressed to build on the current system to make progress towards a higher level of single window system that allows for a fully functional cross-border paperless trade regime.

Below, we discuss some of the major challenges that have to be addressed for NNSW to make an ascent into higher stages.

1. Lack of solid political commitment: While the paperless trade initiative has garnered political support from two major institutions—the Department of Customs and the Ministry of Industry, Commerce and Supplies—the NNSW does not have a solidified political commitment in the form of legislative backing²⁸ and same is the case with the NNSW sub-committee. Acceleration of cross-border paperless trade will

²⁸ As mentioned in the preceding paragraph, NNSW only has limited legislative backing in the form of interim arrangement made through amendments to the Customs Act and the Customs Rules.

require robust legislative support for NNSW and a clearly defined and legislation-backed institutional structure that drives it.

2. Outdated and inadequate level of legislative support: ETA (and corresponding Rules) that provide the basis for electronic records and digital signatures has noticeable gaps, including its lack of unequivocal equivalence between electronic records and paper documents, and rigid provisions regarding the application of digital certificates and digital signatures (ESCAP, 2019). Furthermore, important issues such as data protection, cross-border data transfer, cybersecurity, electronic contracts do not have adequate legislative support. Likewise, intermediary liability does not have adequate legislative provisions (currently only limited to network service providers) and laws have not directly addressed the issue of liability concerning public authorities, including NNSW (ESCAP, 2019). While the current level of legislative support may not be a serious constraint while expanding paperless trade at the domestic level, as demonstrated by the ongoing progress of NNSW, this will be a major constraint while developing NNSW to include the cross-border exchange of data and documents and while expanding the scope of NNSW to include trade and logistics service providers.

3. Authentication system that avoids digital signatures: NNSW currently uses an authentication system based on username and password and does not use digital signature as an authentication mechanism. The use of digital signatures will be necessary to ensure the cross-border exchange of trade documents.

4. Weak intra-agency collaboration: Collaboration and coordination among government agencies remain weak in Nepal. This will result in delays in the integration of agencies into NNSW as well as in the efficient functioning of NNSW. Furthermore, intra-agency collaboration will be crucial while integrating cross-border trade documents into NNSW.

5. Lack of data and document harmonization and standardization: Data and document harmonization and standardization are prerequisites for their cross-border exchange. “For parties to exchange and reuse fully electronic messages, all information needs to be clearly defined and unambiguous, both from a semantic and syntactical perspective” (UN/CEFACT, 2018). However, in Nepal’s context, data and document harmonization and standardization has only been done for the Department of Customs (ESCAP, 2019).

6. Limited capacity and support of stakeholders: According to our consultations, both the government stakeholders and businesses demonstrate a sub-optimal level of digital skills. The lack of IT skills in implementing authorities is bound to reduce the efficiency of NNSW. Likewise, many traders also have weak digital skills, according to our consultations. Consequently, many traders have shown a reluctance to move away from their traditional ways. Furthermore, while they used to delegate their tasks related to obtaining LPCOs to other agencies such as cargo handling companies, freight forwarders, etc., they have to execute these trade processes themselves in the

paperless regime, which is also a reason for their reluctance. In this context, their poor capacity implies an inability to properly use the NNSW system. Likewise, the requirement to find HS codes for their products, which is mandatory for requesting LPCOs from NNSW, has also been a source of trouble, according to our consultations. Moreover, NNSW has not received proactive support and enthusiasm from implementing agencies, according to our consultations.

5. Conclusion and recommendations for accelerating cross-border paperless trade system

Our assessment shows that paperless trade regime in Nepal has seen a significant progress in the recent period in the form of partial implementation of NNSW. But the current shift to the paperless trade system mostly excludes cross-border exchange of data and documents and is primarily focused on LPCOs and trade processes applicable to domestic agencies. However, the NNSW system allows the exchange of cross-border documents and data and hence should be exploited. This will, however, require making legislative reforms and mitigating other constraints that impede the advancement of the single window into higher levels of maturity. Below, we offer some recommendations that could accelerate the development of NNSW to enhance the scope of its paperless trade environment.²⁹

1. Accede to the 'UN Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific': Acceding to the regional UN treaty dedicated to cross-border paperless trade, the Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia, and the Pacific, can provide Nepal with an excellent institutional platform to rapidly enhance its paperless trade environment and transform it into an efficient cross-border paperless trade system. The Framework Agreement can help Nepal enhance its cross-border paperless trade environment by primarily closing legal and technical gaps that inhibit the evolution of NNSW (see Box 2).

