A Blueprint for Cambodia National Single Window













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PREFACE

The Royal Government of Cambodia has announced its commitment to develop, own and operate Cambodia National Single Window in support of its trade facilitation policies and initiatives, in accordance with international agreements notably with ASEAN and WTO and according to international best practices.

Cambodia National Single Window (CNSW) is designed to be an electronic, on-line service to facilitate faster and more transparent international trade procedures, reduce costs and provide consistency and certainty to the total process from the start of the regulatory requirements to the clearance of goods. This initiative contributes directly to the government's trade facilitation agenda within its Rectangular Development Strategy and moreover contributes substantially to achieving several of the outcomes of the government's 12-point Action Plan for improving investment climate and promoting trade facilitation.

International organization such as UN/CEFACT and ASEAN define *National Single Window* as a facility that allows parties involved in international trade to lodge standardised information and documents with a single entry point to fulfil all import, export and transit-related regulatory requirements. Government Agencies and other stakeholders would use the facility to improve the trade-related processes.

The objective of the Blueprint for the Cambodia National Single Window is to present a concise but comprehensive description to assist decision makers and government officials to progress plans for the development and operation of a Single Window system for Cambodia. The target audiences of this Blueprint are policy managers, government officials and those tasked to lead, coordinate and/or be involved in initiating, planning and managing the implementation and subsequent operation of CNSW.

This Blueprint contains a summary of critical design and implementation components within a *Single Window Implementation Framework* prepared by UN/ECE.

The Blueprint summarizes the outputs of the PM Group in consultation with CNSW Project Team within the General Department of Customs and Excise and key stakeholders. With funding and support of The World Bank, PM Group provided technical assistance to prepare for a fully electronic CNSW. The Blueprint references a library of 12 documents that elaborate the design and implementation components of CNSW in some detail.

The design components set out the reasons for establishing a National Single Window, overall vision for CNSW, anticipated beneficiaries and benefits, strategies and plans for business process simplification and streamlining and data harmonization, ICT functional and technical specifications, strategies and plans for capacity building and communications and financing models for implementation and operation. The implementation plan sets out a project management organization, project scope, products, timelines and cost estimates.

The Blueprint concludes with an assessment of readiness for establishing the National Single Window and makes recommendations for 'next steps' by the Royal Government of Cambodia in order that an implementation project can be launched with the necessary resources.

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LIST OF ABBREVIATIONS

ACDD	ASEAN Customs Declaration Document
AFTA	ASEAN Free Trade Agreement
ASEAN	Association of Southeast Asian Nations
ASW	ASEAN Single Window
ASYCUDA World	UNCTAD's most recent version of its Automated System for Customs Data
ATIGA	ASEAN Trade in Goods Agreement
BPR	Business Process Re-engineering
BPS&S	Business Process Streamlining and Simplification
CCES	Centre for Customs & Excise Studies, Charles Sturt University
CLPIA	Certificate, License, Permit Issuing Agency
CNSW	Cambodia National Single Window
EDIFACT	Electronic Data Interchange For Administration, Commerce and Transport
F&TA	Functional and Technical Architecture
F&TS	Functional and Technical Specifications
GA	Government Agency
GATT	General Agreement on Tariffs and Trade
GDCE	General Department of Customs and Excise
ICT	Information and Communication Technology
MEF	Ministry of Economics and Finance
NSW	National Single Window
OGA	Other Government Agency
OSI	Open Systems Interconnection
PBS	Product Breakdown Structure
PIA	Permit Issuing Agency
PM Group	Project Management Group (Ireland)
PPIA	Phnom Penh International Airport
PRINCE2	Projects IN Controlled Environments (version 2)
PSA	Public Service Agencies
RGC	Royal Government of Cambodia
SLA	Service Level Agreement
SLO	Service Level Objective
SMS	Short Message Service
SOA	Service-Orientated Architecture
SWIF	Single Window Implementation Framework
TA	Technical Assistance
TOR	Terms of Reference
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UN/ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNCTAD	United Nations Conference on Trade and Development
WB	World Bank
XML	Extensible Markup Language

1 INTRODUCTION

1.1 BACKGROUND

In recent years Cambodia has made steady progress in undertaking reform of its international trade processes through introduction of modern information management systems and streamlining of government processes and procedures. In 2008 the Royal Government of Cambodia commenced introduction of the ASYCUDA World automated customs system at the Sihanoukville port and has progressively rolled out the system to more than 20 locations, accounting for over 95% of customs declarations. This initiative has significantly reduced the average time of clearance at the ports from several days to under 3 hours, and has positively impacted on Cambodia's ranking in various global business studies[1].

However, a significant proportion of Cambodia's international trade procedures, particularly those concerned with documentation preparation in advance of cargo clearance, remain manual tasks requiring submission of documents in multiple copies at the various regulatory government agencies involved in international trade. Such tasks introduce a layer of complexity and delay to border clearance procedures and act as a costly impediment to the private sector negatively influencing the trade and investment environment.

To maintain momentum in improving its international trading performance, Cambodia has committed to develop, own and operate a National Single Window. The Cambodia National Single Window (CNSW), through the introduction of an electronic, on-line solution, will facilitate faster and more transparent international trade procedures, reduce costs and provide consistency and certainty to the total process, from the start of the regulatory requirements to the clearance of goods. This initiative contributes directly to the government's trade facilitation agenda within its Rectangular Development Strategy and moreover contributes substantially to achieving several of the outcomes of the government's 12-point Action Plan for improving investment climate and promoting trade facilitation.

To assist the Royal Government of Cambodia in preparing for the introduction of the CNSW, a technical assistance project was initiated with the support of the World Bank and the PM Group of Ireland was appointment to deliver a *Blueprint* for the definition and establishment of the CNSW.

The work program was divided into six inter-related task clusters, the outputs of which form a seventh cluster being this *Blueprint* for CNSW. The task clusters for the technical assistance include: an Overall Vision for the CNSW, a Governance and Operational Model, Revenue and Fee Model Structure, a Functional and Technical Architecture and Functional and Technical Specifications, proposals for Business Process Streamlining and Simplification, and Implementation and Capacity Building Strategies and Plans for the CNSW.

This *Blueprint* consolidates the outputs of the different task clusters and provides a summary of the findings of the research and consultation undertaken. It presents proposals for the definition and establishment of the CNSW in two sections: (i) the design elements and (ii) the implementation elements.

[1] Doing Business Report, World Bank (2014) Cambodia ranks no 114th moving up from 115th in 2013 on 'Trading Across Borders' index; Logistics Performance Index, World Bank (2014) Cambodia ranks 83rd moving up from 129th in 2010.

1.2 What is CNSW?

The Royal Government of Cambodia has announced its commitment to develop, own and operate Cambodia National Single Window in support of its trade facilitation policies and initiatives, in accordance with international agreements notably with ASEAN and WTO and according to international best practices.

Cambodia National Single Window (CNSW) is designed to be an electronic, on-line service to facilitate faster and more transparent international trade procedures, reduce costs and provide consistency and certainty to the total process from the start of the regulatory requirements to the clearance of goods. This initiative contributes directly to the government's trade facilitation agenda within its Rectangular Development Strategy and moreover contributes substantially to achieving several of the outcomes of the government's 12-point Action Plan for improving investment climate and promoting trade facilitation.

International organization such as UN/CEFACT and ASEAN define *National Single Window* as a facility that allows parties involved in international trade to lodge standardised information and documents with a single entry point to fulfil all import, export and transit-related regulatory requirements. Government Agencies and other stakeholders would use the facility to improve the trade-related processes.

1.3 What is a Blueprint?

By definition a blueprint represents a design plan or technical drawing. It presents different layers of architectural complexity separated and described for different audiences, but when combined contribute to a complete detailed description of the whole. Blueprints are most often associated with engineering projects where different layers of technical drawings provide, for example, a building's structural design, then the electrical infrastructure design, the plumbing installation and so on.

In a similar manner the concept of blueprints are applied to software systems design to describe an ICT system configuration and how its components fit together. The complete configuration includes elements of hardware, system software, custom software, and communications and may extend, as in the case of the CNSW, to considerations of management and implementation arrangements, service requirements and financing options.

The Blueprint presents the CNSW from a number of points of view that reflect the different components required to establish the CNSW. Each such *viewpoint* will be of interest to a different set of stakeholders: for example, policy decision makers would focus on the policy directions, management structures and financing arrangements, whereas IT solution developers would focus explicitly on detailed technology architecture.

The concepts of *components, viewpoints* and *blueprints* are further elaborated on in Section 2 wherein a framework for single window implementation is presented based upon international best practice. This framework comprises ten critical components necessary for the successful development of a national single window. Details of these ten components are thereafter expanded in Section 3 and 4 to present the outputs of the various technical assistance task clusters, and present the different viewpoints that sets out the Blueprint for CNSW.

1.4 Scope of CNSW

The Blueprint contains summary content of the technical assistance reports produced as part of the assignment's specific task clusters. For detailed information on the various subject topics and the reader is directed to the specific reports referenced in the Blueprint and listed in Figure 3 for further information.

The work of the PM Group technical assistance team was aligned to the project's terms of reference and articulated in the project team's Inception Report. The Inception Report draws from a broad vision of the Cambodian Single Window based upon the policies and decisions of Royal Government of Cambodia and

preferences articulated by CNSW Project Team and other government agencies about strategic directions for the CNSW.

The terms of reference of the Technical Assistance project focus on the design of a 'regulatory' single window and establishing a first-stage of automation at key government agencies[2] involved in the processing and issuance of international trade related permits, licenses, certificates and customs declarations. Within the scope defined in the Blueprint, CNSW would provide for authorized access to data for stakeholders such as port operators, shipping operators and other agencies at international borders for strengthening their operations.

The Blueprint anticipates subsequent developments including review of the operations and information needs of port/airline operators which would be consistent with the next stage of single window evolution[3] of a 'Port Community System'.

The Blueprint describes facilities to allow each agency to modernize the 'front office' document administration of permit applications in support of its detailed technical and professional duties. It sets out ICT services, modernized business processes and hardware and software for a first stage of automation for the key government agencies that do not currently have modern ICT systems. The Blueprint describes a workflow process model and implementation strategy for the delivery of an application electronically, the steps to obtain an approval (or to reject) and thereafter the delivery of an issued certificate, license or permit to the trader, duly recorded in the CNSW. The permit is integrated in an overall solution for subsequent steps in the international trade processes involving other agencies.

Over time each agency may seek to expand the use of the new facilities provided through CNSW to broaden and deepen the scope of administrative functions supported by ICT.

1.5 Anticipated Benefits of CNSW

National Single Window literature and proven operational experience around the world describe significant potential tangible and intangible benefits to be derived from the introduction of a regulatory single window for international trade. These benefits accrue at the highest level in the form of supporting the creation of an attractive trade and investment environment in the country concerned, through to specific cost and time benefits for traders. The primary beneficiaries and the benefits of CNSW have been identified in the technical assistance reports and are summarized in Figure 1.

At a more general level, the CNSW also supports the RCG in meeting its commitments to ASEAN (ASEAN e-Customs Agreement, ASEAN Agreement & Protocol on Single Window) and its commitment to ATIGA Article 49. It also aligns with WTO and international good practice and advances core elements of the RGC Revised 12-point Action Plan for Investment and Trade Facilitation.

[2] The key ministries as directed by the projects terms of reference are those that have signed Ministerial Declarations with the Ministry of Economy and Finance (the General Department of Customs and Excise-GDCE) namely: the Ministry of Industry Mine and Energy, the Ministry of Health, Ministry of Agriculture, Forestry and Fisheries, and the Ministry of Commerce.

[3] UNESCAP A Single Window Roadmap in five evolutionary stages, Single Window Planning and Implementation Guide.

Figure 1 CNSW Benefits Table

Beneficiary	Benefits
The trading community	• Electronic document submission and return • Electronic payment • No repeat data entry • Track and trace • Less time and lower costs • Less face to face time • Greater consistency and certainty
General Department of Customs and Excise Other Government Agencies	• Strengthened electronic declaration submission process - potentially paperless processing • Simplified, harmonized and automated procedures new capabilities for administering permits • Performance monitoring capabilities • More timely, accurate and detailed information • New facilities
Information consumers and government policy makers	• More timely, accurate and detailed information • Ease of access to information

2 A Single Window Implementation Framework

The introduction of an electronic Single Window is a large and complex undertaking due to the many components and challenges that need to be addressed, e.g. inter-agency collaborative issues among different stakeholders, complicated procedures and document requirements, the potential need for modifications to laws, organizational changes and human resistance, electronic system development, and security and business continuity issues to name just a few.

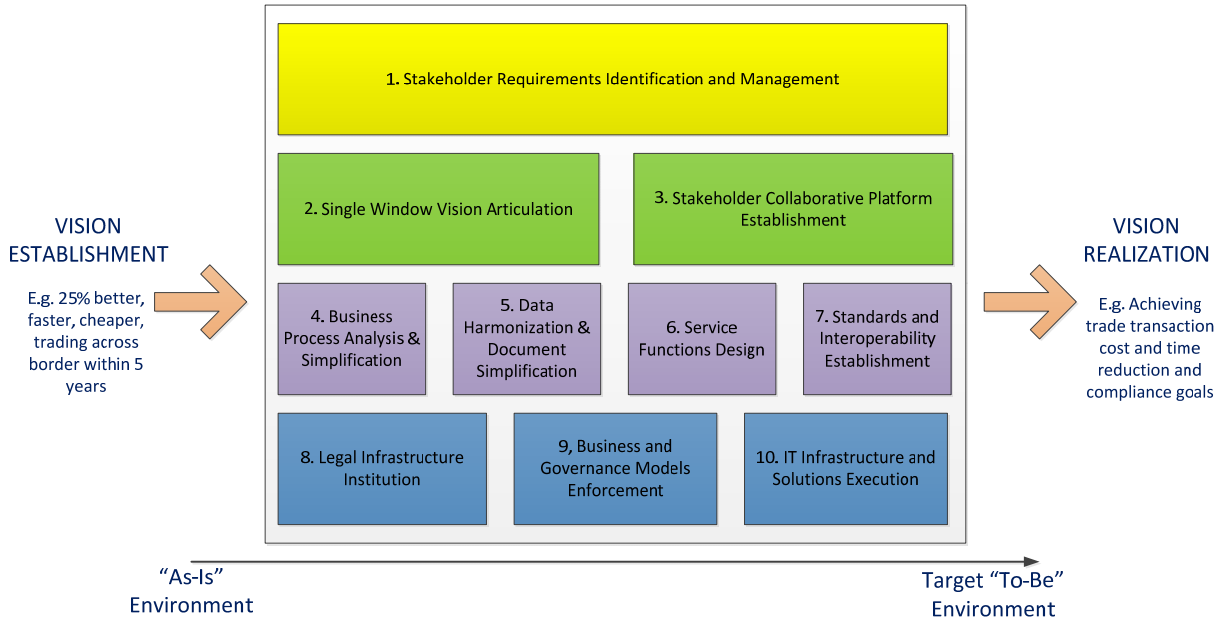
An effective and intuitive approach to handle the design of such a system is to systematically break down those large and complex problems into smaller components contributing to the design and successful implementation of the whole.

UNESCAP in its guide for implementing national single window projects[4] advocates the use of such a method as a means to support policy managers and stakeholders in their decision making. It promotes a Single Window Implementation Framework[5] (SWIF) being an adaption of an enterprise architecture model for large information systems design and implementation.

The SWIF nominates ten 'Critical Components' for successful Single Window implementation. These have been recognized following extensive international studies of Single Window projects and incorporate aspects of best practice approaches to project conceptualization, scoping and implementation management. The 10 components are illustrated in Figure 2.

The Blueprint for CNSW is compiled using the SWIF framework of ten critical components.

Figure 2 Ten Critical Components for Single Window Development



A summary table cross-referencing the critical components to the reports prepared during the technical assistance is provided in Figure 3.

[4] http://www.unescap.org/resources/single-window-planning-and-implementation-guide.

[5] The Single Window Implementation Framework (SWIF) has been developed in cooperation by Markus Pikart (UNECE), Thayanan Phuaphanthong and Somnuk Keretho (Kasetsart University, Thailand), Wout Hofman (TNO), and Eveline van Stijn and Yao-Hua Tan (Vrije Universiteit Amsterdam) and is presented as the ITAIDE deliverable 5.0.4b, 2010.

Figure 3 Alignment of Technical Assistance Reports to the SWIF 'Critical Components'

Critical Components	Task Cluster TA Report
1. Stakeholder Requirements Identification and Management	Report #201 Overall Vision for CNSW Report #204 Functional and Technical Architecture The primary stakeholder government ministries and agencies, and the trader community that will utilize the CNSW had already been identified by the GDCE prior to the commencement of this technical assistance. The primary (in scope) stakeholders are defined in Prakas 391 (2008) which establishes membership of the CNSW Steering Committee and are identified in more detail in TA Reports.
2. Single Window Vision Articulation	Report #201 Overall Vision for CNSW, Impediments to Realizing the Vision and Recommended Action
3. Stakeholder Collaborative Platform Establishment	Report #202 Governance and Operational Model for CNSW Report #203 Service Specifications for CNSW Implementation and Operation Report #210 Service Level Frameworks and Models for CNSW Prakas 391 (2008) is the legal instrument which has established the CNSW Steering Committee. The Steering Committee is supported by a Technical Advisory Group and by a Project Team in GDCE. Report #202, #203 and #210 describe a range of approaches to codifying stakeholder relationships, rights and responsibilities which may further elaborate these arrangements
4. Business Process Analysis and Simplification	Report #206 Strategy and Plans for Business Process Simplification and Streamlining, Strategy for Agency Automation
5. Data Harmonization and Documents Simplification	Report #208 Strategy and Plan for Data Harmonization Report #206 Strategy and Plans for Business Process Simplification and Streamlining, Strategy for Agency Automation
6. Service Functions Design	Report #202 Governance and Operational Model for CNSW Report #203 Service Specifications for CNSW Implementation and Operation Report #210 Service Level Frameworks & Models Report #213 Capacity Building Strategy Report #214 Outline Communications Strategy Reports #204 Functional and Technical Architecture (further elaborated in Report #205 Functional and Technical Specifications)
7. Standards and Interoperability	Report #205 Functional and Technical Specifications Report #203 Service Specifications for CNSW Implementation and Operation
8. Legal Infrastructure Institution	Report #201 Overall Vision for CNSW, Impediments to Realizing the Vision and Recommended Actions Identified within Report #201 as a critical success path issue but which has not yet been addressed.
9. Business and Governance Models Enforcement including Finance	Reports #202 Governance and Operational Model for CNSW Report #211 Revenue Model & Fee Structure
10. Infrastructure and Solutions Execution	Report #212 Implementation Plan for the CNSW Report #213 Capacity Building Strategy Report #214 Communications Strategy

3 CNSW DESIGN

This section condenses of the technical assistance reports arranged in order of the SWIF.

Detailed descriptions of the design of CNSW can be found by reference to the following reports prepared by the technical assistance team:

Reference	Title
201	Overall Vision for CNSW, Impediments to Realizing the Vision and Recommended Action
202	Governance and Operational Model for CNSW
203	Service Specifications for CNSW Implementation and Operation
204	Functional and Technical Architecture
205	Functional and Technical Specifications
206	Strategy and Plans for Business Process Simplification and Streamlining, Strategy for Agency Automation
208	Strategy and Plan for Data Harmonization
210	Service Level Frameworks & Models
211	Revenue Model & Fee Structure
212	Implementation Plan for the CNSW
213	Capacity Building Strategy
214	Outline Communications Strategy

Note: Report 207 (Monitoring Plan) has been incorporated with Report 212 and Report 209 (Strategy for Agency Automation) has been incorporated with Report 206.

3.1 STAKEHOLDER REQUIREMENTS IDENTIFICATION AND MANAGEMENT

3.1.1 Stakeholders established through Prakas 391 on CNSW Steering Committee formation

This component concerns identification and management of the needs and requirements of stakeholders. The RGC recognizes the importance of stakeholder engagement by establishing, through the Prakas 391 (2008), a CNSW Steering Committee to encourage acceptance and support by the stakeholders, to influence development priorities and directions, and thus allow a level of transparency for system development and ongoing operations.

The membership of the CNSW Steering Committee identifies the key government agencies and private sector associations:

- Ministry of Economy and Finance, represented by the General Department of Customs and Excise
- Ministry of Agriculture, Forestry and Fisheries
- Ministry of Commerce
- Ministry of Health
- Ministry of Industry and Handicrafts
- Cambodian Chamber Of Commerce
- Preah Sihanouk Port Authority
- Custom Broker Association
- Freight Forwarders Association
- National Information Communication Technology Development Authority (NiDa)

The CNSW technical assistance team sought the views of steering committee members by visits to selected departments, and through workshops and committee meetings and focused specifically on the in-scope government agencies (those also identified within RGC's strategic action plan to implement a Risk

Management Strategy). The technical assistance team reviewed the present business process and data requirements of 12 specific departments within the five in-scope Ministries as shown in Figure 4.

With GDCE designated as the lead agency to develop, manage, and operate the CNSW, the Steering Committee would act as a governance body to represent the interest of all stakeholders involved and affected by the new system and service. The Steering Committee would oversee and provide policy insight to GDCE to ensure success of the CNSW in meeting government policy objectives, including pursuit of ASEAN Single Window Agreement. In the technical assistance Report #202 on *Governance and Operational Model for CNSW*, it is anticipated that there would be a CNSW Secretariat, encompassing technically/professionally qualified members from key stakeholders, to support the Governance Entity in setting policy operating parameters for the GDCE and developing performance and finance report.

Figure 4 In-scope CNSW Government Agency Stakeholders (identified through Prakas 391)

Ministry	Department
Ministry of Economy and Finance General Department of Customs and Excise	1. Customs Procedures Department
	2. Department of Excise
	3. Department of Free Zone Management
	4. Department of Planning, Technique and International Affairs
Ministry of Agriculture, Forestry and Fisheries	5. General Directorate of Agriculture
	6. Department of Fisheries
	7. Department of Animal Health & Production
Ministry of Commerce	8. CAMCONTROL
	9. General Department for International Trade
Ministry of Health	Department of Drugs and Food, including 10. Pharmaceutical Trade Bureau and 11. Food Safety Bureau
Ministry of Industry and Handicrafts	12. General Department of Industry

3.1.2 Stakeholders identified through Anukret 209

Anukret 209 identifies the government agencies involved in the regulation of goods for import and export, designates Prohibited and Restricted Goods and defines the necessary regulatory documents. The overall functional and technical architecture of the CNSW anticipates and makes provision for these agencies and their processes.

Government agencies, not included in Prakas 391 are also involved. These agencies are not presently within the scope of the specifications and implementation project. The CNSW technical assistance team research indicates that these agencies issue low volumes of certificate, licenses and permits, and might be later brought under CNSW operations. These other agencies listed for future CNSW expansion are:

- Ministry of Culture and Fine Arts
- Ministry of Defense
- Ministry of Energy and Mining
- Ministry of Environment

- Ministry of Interior
- Ministry of Post and Telecommunications
- Council of Development of Cambodia

3.1.3 Private Sector Stakeholders

Private sector stakeholders will play a dominant role in the success of the CNSW. Representative associations are included on the CNSW Steering Committee it should be recognized that more generally private sector stakeholders for CNSW include:

- Importers
- Exporters
- Customs Brokers
- Freight Forwarders

3.1.4 Other Stakeholders directly involved in international trade

Other parties involved in international trade include port operators (including Sihanoukville Autonomous Port, Phnom Penh Port, Société Concessionnaire de l'Aéroport for Phnom Penh / Siem Reap Airport), shipping authorities (such as CAMSAP) and government agencies such as immigration and police.