2. Proactively participate in bilateral and regional forums to accelerate cross-border trade: Besides the 'UN Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific', Nepal should pro-actively participate in other bilateral and regional forums to enhance its cross-border paperless trade system, with an aim to ultimately linking NNSW to a regional single window. For instance, bilateral engagement with India to link Nepal's single window with India's single window

²⁹ ESCAP (2019) also offers rich, and still pertinent, recommendations and action plan for the development of cross-border paperless trade system in Nepal.

initiative (ICEGATE system³⁰), which was the original vision of NIRTTP's vision for Nepal's single window (ESCAP, 2019), would be instrumental in accelerating cross-border paperless trade system given that Nepal's significant trade is with India. Likewise, BBIN (Bangladesh-Bhutan-India-Nepal) initiative could be an important forum for cross-border exchange of trade documents and data given that BBIN is finalizing a motor vehicle agreement (MVA) for streamlining trade among the member states.³¹ Similarly, other regional groupings where Nepal is a member, such as South Asian Association for Regional Cooperation (SAARC), ADB's regional initiative 'South Asia Subregional Economic Cooperation' (SASEC), and Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), could be used for advancing the agenda of cross-border paperless trade. Nepal's transport and transit agreements with India, Bangladesh, and China could also offer opportunities for the electronic exchange of data and documents (ESCAP, 2019).

³⁰ <https://www.icegate.gov.in/>

³¹ While Bhutan has opted out of the MVA, the MVA is still moving forward.

Box 2: The Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific

The 'Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific', a regional UN treaty adopted by the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) in May 2016, aspires to "*promote cross-border paperless trade by enabling the exchange and mutual recognition of trade-related data and documents in electronic form and facilitating interoperability among national and subregional single windows and/or other paperless trade systems, for the purpose of making international trade transactions more efficient and transparent while improving regulatory compliance*" (Article 1).

The Framework Agreement came into effect on 20 February 2021 after, as per Article 19, five ESCAP member states ratified/acceded to the Agreement— Azerbaijan (accession, March 2018), the Philippines (accession, December 2019), Islamic Republic of Iran (ratification, May 2020), Bangladesh (ratification, October 2020), and China (ratification, November 2020). Besides, Armenia and Cambodia have also signed the Agreement, but have not yet ratified it.

The Framework Agreement is expected to benefit all participating economies regardless of their current progress in terms of trade facilitation implementation (Xue, 2017 in Duval, Wang, Utoktham, and Kravchenko, 2019). The Framework Agreement can support and expedite the development of a cross-border paperless environment, often a long and arduous process requiring close collaboration between countries, by providing a dedicated institutional framework for countries to close their legal and technical gaps and for collaboration (Duval, Wang, Utoktham, and Kravchenko, 2019).

Against the background of having recently implemented a national single window but having notable legal and technical gaps, the institutional framework and assistance (pilot projects and capacity building) provided by the Framework Agreement can be invaluable support for mending the gaps and ascending to a higher level of cross-border paperless trade environment. For instance, the creation of a national policy framework, an enabling national legislation, and a national committee for paperless trade (Article 6) will provide the political commitment and roadmap necessary for the evolution of NNSW. Likewise, "cross-border mutual recognition of trade-related data and documents in electronic form" (Article 8) and adherence to "international standards for the exchange of trade-related data and documents in electronic format", including relevant international legal instruments, (Article 9 and Article 10) will facilitate cross-border paperless trade. Furthermore, the Agreement makes institutional arrangements (a paperless trade council and a standing committee) that can provide the much needed institutional (inter-governmental) collaboration, cooperation, and support required for facilitating cross-border paperless trade (Article 11). Finally, assistance in the form of "pilot projects on cross-border exchange of trade-related data and documents" (Article 13), sharing of lessons learned to "establish a collection of trade-related data and documents" (Article 13), and capacity-building (technical support and assistance), with special consideration to least developed and landlocked developing countries like Nepal, can help Nepal overcome their technical gaps with regards to the cross-border paperless trade capacity.