CNSW architecture provides for authorized access to data for these other stakeholders for strengthening of their operations. Data concerning, for example permits, declarations, manifest, could be made available to authorized agencies and stakeholders to support their operational efficiency.

3.1.5 Other Stakeholders

Other stakeholders including registered information consumers such as government planning agencies, statistics office, universities and international organizations, would use the CNSW Information Services Workbench to view and extract relevant statistical information specific to their needs, and as allowed by the terms of their registration profile. Members of ASEAN would be another key stakeholder who benefit from the data exchange potential that the system would offer and their interests and requirements should be considered in system design and build.

3.2 Single Window Vision Articulation

A proposal for an Overall Vision for CNSW and an assessment of impediments to achieving the vision with a corresponding action plan are contained within the technical assistance *Report #201 on Overall Vision for CNSW*.

3.2.1 The Overall Vision for CNSW

The CNSW Vision has been established through studies of available reference material, including pertinent RGC decisions and rulings, discussions with CNSW Project Team and primary government agencies, and feedback from a Visioning Workshop held on 15th January 2014 which included participation from all key government agency stakeholders.

A Broad Vision for CNSW is described in TA Report #201 as a high-level business model which describes the new practices to be adopted (the functional scope), how the new practices would be provided and the intended benefits (the operational model), how the new practices could be acquired and sustained (the financing model) and the methods for innovation, policy setting, monitoring and quality control (the governance model). The descriptions culminate in high level models and overall vision statement for CNSW as illustrated in Figure 5 and stated in Figure 6.

Figure 5 Broad Vision for CNSW

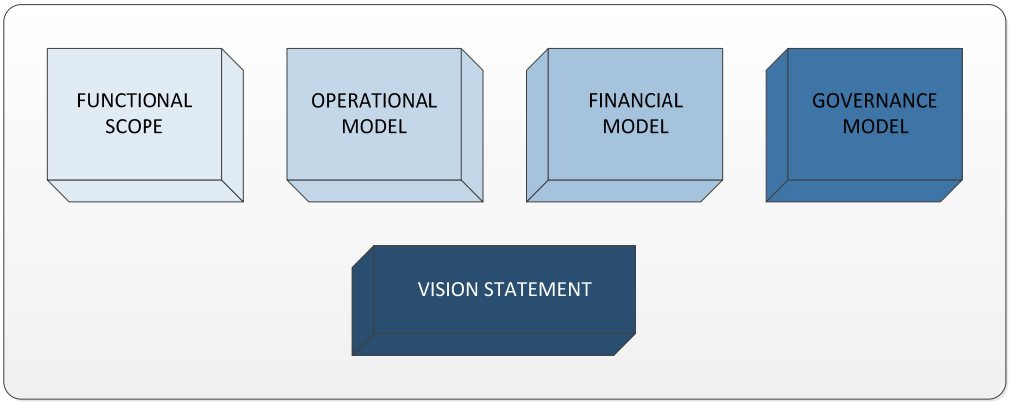


Figure 6 CNSW Visions Statement

The Vision for the Cambodia National Single Window

Deliver a user-friendly, electronic system that streamlines and automates procedures for registered traders and Government Agencies for international trade related permits, licenses, certificates and customs declarations.

Commencing 2015, CNSW will provide:

- International best practice and standards;
- Electronic application, processing and issuance of certificates, licenses and permissions (CLPs) for import to and export from and transit through Cambodia;
- Electronic lodgment of customs declarations and related documents for the release of goods by GDCE using its ASYCUDA system;
- Electronic interaction and information sharing between government agencies; and
- Electronic interaction with ASEAN Single Window.

CNSW will encompass the processing of trade transactions from the start of regulatory requirements up to the clearance of goods into / out of Cambodia and will:

- Streamline and automate relevant front-office processes at key government agencies;
- Include a facility for electronic payment;
- Provide access to information sources relating to trade regulations and procedures, including ASEAN and Cambodian Trade Repositories; and
- Provide increased information sources for the RGC to improve its administration of international trade.

3.3 STAKEHOLDER COLLABORATIVE PLATFORM ESTABLISHMENT

This component is concerned with ensuring the establishment of a lead agency, inclusive membership and participation and effective interagency collaboration and participation of the business community.

As discussed, the RGC has already established through issue of Prakas 391 (2008) a CNSW Steering Committee members of which include representatives from the key stakeholder government agencies, the port and business community. The Steering Committee is supported by a CNSW Technical Advisory Group (CNSW-TAG) and served be a CNSW Project Team (CNSW-PT) consisting of staff of GDCE and located at GDCE headquarters.

3.3.1 Collaboration through Agreements and other Instruments

To effectively represent the interest of all stakeholders and ensure that the operation of CNSW is within the national interest, the Steering Committee would be required to broker a range of instruments to formalize interagency collaboration, and service arrangements between stakeholders in general and specifically between the CNSW Operator and CNSW users covering both government agencies and private sector participants in particular.

Examples of such instruments in Cambodia are Inter-Ministerial Regulations and Operational Regulations. The Inter-Ministerial Regulations specify the participating agencies and the obligations of each agency, the expected service level, support/escalation procedures, contact details, etc. Operational Regulations can be used to specify the relationships between a government agency and its public and private sector clients. In the international context these Regulation may take the form of a Service Level Agreement (SLA).

The CNSW Operator would operate the CNSW to meet the service specifications in accordance with Regulations defined collaboratively with Traders and government agencies. It is suggested that, following international good practice, CNSW-involved GAs would seek to meet published Service Level Objectives specifying what each would offer to its trader community and which those traders are entitled to expect.

The technical assistance *Report #210 Service Level Frameworks and Models for CNSW* recommends a variety of model Regulations for CNSW including:

(1) *Operational Regulations (Service Level Agreements) between CNSW Operator and Trader*
This would be a published agreement as part of the Trader's registration process that binds the CNSW Operator to a minimum service level that it offers to registered, fee-paying traders. It would incorporate an End-User Usage Agreement that clarifies the rights and obligations of the registered traders.

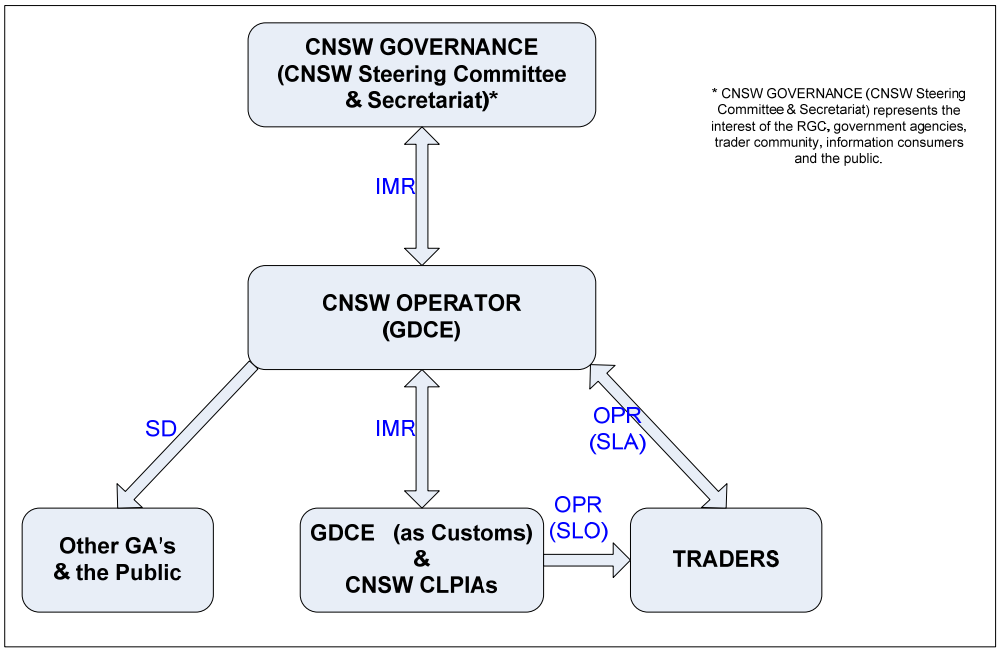
(2) *Inter-Ministerial Regulations between CNSW Operator and CNSW Governance Entity*
This would be of less formal contract in nature, excluding contractual and penalty portion. It would include Policy Operating Parameters that clarifies the pledged commitments and obligations of both parties in providing and meeting the pre-agreed service levels, including specified functions of CNSW.

(3) *Inter-Ministerial Regulation between CNSW Operator and CNSW-involved GAs*
This would be of less formal contract in nature, excluding contractual and penalty portion. It would incorporate an End-User Usage Agreement that clarifies the rights and obligations of GAs' officers authorized to use specified functions of CNSW.

(4) *Statements of Service Level Objective of each GA*
Each government agency participating in CNSW would unilaterally publish a Statement of Service Level Objectives to make its commitments known to the trading public that the agency serves and for the benefit of the agency in its management of its service delivery.

This recommendation is illustrated at Figure 7.

Figure 7 Inter-Ministerial/Operational Regulations recommended for CNSW



IMR – Inter Ministerial Regulation
OR – Operational Regulation (in form of SLA or SLO)
SD – Service Description (internet / leaflet)

These agreements contain service quality definitions to be maintained by CNSW Operator during service provision. The CNSW Operator would provide services of agreed performance and reliability to ensure both GAs officers and Traders receive a consistent level of service and have faith in the system. Traders who would ultimately pay for the service must feel they receive 'value for money' benefits to their business operation.

Similarly, CNSW-involved GAs are key stakeholders in the system and must receive a level of service from CNSW Operator that supports, simplifies, and enhances their business operation and service to the trader community (e.g., series of tasks for a certificate, license, permit or other forms of authorization). CNSW Operator would also provide (CNSW) Service Description (SD) through web pages to other interested parties both the domestic and international, including traders as potential CNSW users and other government agencies and the general public.

3.3.2 Setting Service Agreements and Objectives

The SLAs and SLOs, implemented through Operational Regulations, for CNSW may ultimately contribute to a change in attitude and work behavior of the civil service (e.g., from administrator to service provider) and a change in processes (e.g., from the Functional Structure to Operational Structure). This would be consist with RGC's initiatives to improve public service delivery in the country, to establish more effective interagency collaboration and to strengthen participation of the business community.

To achieve intended outcomes, SLAs / SLOs need to be monitored. *Report #210* provides a framework delivered as a worked example that could be used to establish procedures for monitoring the use and effectiveness of SLA / SLO execution. The monitoring framework is defined for each of the SLA / SLO recommended in terms of (i) responsible party, (ii) timing, and (iii) method for data collection and methods for analysis and reporting. The report recommends initially setting service levels that are easily achievable without undue duress for the service provider, but not to accept inferior service. Thereafter to modify and increase the performance of the service towards international good practice standards.

3.4 Business Process Analysis and Simplification

Business Process Analysis is the first step towards automating processes and documents. It comprises the systematic analysis of the procedures and information flows, an analysis of their weak points and delays, recommendations for improvement, and a description of the business processes and information flows after the improvement

In the context of CNSW, the technical assistance team undertook analyses of in-scope government agencies that issue certificates, permits and licenses for international trade procedures. Existing information flows and the recommendations for are contained within *Report #206 Strategy and Plans for Business Process Simplification and Streamlining, Strategy for Agency Automation.* The recommended improvements would reduce the number of processing steps, eliminate duplicate and non-essential documents and replace manual functions where possible with automated functions.

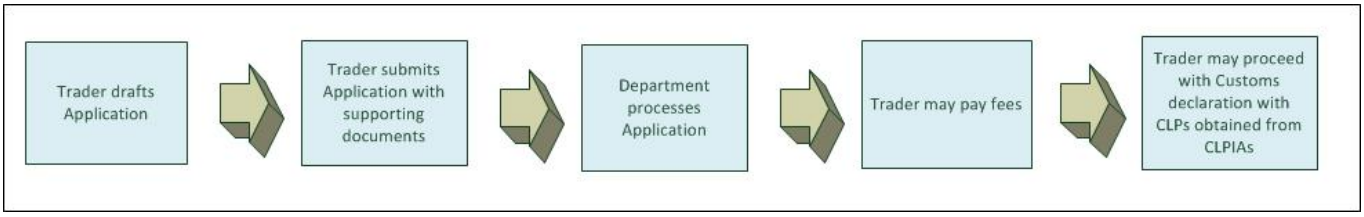
3.4.1 Business Process Streamlining

Report #206 contains an outline of a potential functional model for the operation of the government agencies that issue Certificates, Licenses, Permits (CLP) and other forms of authorization as part of the import/export/transit cycle both prior to importation/exportation and at the border.

These government agencies, collectively referred to as Certificate, Licenses and Permit Issuing Agencies (CLPIA's) include the departments of the General Department of Customs and Excise (GDCE) that issue permits prior to importation/exportation. GDCE departments that deal with Customs clearance are already functionally organized around use of the ASYCUDA World Customs processing system and are therefore not candidates for business process re-engineering, except to the extent of integration with CNSW. In the CNSW model, the ASYCUDA system would interact with the CNSW by providing traders with an e-lodgment facility for Customs declarations and this also would be a form of business process simplification.

The proposed new model has evolved from research undertaken by the technical assistance team at each of the in-scope CLPIA's. Detailed analysis has been undertaken on each CLP processing flow recording all necessary steps, the actors involved, the forms used and documentary requirements. The findings demonstrate that for all such agencies the processes employed follow a similar pattern of operation, albeit with some minor variations. This generic workflow of the departments is illustrated in Figure 8.

Figure 8 Generic current process for license or permit application



For all such CLPIA's the Trader needs to draft and submit paper applications, pay fees over the counter, and obtain various levels of authorization which in turn requires paper documents to be moved from desk to desk several times. There remains a high dependency on physical signatures and stamps as a means of intermediate or final approval which requires the physical presence of the responsible individual to sign the documents.

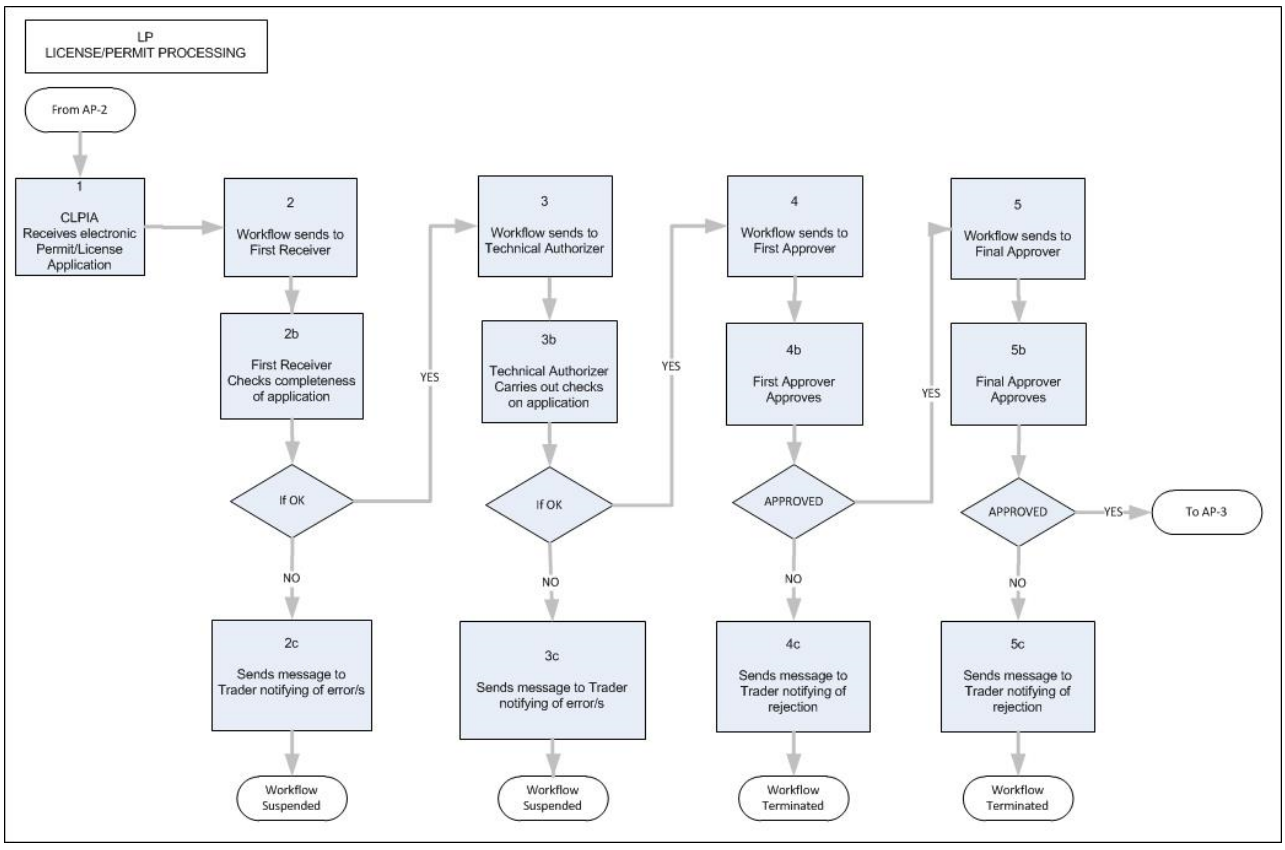
The current processes have evolved in order to exercise the level of authority conferred by the law to the various agencies in a non-automated environment. Any attempts at simplification should therefore take into account the need to retain the necessary levels of control. Steps in a process cannot be eliminated without ensuring that the purpose of those steps in terms of control is replaced by a suitable alternative.

3.4.2 A New Business Process Model for CNSW

The key feature that makes simplification possible in the proposed CNSW model is the introduction of automation within each agency through a Workflow Management System (WMS). A WMS allows each agency to configure the necessary steps of authorization and control that they require without the need to move papers around the office or to physically stamp or sign documents. The WMS will also remove the need to re-type, copy or transcribe information several times which leads to the likelihood of transcription errors resulting in inappropriate outcomes (such as errors in statistics, etc.).

The new model proposed (refer to Figure 9) introduces simplification without necessitating immediate, significant alteration to the way agencies currently operate. The new model does not diminish in any way any of their responsibilities or major controls. The model proposes the introduction of basic automation within each agency as an integrated part of the CNSW in order to provide a controlled workflow and open the way to paperless processing.

Figure 9 New CLP Business Process Workflow Model



In the new model each agency would continue to exercise the authority and controls they currently apply to issue licenses, permits, etc. but these steps would be carried out in an automated paperless environment with each agency retaining its ability to define the internal steps of authorization required.

Moreover, their operation will be enhanced by having access to the full life-cycle of a trade transaction allowing greater coordination of work across agencies both prior to importation/exportation and at the border.

This model simplifies the procedures from the trader's perspective and increases the efficiency of operations within the agencies. *Report #206* also outlines potential stages of simplification which could be implemented over time to take advantage of modern *e-business* practice, the CNSW automated environment and of the

business model proposed. However, these may involve changes to existing laws as well as institutional changes and greater change management and capacity building interventions.

The model provides a start-point for each agency to facilitate its modernization plan (e.g. introduction of e-payment and e-permits). The model is functionally 'scalable', providing opportunity over time for the agency to extend the breadth and depth of functions supported in each agency through the new ICT architecture.

The new model is cross-referenced to the current model of operation at each CLPIA to confirm the essential controls being applied in the current operations are retained after simplification and harmonization exercise.

3.4.3 Benefits of CLPIA Automation

The benefits of automation for the CLPIA's go beyond simplification of the procedures for issuing CLPs. The WMS will give CLPIA's a rich database of applications and of CLPs issued, and the ability to analyze the database and assess their performance and staff utilization. As a result CLPIAs will have greater capacity for planning resource allocation, identification of capacity building needs and strengthening service delivery.

The CNSW will also provide the CLPIA's with real-time visibility on the arrival at the border of cargoes which come under their sphere of competency. This would enable them to take appropriate action, e.g. post-clearance inspections or to give Customs specific instructions.

With time, full-life cycle information about traders and transactions will build up in the CNSW database enabling CLPIA's to carry out trend and pattern analysis to develop risk and credibility assessments which they can then apply when making decisions about inspections either at the border or post-clearance.

By replacing several manual steps (e.g. stamping, signing, moving papers) time will be released for personnel to be re-allocated to more productive technical work which will enhance the quality of service that CLPIA's can provide to the public and their contribution to the welfare and economic development of the nation as a whole.

3.5 Data Harmonization and Documents Simplification

The objective of data harmonization, in the context of trade facilitation, is to eliminate redundancies and duplication in international trade data. Data harmonization ensures all necessary data elements for international trade processes exist uniquely by producing a single set of harmonized core data elements, and through doing so enables data interoperability among individual information systems in the international supply chain, and in particular for National Single Windows.

Simplification of the trade documents includes an analysis of whether a document is really needed to perform a given business process and whether several distinct trade documents with a similar function can be combined into one single document. Simplifying and harmonizing trade documents and data can significantly reduce time and costs for the Trader.

Report #208 Data Harmonization and Modelling Strategy and Plan provides a comprehensive harmonized data model and recommends a strategy for further review and harmonization aimed at finalizing the Harmonized Data Model (HDM). The recommended method is illustrated in Figure 10. The method is based on common business analysis and re-engineering techniques which precede the publication of the UNESCAP guide and which have become international good practice in information systems design.

The HDM is a foundation component necessary for the operation of the CNSW for the in-scope CLPIA's as part of the import/export/transit cycle both prior to importation/exportation and at the border.