Source: UN, 2016; ESCAP, 2020; Duval, Wang, Utoktham, and Kravchenko, 2019; authors' assessment

3. Solidify political commitment and have a clear roadmap: Political will of the government, along with the proactive participation of the business community, is regarded as the most important prerequisite for the successful implementation of a single window facility (UN/CEFACT, 2005). Currently, Nepal has political commitment for paperless trade through two important government agencies, namely MoICS and DoC (ESCAP, 2019), but the commitment is somewhat loose given that paperless trade and national single window do not have a strong legislative backing. Hence, formulating a ‘Nepal Cross-Border Paperless Trade Roadmap,’ as suggested by ESCAP (2019), can provide clear guidance for the evolution of paperless trade and the national single window in Nepal. Likewise, providing a robust legislative backing to NNSW, through formulating a legislation dedicated to its role, operation, and institutional structure can provide the much-needed political commitment to expedite its progress.

4. Update legislative framework in adherence to international standards: As highlighted in the preceding sections, there are significant legal gaps in the implementation of the paperless trade system in Nepal. Firstly, expediting the enactment of bills such as the IT bill that resolves some of the gaps in ETA and customs bill that provides some legal backing to the paperless trade system (NNSW) could accelerate the progress. Next, there is a need to reform the legislative framework to provide adequate legislative support to the issues fundamental to paperless trade such as data protection, cross-border data transfer, cybercrimes, digital signatures, electronic contracts, intermediary liabilities, etc.

Furthermore, as suggested by ESCAP (2019), Nepal can benefit through incorporating the following international legal standards/regulations/guidelines into its legal/regulatory framework.

- UN/CEFACT Recommendation 33 on the establishment of a Single Window
- UN/CEFACT Recommendation 35 on the legal status of a Single Window
- UN/CEFACT Recommendation 36 on interoperability of cross-border systems
- UNNExT Legal Guide for Single Windows on Paperless Trade

5. Enhance intra-agency collaboration: Enhancing intra-agency collaboration among different government agencies as well as between government agencies and the private sector is a must for expediting the progress of NNSW. Particularly crucial will be the collaboration between MoICS, which is responsible for overseeing trade, and DoC, which is responsible for overseeing customs clearance as well as the operation of NNSW. Providing legislative backing to a committee consisting of NNSW's primary stakeholders (possibly in the Single Window Act as proposed by this paper in Recommendation 3) could develop intra-agency collaboration and coordination.

6. Harmonize and standardize data and documents: "Dematerializing electronic documents encompasses much more than “digitalizing them” as harmonization of data

and documents with international standards are "crucial to ensure interoperability across all digital platforms and documents" (UNECE, 2021). Since only the DoC has undertaken harmonization and standardization of its data and documents (ESCAP, 2019), there is the need to harmonize and standardize data and documents of other government agencies to make them compatible with other cross-border platforms.

7. Implement the provision of digital signature in NNSW: NNSW has to be upgraded to move away from the current authentication system (username/password system of authentication) to one that uses the digital signature. This will be crucial for expanding NNSW's scope to include the cross-border exchange of trade data and documents and for linking NNSW to other bilateral and regional single windows.

8. Capacity-building: Capacity building initiatives are needed for both the implementing authorities as well as traders for the efficient functioning of NNSW. Training, awareness programmes, and other capacity-building initiatives can also be crucial in gaining the support and proactive participation of implementing agencies as well as traders, which is what the success of NNSW ultimately hinges on.