Figure 10 Main Tasks and Outputs for Data Harmonization

Main Tasks	Outputs
1. Capture the documentary requirements of the business processes that are within the scope of the data harmonization project	1. A list of collected documents, electronic documents or messages falling under the scope of a data harmonization project
2. Define captured data elements in a Data Dictionary	2. A set of data dictionaries that corresponds to the identified list of paper and electronic documents/ messages
3. Analyze data elements	3. National Data Set
4. Map core data elements to a reference data model	4. A set of Message Implementation Guidelines for key documents

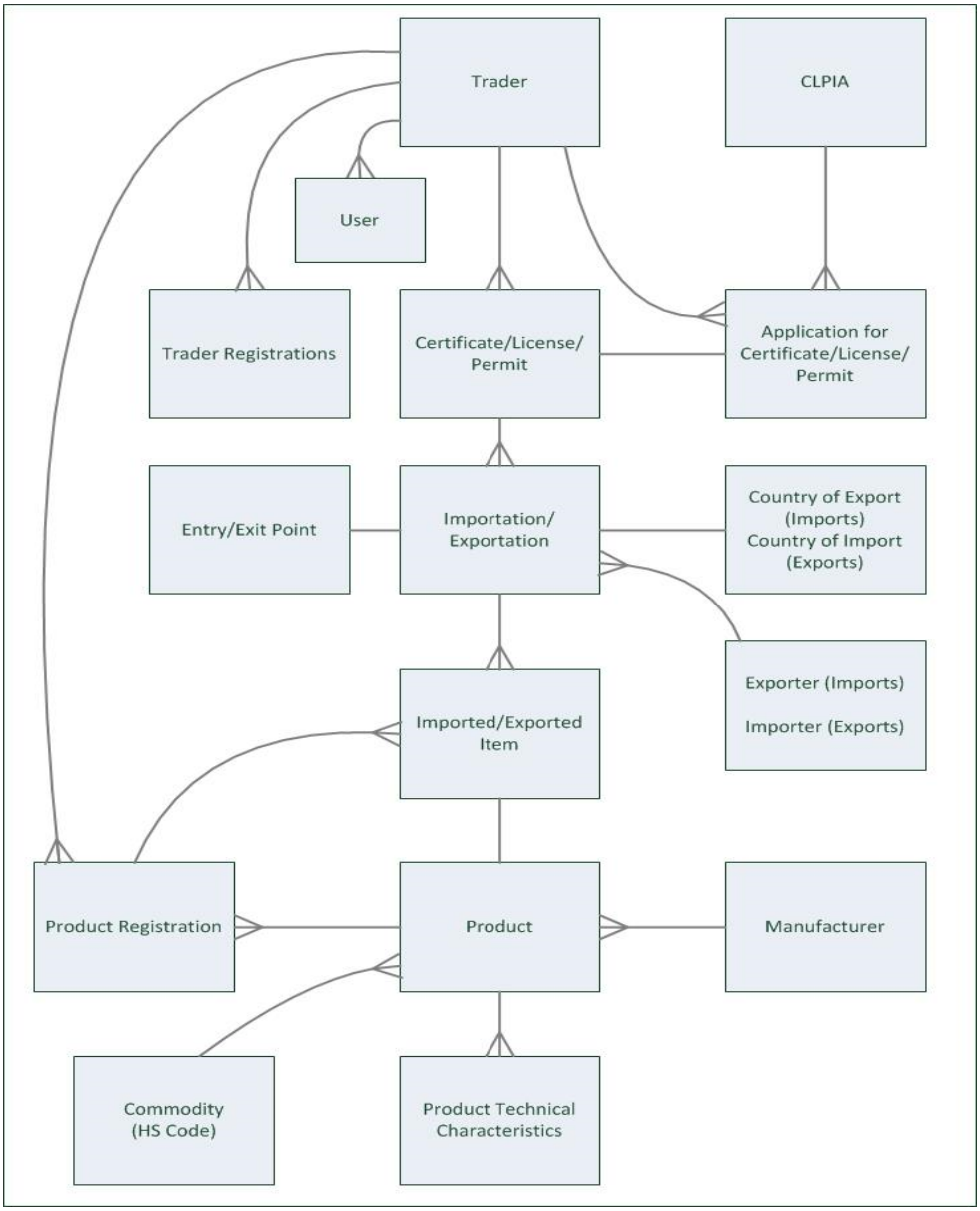
Each task and corresponding output is duly documented in *Report #208* to build tables of all trade forms used and data dictionaries for the data elements identified in the paper documents. The data elements in the data dictionaries are defined in terms of the purpose they fulfil in terms of conveying information from the traders to the CLPIA's and vice-versa and in terms of signifying stages in the process (e.g. approval, authorization, etc.). Those data elements that fulfil the same purpose across CLPIAs were identified and then re-combined into a new single data model, the Harmonized Data Model (HDM).

The HDM is organized in 'Classes' where data elements are logically grouped together. This is in order to facilitate the future logical and physical database design. The logical relationship between these data classes is illustrated in the Entity Relationship Diagram (ERD) in Figure 11. This provides an aid to future system design.

The contents of *Report #208* go beyond the original terms of reference for the technical assistance which simply required that a strategy should be built. The report also contains the first step of implementation of the strategy, i.e. the development of a base Harmonized Data Model mapped to a reference model, and is further extended to map the model to the ASYCUDA World data elements for future information exchange with the Customs system. This initial data model provides a practical illustration of the method which should be followed when designing the CNSW as well as a substantial starting platform.

Various data standards have evolved over the years in an effort to achieve standardization of trade data and procedures. However, the recent prevailing trend among Customs and other authorities is to adopt the WCO Data Model as their reference model which has been selected for CNSW purposes. The WCO data model is a sub-set of trade elements based on the UN Trade Data Element Directory 2005 (UNTDED) specifically aimed at cross-border business from the perspective of Customs, i.e. aimed at supporting Business-to-Government (B2G) transactions relating to Customs clearance. Adoption of the WCO Data Model will ensure the CNSW's future inter-operability with regional or international Single Windows as well as compliance with ASEAN's policies with regard to the establishment and operation of the ASEAN Single Window.

Figure 11 Entity Relationship Diagram



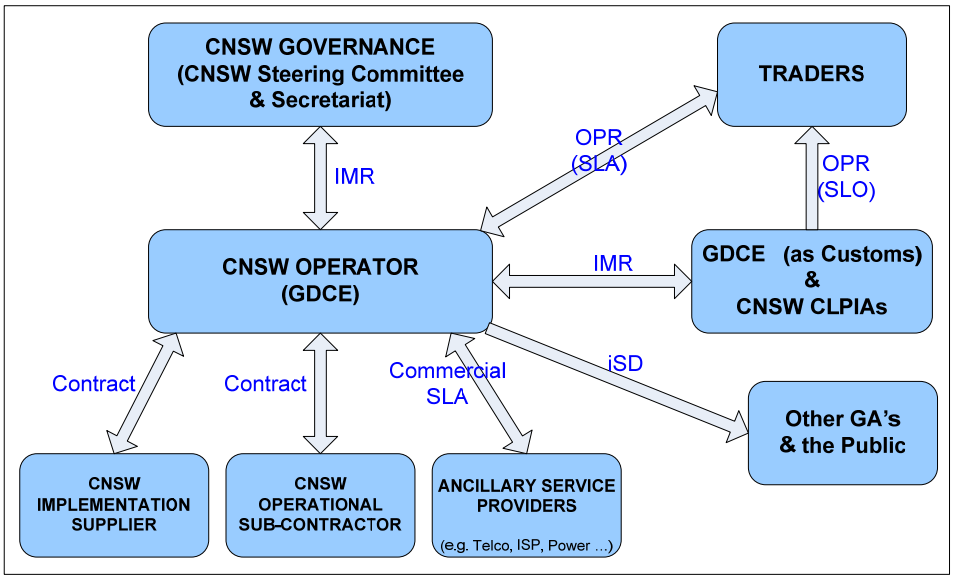
Report #208 on Data Harmonization constitutes a first step towards full Data Harmonization. The report did not aim to provide a complete catalogue of all data elements that will come under the scope of the CNSW. In the time available for this technical assistance it was not possible to collect all the sample materials (forms, documents, etc.) from all of the agencies visited that form part of their operation and, in order to compile the final catalogue, the remaining agencies not covered in this initial study would need to be brought within the scope. It is also likely that provincial variations may need to be taken into account. The materials that were collected, however, were sufficient to allow the development of a substantial indicative model which can be built upon to arrive at the future complete HDM. The next step would require all the stakeholder government agencies to review and adopt the Harmonized Data Model as the cornerstone of the CNSW system design.

3.6 SERVICE FUNCTIONS DESIGN

Report #203 Service Specifications for CNSW Implementation and Operation details the proposed services that will be needed for the build and then ongoing operation of the CNSW and also provides model contracts and agreements for said services, as required by the terms of reference for the technical assistance. The report draws from the *Report #201 Vision for CNSW*, and good practice knowledge and experience.

CNSW implementation and ongoing operation will require inputs of goods, services and technical expertise from external suppliers – with coordination and management by the GDCE, the CNSW Operator. The service providers for CNSW and the type of relationships that would exist between them are illustrated in Figure 12.

Figure 12 Service Provider Landscape



IMR – Inter Ministerial Regulation
OPR – Operational Regulation (in form of SLA or SLO)
iSD – internet Service Description (internet / leaflet)

The key parties involved in service delivery for the CNSW are:

- *GDCE* during implementation phase and during ongoing operation as system owner and operator
- The *primary implementation supply partner* (the contract supplier potentially responsible for provision of ICT infrastructure and software design capability during initial implementation)
- The *operations support supplier* (the contractor that will be engaged to support GDCE for ongoing system operation – after implementation)
- Government Agencies implementing SLA /SLO through regulation as already described in section 0

It is incontestable that CNSW Operator will require a technology partner (or partners) for at least a significant proportion of the CNSW Implementation. It is expected that the most likely arrangement would be for a turnkey provider of goods and services for the build and implementation and operationalization of CNSW. A turnkey approach has many commercial, technical, and risk-mitigating benefits and should be seriously considered by CNSW Operator as the appropriate approach.

For the purposes of *Report #203* a turnkey contract is assumed, with that contract also extending to support and maintenance of the ICT and specific application software solutions. Service specifications for implementation are therefore framed against a turnkey approach and a model contract is included as required by the terms of reference for the technical assistance. These service specifications would be largely

applicable, *mutatis mutandis*, in the event that CNSW Operator elected to pursue a different acquisition model.

The services that need to be performed by the CNSW Operator (GDCE) during the implementation phase and for ongoing operation shall entail:

(1) During Implementation Phases
    a. Overall responsibility and authority for CNSW implementation
    b. Contract Management for all suppliers for CNSW implementation
    c. Project management, coordinating the inputs and commitments by all stakeholders and suppliers for CNSW Implementation and including progress reporting
    d. Authority over requirement definition and design decisions and details, coordinating also the requirements and design for stakeholder CLPIA
    e. Acceptance management for all inputs whether supplied under commercial contracts or inputs performed by other stakeholders
    f. Communications dissemination to stakeholders (esp. CLPIAs and traders) concerning project design, progress monitoring and coordination of commitments

(2) During ongoing operations
    a. Long, medium and short term business planning
    b. Contract management for all suppliers for CNSW operations
    c. Ongoing operational management services
    d. Help desk service
    e. Trader and government officer registration service
    f. Financial control and reporting
    g. Maintenance of web pages content and monitoring and responding to 'contacts'
    h. SLA monitoring and reporting
    i. Coordination of stakeholder forum to study CNSW operational performance
    j. Acceptance management for all inputs
    k. Communications dissemination and other assistance to stakeholders
    l. Performance reporting

The services that need to be performed by the CNSW Implementation Supplier under contract to, with the full knowledge of and oversight by the CNSW Operator (GDCE) are:

(1) Project management
(2) System engineering, configuration, data conversion and data take-on
(3) Physical infrastructure supply, works, and installation
(4) ICT supply and installation
(5) Assistance to the change management program
(6) Assistance to communications (stakeholder outreach)
(7) Assistance with training
(8) Acceptance assistance
(9) Technical and operational assistance
(10) On-call support
(11) Support and maintenance

The services that need to be performed by the CNSW Operational Sub-contractor under contract to, with the full knowledge of, and oversight by, the CNSW Operator (GDCE). The services, outlined in some detail with *Report #203*, are:

(1) Management and consulting services
(2) Operation and administration
(3) Help Desk.

3.7 TECHNICAL ARCHITECTURE ESTABLISHMENT INCLUDING STANDARDS AND INTEROPERABILITY

For CNSW the key purpose of the functional and technical architecture is to establish an agreed basis upon which specifications for application software, technical infrastructure and attendant services would be elaborated for the operation and management of CNSW. The specifications would thereafter form part of the necessary bidding documents for tender and selection of an appropriate service provider(s) and delivery, in partnership with the nominated operator of the CNSW, GDCE, of a comprehensive and integrated single window solution.

The Functional and Technical Architecture (F&TA) for CNSW is contained within *TA Report #204 Functional and Technical Architecture* and is synthesized from several influences including the government's strategic choices for single window operation, views of traders, the desired scope of CNSW implementation, volume of trade transactions and commercial and financial considerations. Other key influences include international guidance for National Single Window (NSW) implementation, industry trends in technology, minimum infrastructure requirements necessary for modern, high-availability, scalable, ICT enabled single window operation and operationalization imperatives.

The approach to the CNSW F&TA relies on international practices in selected National Single Window implementations and in particular the World Bank publication: *Preparation of a National Single Window - A Blueprint for Implementation (Report No. 7855 - 78533)* which was researched and compiled by the PM Group team. Central to this Blueprint is UN/CEFACT's Recommendation No. 33 and 35 and ASEAN's definition of a Single Window:

- A single submission of data and information;
- A single and synchronous processing of data and information; and
- A single decision-making for customs release and clearance of cargo

The basic premise of this definition, and which is pertinent in the context of the technological solution for the CNSW, is that a single window will provide a simplified relationship with each trader through a unified and common interface to all regulatory agencies and as a key development for trade facilitation.

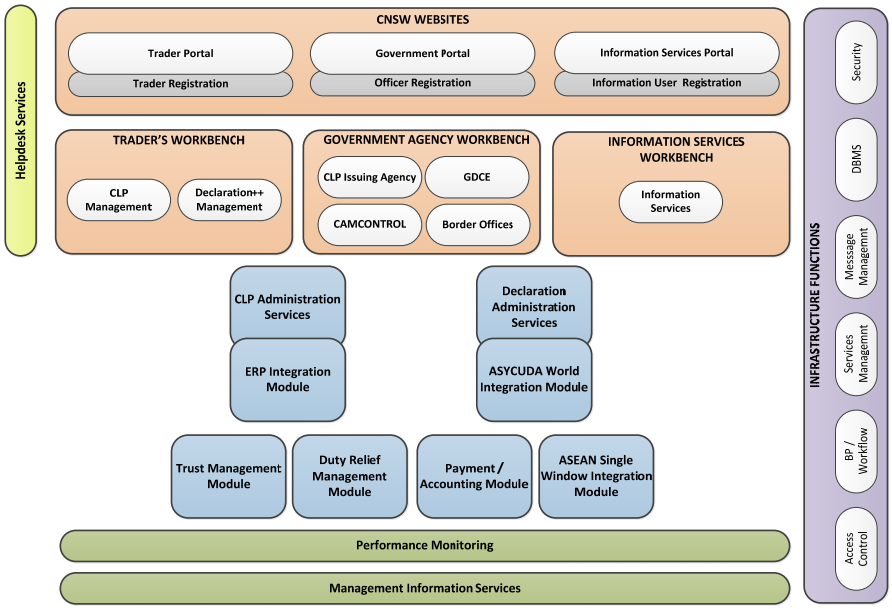
Cambodia aims to implement business procedures and systems for the clearance of goods whereby an interested trader (directly or through a broker or agent) would interact on-line in real-time through a single entity (an electronic window) for the submission of each application for various import/export certificates, licenses and permits and for each customs clearance declaration, use that electronic window as the channel for subsequent intermediate transactions if and when necessary, e.g., when applications / declarations are subject to corrections and clarifications, and to receive the final transaction that obtains the certificate, license, permit, or release note for the goods. The ideal would be for a turn-around time of seconds and without the need for human intervention.

The F&TA elaborates on an architecture model to deliver a NSW solution for Cambodia and which is described in subsequent sections of the F&TA in four dimensions: (i) Applications; (ii) Data and Messaging; (iii) End-user Communications; and (iv) Server and Network Infrastructure, which are summarized below.

3.7.1 Applications: Processes and Functional Architecture

High-level functional sets to be provided by the CNSW are deduced from the influences mentioned and are described in terms of functional scope: concept of operation and functional content as illustrated in Figure 13.

Figure 13 CNSW Functional Model



The functional scope of CNSW is summarized as follows:

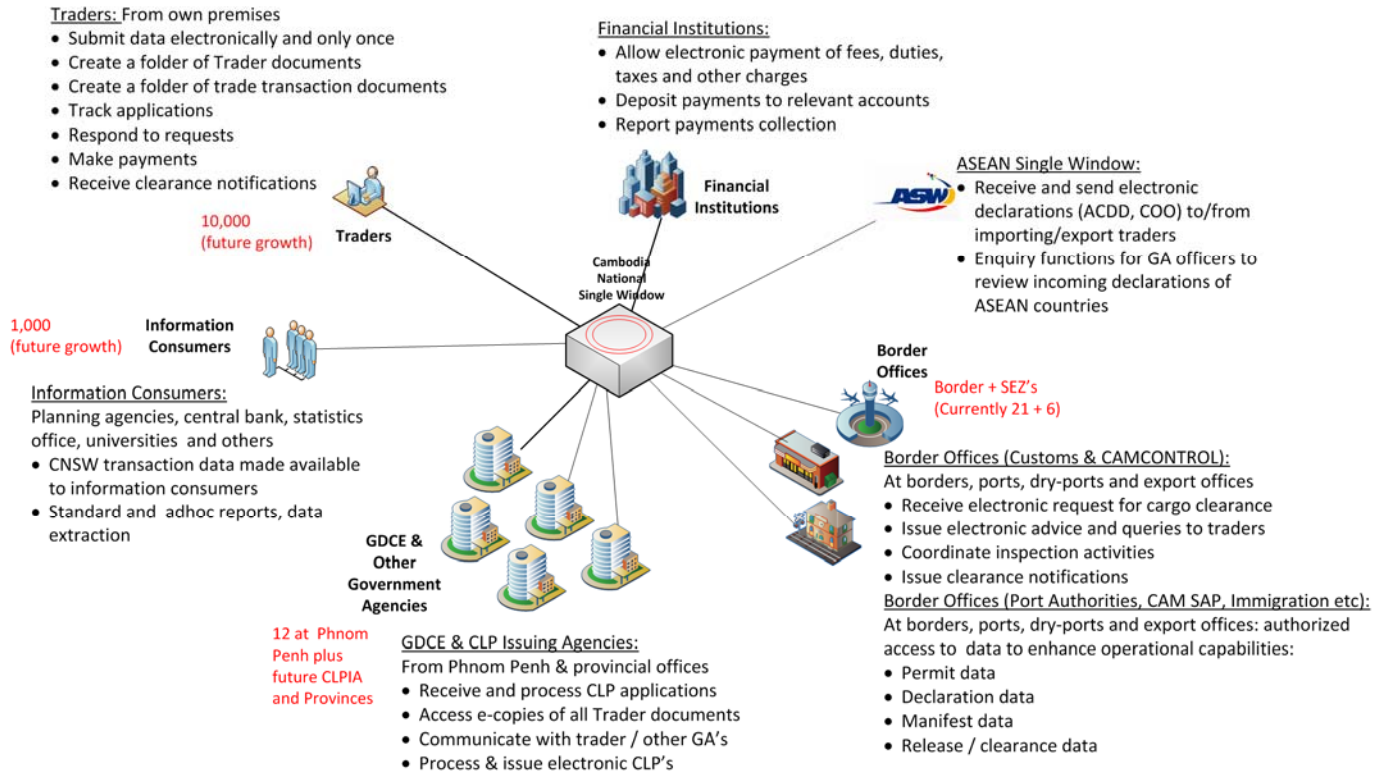
a. CNSW will present an internet based web-portal for access to the Single Window for three distinct user groups: Traders, Government Agency Users and Information Services Users.
b. Through each of the three portals specific system functions and tools will be accessed utilizing separate Workbench functional sets of a Trader Workbench, Government Agency Workbench and Information Services Workbench.
    (i) Registered traders will be able to use the Trader Workbench to prepare and submit all necessary applications for Certificates, Licenses and Permits (CLP's) and also prepare and submit Customs declarations, view their processing status and receive notifications of issue and clearance advice.
    (ii) Through the Government Agency (GA) Workbench four categories of government users are supported: (a) the CLP Issuing Agencies, (b) GDCE, (c) CAMCONTROL and (d) border offices (Customs and CAMCONTROL), all with specific tools to support their processing of needs (further elaborated below).
    (iii) Through the Information Services Portal information consumers will be provided a set of tools to view and extract relevant and authorized information on trade and transactions. Selected information consumers may include GA's, National Statistics offices, National Bank and others as decided.
c. Functions will be provided within the GA Workbench to support the management by GDCE of:
    (i) Duty relief concessions which can be applicable to certain goods when imported under a relevant duty and tax free schemes including those that require management of master lists;

(ii) Permits based on assessments of declarations for prohibited and restricted goods pursuant to Anukret 209 (2007);
(iii) Approvals of the Customs classification and valuation for imports as assessed by the Techniques Department.
(iv) Permits of the Customs Excise Department for the import of petroleum products.
(v) Permits issued by the Customs Free Zone Department for movement of goods into and out of Free Zones.

d. Functions will be provided within the GA Workbench to support CAMCONTROL regarding its administration of 'certificates' for imports of prohibited and restricted goods pursuant to Anukret 209 (2007) (*pre-arrival certificates*).
e. Functions will also be provided within the GA Workbench to allow the electronic interchange of CLP data from issuing agencies to the border offices involved in goods clearance and release (GDCE and CAMCONTROL) and coordinate those activities as may be required through a further workflow process at the border.
f. Specific functionality will be provided to allow CNSW to communicate with ASYCYDA World and GDCE's risk management computer systems (TCMS and CRMDBS), and pass both customs declarations, supporting documents and messages between the systems.
g. Similarly, electronic data interchange will be provided between CNSW and the systems of the government agencies (where they may exist) involved in issuing CLPs for international trade.
h. For government agencies that do not have existing compatible systems CNSW would support participating agencies to automate and streamline their front-office processes for CLP application and issuance. CNSW will therefore provide an electronic workflow management system (WMS) for front-office processes based on a common model and configured explicitly for specified issuing agencies and specific CLP processes.
i. Access to authorized users within stakeholders with interest in CNSW-held data in support of their operational needs, e.g. port operators with an interest in manifest data and clearance documentation, shipping agents, and potentially immigration and police authorities
j. Transmission of key trade documents to and from the ASEAN Single Window (when established), starting with the capacity to join the ASW pilot being implemented by ASEAN Member States.
k. Over time, the CNSW will provide a facility for the electronic payment of CLP and border clearance fees and charges and also duty and tax payments, and allow for such payments to be collected in one financial transaction and duly allocated thereafter to the accounts of relevant agencies.
l. Automatic and real-time performance monitoring and reporting against service level agreements to ensure performance and service consistency and reliability.
m. Statistical data on all aspects of the trade transactions, including CLPs, sufficient to allow the Government of Cambodia and other information consumers to monitor both trade data and trends, and performance of the system itself.
n. Over time, CNSW could participate in a wider community of electronically connected systems such as might be operational in port communities.

Functional scope is illustrated in overview in Figure 14.