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Annex 1: List of stakeholders associated with Nepal National Single Window

S.N.	Stakeholders
1	Ministry of Industry, Commerce and Supplies (MoICS)
2	Ministry of Law, Justice, and Parliamentary Affairs (MoLJPA)
3	Ministry of Defense (MoD)
4	Ministry of Communication and Information Technology (MoCIT)
5	Ministry of Health and Population (MoHAP)
6	Ministry of Home Affairs (MoHA)
7	Ministry of Education, Science, and Technology (MoEST)
8	Nepal Rastra Bank (NRB)
9	Financial Comptroller General Office (FCGO)
10	Department of Customs (DoC)
11	Department of Commerce, Supplies and Consumer Protection (DoCSCP)
12	Department of Industry (DoI)
13	Inland Revenue Department (IRD)
14	Department of Revenue Investigation (DoRI)
15	Department of Money Laundering Investigation (DoMLI)
16	Department of Food Technology and Quality Control (DFTQC)
17	Department of Livestock Services (DLS)
18	Department of Drug Administration (DDA)
19	Department of Transport Management (DoTM)
20	Department of Consular Services (DoCS)
21	National Bureau of Standards and Metrology (NBSM)
22	Department of Forests and Soil Conservation (DoFSC)

23	Department of Mines and Geology (DoMG)
24	Department of Electricity Development (DoED)
25	Department of Tourism (DoT)
26	Department of Immigration (DoIm)
27	Department of Archaeology (DoA)
28	Department of National Parks and Wildlife Conservation (DoNPWC)
29	Plant Quarantine and Pesticide Management Centre (PQPMC)
30	Office of Company Registrar (OCR)
31	Office of Controller of Certification (OCC)
32	Alternative Energy Promotion Centre (AEPC)
33	Investment Board Nepal (IBN)
34	Commercial Banks
35	Nepal Telecommunication Authority (NTA)
36	Civil Aviation Authority of Nepal (CAAN)
37	Nepal Intermodal Transport Development Board (NITDB)
38	Trade and Export Promotion Centre (TEPC)
39	Nepal Transit and Warehousing Company Limited (NTWCL)
40	Nepal Copyright Registrar's Office (NCRO)
41	Department of Cottage and Small Industries (DCSI)
42	Federation of Nepalese Chambers of Commerce and Industry (FNCCI)
43	Confederation of Nepalese Industries (CNI)
44	Nepal Chamber of Commerce (NCC)
45	Nepal Freight Forwarders Association (NEFFA)
46	Customs Agents Federation

47	Federation of Handicraft Associations of Nepal (FHAN)
48	Film Development Board (FDB)

Source: Reproduced from National Single Window System Operation Directive 2022, Department of Customs (GoN,2022).

Annex 2: Documents required for Nepal's international trade and their paperless status

Table A.1.1: Documents required for exporting

S.N.	Trade Document Type	Paperless/Paper Status
1	Single Administration Document (SAD)/Pragyapan Patra/The Yellow Form	Paperless
2	Certificate of Origin (COO) and/or Generalized System of Preferences (GSP) Form A	Partially paperless
3	Packing List	Paper
4	Commercial Invoice	Paperless (can be uploaded into NNSW but may be required by importing country in paper forms)
5	Payment Certificate—Letter of Credit (L/C) or certificate of advance payment	Paper
6	Other additional certificates, if necessary (for e.g., phytosanitary certificate for plant products; valuation certificate issued by Federation of Handicraft Associations of Nepal (FHAN), for handicraft products, etc.)	Partially paperless (only for domestic purposes)
7	Customs agent Appointment Letter	

Besides the documents mentioned above, which are required for each shipment, the exporter also needs to have business registration certificate; permanent account number (PAN) with VAT registration; and EXIM code to be able to export. For a step-by-step guide to exporting, refer to the Nepal Trade Information Portal's website.³²

Source: Document type compiled from Nepal Trade Information Portal (NTIP)

Table A.1.2: Documents required for importing from India

³² <https://nepaltradeportal.gov.np/web/quest/guide-to-exporting>. Accessed 9 December 2021.