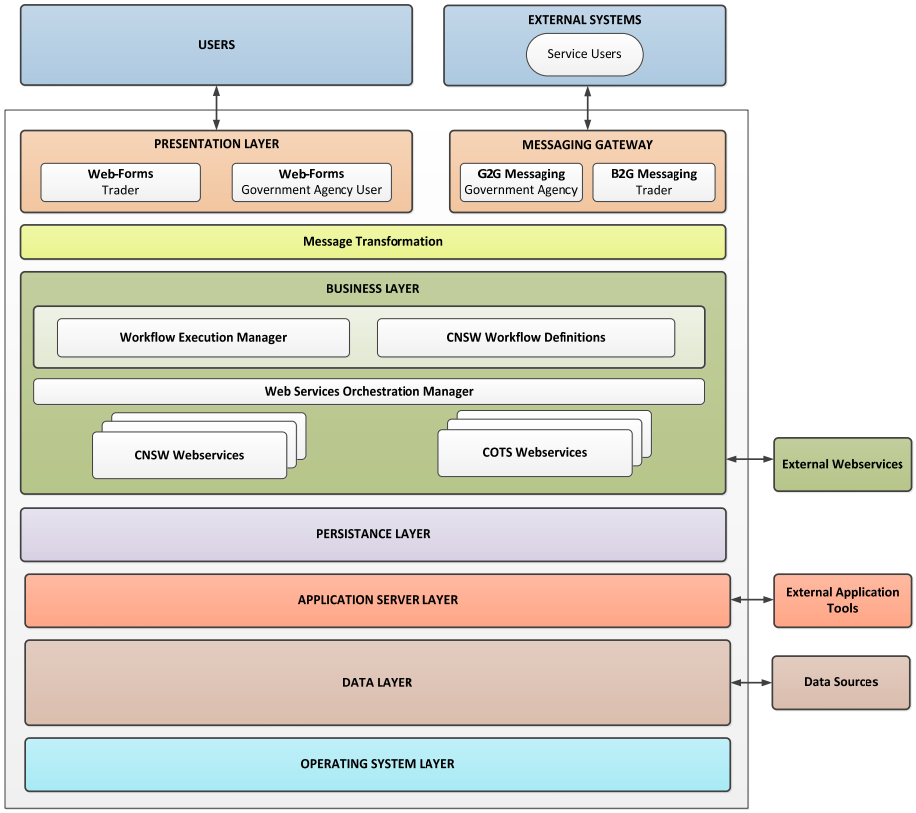
Figure 14 Overview of functional scope



The applications architecture for CNSW is illustrated in Figure 15 using a multi-layered model showing the different conceptual elements that make up the system. The architecture is conceptualized in parallel with the other F&TA dimensions: end-user, data and message, server and operating software, network models and a management model.

a. ***Presentation layer****:* The user interface through which a user interacts with the CNSW and which will be via a standard internet browser (e.g. Internet Explorer, Chrome, Firefox etc.).
b. ***Messaging Gateway****:* The facility for managing the receipt and sending of messages between CNSW and external systems.
c. ***Messaging Transformation***: A facility for performing any necessary translations of the messaging protocols, e.g. between XML/EDIFACT and the CNSW protocol.
d. ***Business Layer***: Organizes the Business Objects around which the CNSW application operates.
e. ***Persistence Layer***: Separates the database from the business functions to isolate the upper layers of the application from the specific database engine / technology.
f. ***Application Service Layer***: Managing multithreaded application units and enabling the layer to handle many aspects of programming automatically.
g. ***Database Layer***: Providing all necessary database management services. Typically implemented through commercial enterprise database solutions, e.g. Oracle or Microsoft SQL Server.
h. ***Operating System Layer***: Providing control over and between the various computer servers and storage devices. Most likely to be run on a Microsoft Server or Linux/Unix variant.

Figure 15 CNSW Application Architecture Model



3.7.2 Data and Messages

The data model is described in terms of a data model, data implementation model and a message model.

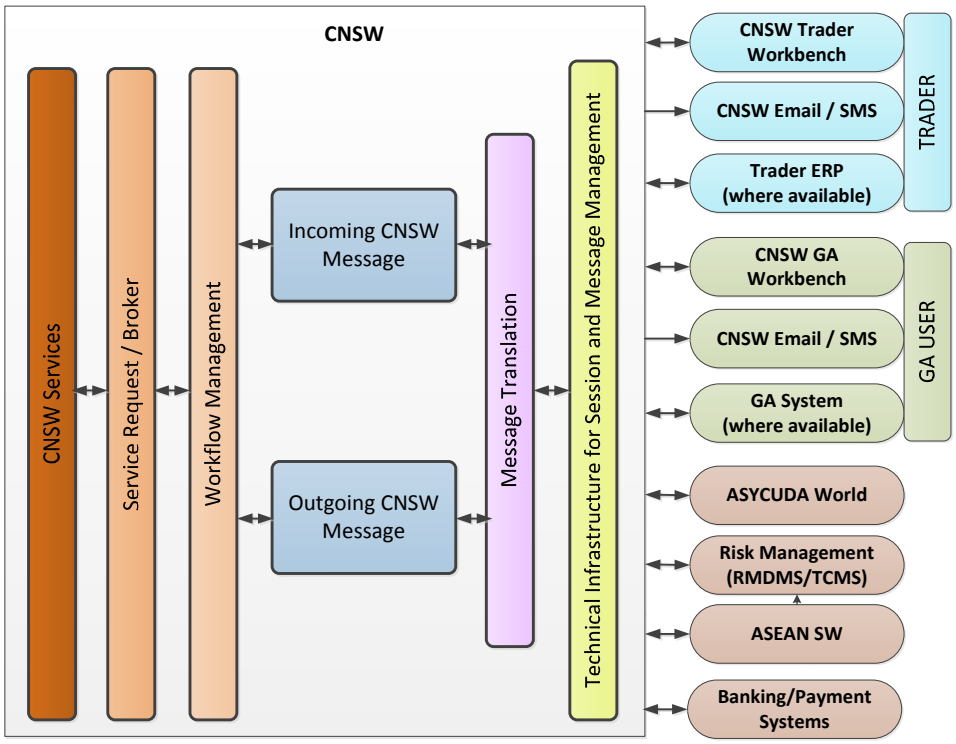
a. The Data Model for CNSW is shown as a high-level conceptual data set. At this high level, the data subsets that should be included in CNSW database are identified aligned with applicable segments of WCO Data Model version 3 definitions for data structures and attributes (and by extension UN/TDED and UN/LOCODE definitions). (*Report #208 Data Harmonization* elaborates).

b. The Data Implementation Model. CNSW will be configured to provide reliable services through clustered servers and redundant, multi-component architectures. For business continuity the event of unexpected down-time it will operate over two physical data centers each with a clustered server configuration for database storage and hosting the one single logical database across both sites/servers. Database replication would be used to maintain equivalence of stored data, provide a level of business continuity in the event of scheduled maintenance or failures at either physical site, and with need to provide performance enhancing load balancing.

   The architecture requires proven, commercially available and supported database management software that must be ANSI SQL compliant, e.g. MS SQL Server and Oracle. Physical storage would be at each site: SAN clusters with RAID 1 disk of sufficient capacity with dual fiber channel, dual disk controllers and dual power supply connecting the SAN cluster and DB server cluster.

c. The Message Model (for interoperating software systems and subsystems, and for web services) is illustrated in Figure 16 and relies upon both internal and external messaging protocol.

Figure 16 CNSW Messaging Model



(i) ***CNSW Internal Services***: A single message standard is preferred for messages exchanged by CNSW internal services: a *to-be-defined* CNSW XML protocol determined by the eventual solution.

(ii) ***CNSW* External Services**: Seven protocols are required for interoperation:

For CNSW Traders, GA and other users:

a. CNSW XML Protocol – a subset of the full CNSW XML Protocol for messages with Traders, participating CLP issuing Agencies and other users (i.e. Governance and Operational Users, and Information Consumers). The protocol would be WCO Data Model v3.2 compliant and would likely extend the data model for the needs of CNSW and CLPIA's in CNSW transactions.

b. Supplementary message to CNSW users: via Email / SMS Alerts and advices may be sent as Email (according to the user's channel preferences). The message layout would be defined as part of the eventual solution.

c. For external Trader and GA systems (where available) using an ebXML protocol. The message layout would be defined as part of the eventual solution.

d. ***For ASYCUDA World***: ebXML UN/EDIFACT messages, in particular:
   - CUSDEC: Customs Declaration Message[6] (as applied for ASEAN Customs Declaration Document (ACDD)
   - CUSRES: Customs Response Message
   - APERAK: Application Error and Acknowledgement Message

e. ***For GDCE Risk Management Systems*** [Customs Risk Management Database System (CRMDBS) and Trader Customs Management System (TCMS)] there is the potential for exchange of risk related information with the CNSW Trust Management module. Potential

[6] http://www.unece.org/trade/untdid/d09b/trmd/cusdec_c.htm, cuscar_c.htm etc

exchange would be implemented using an XML protocol. The message layout would be defined as part of the eventual solution.

f. ***For ASEAN Single Window***: For exchanges between NSW and ASW (and beyond ASW) would be implemented in the *yet-to-be-defined* ASW message protocols.

g. ***For Banking and Payment***: CNSW will allow for the payment of fees, duties and taxes as required by CNSW transaction through electronic transfers. Recommended protocols shall include UN/EDIFACT messages
   - DIRDEB: Direct Debit Message,
   - CREADV: Credit Advice Message.

3.7.3 End-user Communications

The End-User model is defined for the following user classes:

a. *Traders* – via CNSW kiosks, their own internet connected devices (PC, notebooks, tablets and mobile devices), SMS device, and potentially via system-system messaging using a leased line in place of internet connections for high volume traders.

b. *Government Agencies* – it is anticipated that the CNSW would entail the provision of technical infrastructure at all CNSW connected GA's including PC's, mobile devices, printers and scanners and specifically through use of dedicated circuits in addition to those methods as traders, especially for mobile officers.

c. *Other users* - including CNSW Operator, CNSW Governance Entity, Help Desk, information consumers and broadcast recipients (police, immigration, etc.) using standard end-user devices over the internet.

3.7.4 Technical Infrastructure: Server and Network Configurations

The technical architecture is described in a manner consistent with operational requirements and the various influences and preferences for a modern 'good practice' solution. The model also takes in to consideration the present infrastructure implemented by GDCE for national ASYCUDA World operations.

Characteristics for the server architecture which is illustrated in Figure 17 include:

a. Dual central computer sites, in active / passive mode, with replicated technical infrastructure for CNSW production services. (The main and secondary data centers are likely to reside on premises of GDCE – at the GDCE headquarters and at GDCE offices at Phnom Penh International Airport (PPIA));

b. N-tier server architecture for production services with separation of server by role, especially for infrastructure servers, database servers, application servers, and web-servers;

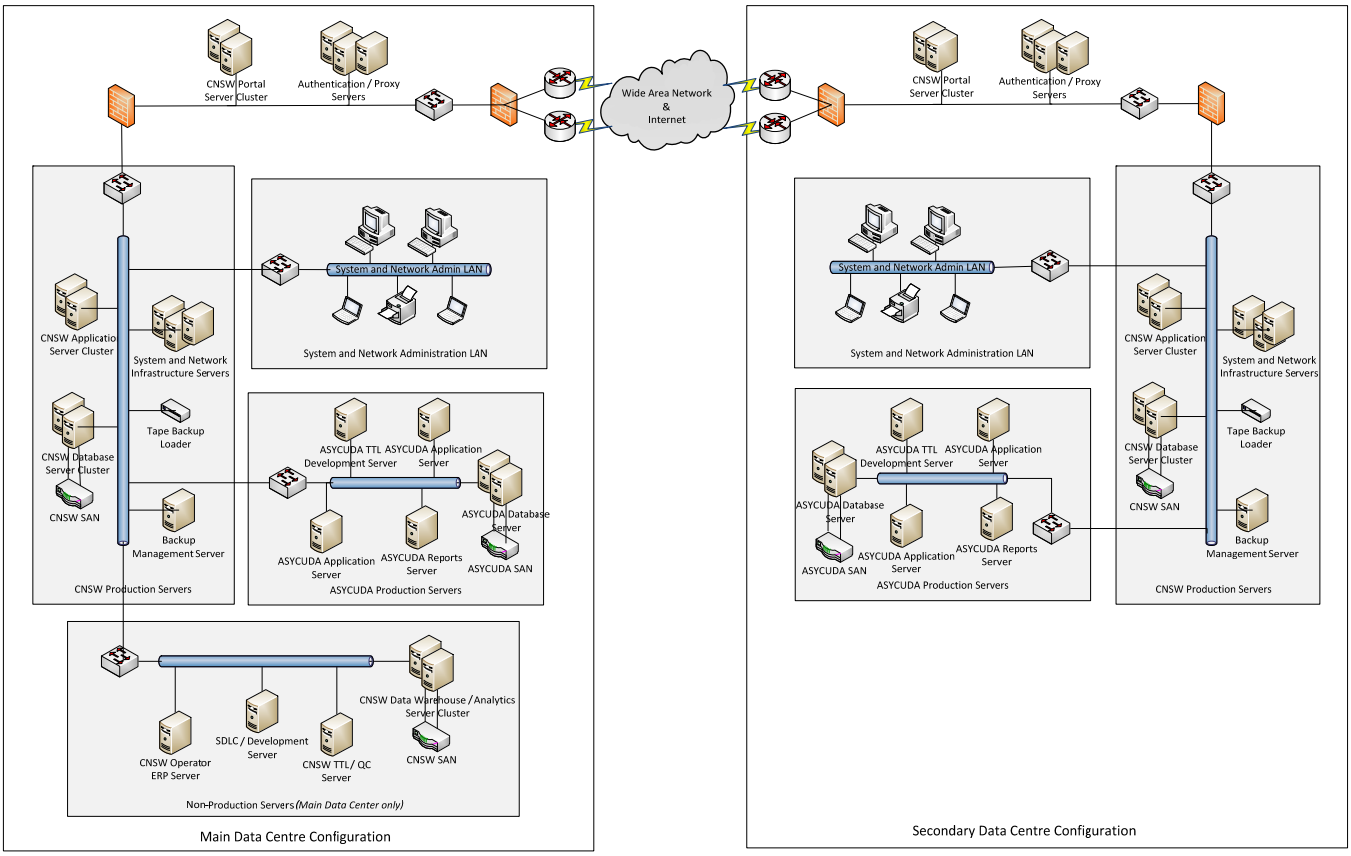
c. Production data held on SAN devices at each central site with multiple fiber channel access to database servers, with database level data replication;

d. For Production servers: multiple-redundant component-based architectures in a clustered operation;

e. Separated infrastructure (servers and SAN) for business intelligence / information services;

f. Separate infrastructure for non-production services: transition-to-live (quality control / testing), training and development.