S.N.	Document Type	Paperless/Paper Status
1	Authority letter of Customs Agent	
2	Delivery order of Terminal Management Company (TMC) in case of inland clearance depots (ICDs) at Biratnagar, Birgunj, and Bhairahawa	Paper
3	Invoice	Paperless (can be manually uploaded into NNSW)
4	Nepal Customs Declaration	Paperless
5	Packing List	Paper
6	Additional documents for specific cargo such as plant quarantine/health/phytosanitary certificates for plants, lab test report for food products, analysis report for chemicals, health certificate for raw wool, a veterinary certificate for animals, etc. where applicable.	Paper
7	Other LPCOs (wherever applicable)	Partially paperless

Besides the documents mentioned above, which are required for each shipment, the importer also needs to have business registration certificate; permanent account number (PAN) with VAT registration; and EXIM code to be able to import. For a step-by-step guide to exporting, refer to the Nepal Trade Information Portal's website.³³

Source: Document type compiled from NTIP

Table A.1.3: Documents required for importing from third countries via India

S.N.	Document Type	Paperless/Paper Status
1	BBN 4 Form of Nepal Rastra Bank (Central Bank)	Paper
2	Bill of lading	Paper
3	Certificate of insurance	Paper
4	Certified copy of L/C or advance payment	Paper

³³ <https://nepaltradeportal.gov.np/web/quest/guide-to-importing>. Accessed 9 December 2021.

5	Certificate of Origin (not required except where imported goods are subject to a special tariff concession on account of their place of origin)	Paper
6	Customs Transit Declaration (CTD) (original)	Paper
7	Delivery order of Terminal Management Company (TMC) in case of inland clearance depots (ICDs) at Biratnagar, Birgunj, and Bhairahawa	Paper
8	Invoice	Paper
9	Authority letter of Customs Agent	
10	Nepal Customs Declaration	Paperless
11	Packing List	Paper
12	Additional documents for specific cargo such as plant quarantine/health/phytosanitary certificates for plants, lab test report for food products, analysis report for chemicals, health certificate for raw wool, a veterinary certificate for animals, etc. where applicable.	Paper
13	Other LPCOs (wherever applicable)	Partially paperless

Besides the documents mentioned above, which are required for each shipment, the importer also needs to have business registration certificate; permanent account number (PAN) with VAT registration; and EXIM code to be able to import.

Source: Document type compiled from NTIP

Table A.1.4: Documents required for importing by Air

S.N.	Document Type	Paperless/Paper Status
1	Air waybill	Paper
2	BBN 4 Form of Nepal Rastra Bank (Central Bank)	Paper
3	Certificate of insurance	Paper
4	Certified copy of L/C or advance payment	Paper
5	Certificate of Origin (not required except where imported goods are subject to a special tariff concession on account of their place of origin)	Paper

6	Invoice	Paper
7	Authority letter of Customs Agent	
8	Nepal Customs Declaration	Paperless
9	Packing List	Paper
10	Additional documents for specific cargo such as plant quarantine/health/phytosanitary certificates for plants, lab test report for food products, analysis report for chemicals, health certificate for raw wool, a veterinary certificate for animals, etc. where applicable.	Paper
11	LPCOs (wherever applicable)	Partially paperless

Besides the documents mentioned above, which are required for each shipment, the importer also needs to have business registration certificate; permanent account number (PAN) with VAT registration; and EXIM code to be able to import.

Source: Document type compiled from NTIP

Annex 3: List of stakeholders consulted

- Surya Prasad Sedai (NNSW Project Implementation Unit, Department of Customs), Director
- Salim Balaa (Web Fontaine), Project Manager
- Rajkumar Bajracharya (Nepal Chamber of Commerce), Officer (Certificate of Origin)
- Rajeev Bajgaya (Confederation of Nepalese Industries), Deputy General Director
- Mohan Krishna Maharjan (DFTQC, Ministry of Agriculture and Livestock Development), Senior Food Research Officer/Spokesperson
- Bishnu Prasad Adhikari (FNCCI), Deputy Director
- Mahesh Chandra Acharya (Plant Quarantine and Pesticide Management Centre, Ministry of Agriculture and Livestock Development), Senior Plant Protection Officer
- Suyash Khanal (Trade and Export Promotion Centre), Deputy Executive Director [Telephone interview]
- Punya Vikram Khadka (Department of Customs), Director [Telephone interview]