Figure 17 Main and Secondary Data Centre Configuration



Key characteristics of the network infrastructure which are further described and illustrated in *Report #204* include:

a. High-speed and resilient data center interconnection (dual WAN and ISP connections)
b. A Wide Area Network (dedicated circuit) for connection to Government Agencies (GDCE, CAMCONTROL, CLPIA's and border agencies) and spread across the geographical area of Cambodia. Refer to Section 11 for the list of potential sites
c. A dedicated link between Main and Business Continuity Data Centers to support direct replication
d. Internet gateway for trader interoperation
e. A Virtual Private Network (VPN) over ISP's for connected government agencies (and where WAN link is less feasible/justifiable)
f. ASEAN Single Window connection/data transfer facility (mode of connection as yet to be defined)
g. Internet connection for mobile and travelling officers (tablet and smartphone compatibility)
h. Internet connection for other authorized users
i. Integration with SMS services

The F&TA also presents a comprehensive list of transaction and CLP processing volumes and candidate CLP types for CNSW implementation providing a clear scope for implementation. In summary, there is need for:

a. CNSW to be connected to GA's in the 8 nominated departments in Phnom Penh of the 4 in-scope government ministries, together with 4 departments of GDCE that are involved in the issue of CLP's.
b. To connect all border and dry-port checkpoints which presently use ASYCUDA World and which number 21 locations plus the Export office at GDCE headquarters. There is the potential that a single connection may suffice at the border location where Customs and CAMCONTROL facilities are shared

at border locations, but where separate facilities exist two connections may be needed with potential for up to 40 office connections required.

c. CNSW would also be required in the designated Special Economic Zones (SEZ) wherein a single office facility is shared between a number of government agencies (e.g. Customs, CAMCONTROL, and Ministry of Commerce). There are at present 6 SEZ operational with a further 10 planned.

Further sections of the F&TA *Report #204* describes certain other aspects implied by or necessary for the functional and technical architecture and includes short narratives noting pertinent aspects of, amongst others: Administration and organization of CNSW, Security, Services to operate, support and maintain the new ICT, legal issues to be addressed, and a breakdown of performance parameters required of the CNSW to ensure a high level of service and consistency in operations.

3.8 Legal Infrastructure Institution

Legal infrastructure was not studied as part of the TA. However, this component has been identified as a critical success path issue for further effort in *Report #201 Overall Vision for CNSW, Impediments to Realizing the Vision and Recommended Actions.* Establishing a sound legal basis for the operation of CNSW is necessary for achieving the Vision.

Progress towards an applicable law on electronic transactions, legalization of electronic documents and data exchange must be monitored. Many economies with Single Window facilities have enacted several related laws and regulations, e.g. Electronic Transaction Law, Digital Signature Law, Computer Crime Law, and Data Privacy Law. The law on electronic transaction would need to be enacted to promote the use of electronic transactions as another legal method of transaction and to recognize the legitimacy of the electronic documents as well as other processes including the endorsement of the methods of sending and receiving electronic documents, the use of electronic signature, and the admissibility of evidence in the form of electronic documents.

All legal instruments underpinning the operations of GAs need to be assessed for suitability to facilitate electronic data submission/exchange and/or an electronic signature system in a paperless, electronic, on-line operation and modernized and enacted where necessary.

The legal documents such as Sub-decree or Prakas concerning the delegation of power and authority to a lead agency is necessary. Legal certainty concerning the sharing of information among authorities and agencies, as well as organizational arrangements for the operation of a Single Window, may need to be established.

The establishment of legal infrastructure requires competent advice to review the draft Law on Electronic Transactions and will need, eventually, submission to the National Assembly for its consideration. ASEAN technical assistance has been requested to assist Cambodia under the ACTI program in performing a legal gap analysis, drafting recommended revisions and submission of these to the competent authorities.

3.9 Business and Governance Models

Governance of CNSW pertains to the organization and functions for decision making, oversight of the operation of CNSW and protection of stakeholder interests. *Reports* #202 *Governance and Operational Model for CNSW, #212* I*mplementation Plan for the CNSW* and *#211 Revenue Model & Fee Structure*, provide recommendations for a governance mechanism for monitoring, ensuring and enforcing the implementation and operation of the new system and outlines investment and operational costs for CNSW including recommendations on fee structure for the ensuring sustainability.

3.9.1 Governance Model

The governance and operational mechanism suggested in *Report #202* is framed in the context of RGC decision and policy. The RGC does not accept the strategy of private sector ownership of the CNSW and has decided that CNSW will be developed, owned and operated by the government, with GDCE being designated as the lead agency for its development, management and operation. It has been recommended that the CNSW Steering Committee to continue as the CNSW Governance Entity.

The CNSW Steering Committee as the governance body will be charged with responsibility to direct, guide, influence and shape the concept and scoping stages of the CNSW once the system evolves from 'concept' (now) to 'implementation' (in the next period) and then to 'operations'.

Governance during implementation is described in section 4 of this Blueprint.

During operation of CNSW, the CNSW Governance Entity has the following roles and responsibilities:

(1) For performance monitoring:
   a. to monitor the ongoing performance and service delivery of the CNSW Operator in terms of its SLAs with Traders and Government Agencies and any other users and also that the CNSW Operator works efficiently, including the help desk service or customer service; and
   b. to monitor the ongoing performance of participating Government Agencies in terms of the SLOs that the Government Agencies publish in the context of operation through CNSW, including any customer service unit that is available within the GA's
(2) For innovation:
   a. to monitor and assess national and international environmental threats and opportunities, e.g. as arise through improving technologies, e-business trends, modern supply-chain trends, electronic trade single window trends, and evolving or emerging international agreements
   b. to guide its future technical requirements, technical design and commercial practices
(3) For establishing and ensuring necessary protection of the data and processes of Traders, Government Agencies, and other users and stakeholders
(4) For protection and / or promotion of the national interest, i.e. ensuring the alignment of CNSW services with relevant government policy
(5) For commercial policy decisions, e.g. to declare any changes to the cost or fee values and structures

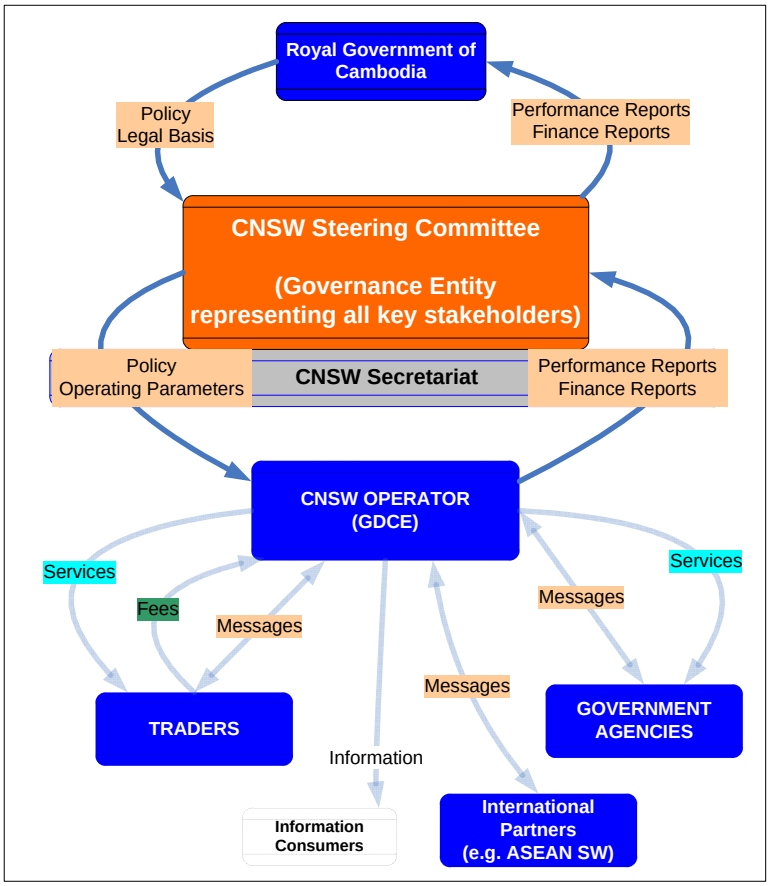
A full-time 'Secretariat' is proposed to support the work of the Steering Committee, with sufficient financial and technical resources, and staffed by skilled professionals with expertise in: (i) conducting analysis of performance of the CNSW Operator; (ii) accounting for that performance to the public and Government Agencies; (iii) large scale, robust, on-line national ICT services; (iv) accounting and financial analysis, and (v) research and policy analysis for trends in ICT e-business, modern supply-chain, and electronic trade single window.

The Secretariat may be considered to be an institutionalization and strengthening of the current CNSW/TAG and CNSW/PT. Organizational options for a permanent well-resourced CNSW Secretariat that need to be considered by the CNSW/SC include:

(1) An organizational unit within GDCE
(2) An organizational unit within another GA, e.g. Ministry of Economy and Finance
(3) New specialized government agency

Diagrammatically the vision for the Governance Model could be represented as illustrated in Figure 18.

Figure 18 CNSW Governance Model



3.9.2 Operational Model

GDCE has been designated as the leading agency for development, management and operation of CNSW. GDCE would therefore operate the CNSW to the defined service level agreements and it may seek specific technical services to undertake the initial ICT system build, its implementation and to ensure sustainable operation of responsive, high-availability, reliable systems that keep pace with technological innovation.

For CNSW there are two distinct phases, albeit that the two phases may overlap in time: (i) an implementation phase and (ii) an operational phase. The roles and responsibilities of the CNSW Operator (GDCE) and technology partner for CNSW implementation are further described in section 4 of this Blueprint and in greater detail in *Report #203 Service Specifications for CNSW Implementation and Operation*. *Report #202* focuses primarily on a model for technical capacity in the operational phase with further specification also in *Report #203* for the roles and responsibilities of the CNSW Operator (GDCE) a technology partner during operation.

A short overview of the implementation phase is provided below.

(1) *Implementation Phase*

There is currently no adequate physical, technical and service architecture to serve as a basis for CNSW in Cambodia. Therefore the facilities for CNSW need to be acquired through a procurement project to attract technology partners with whom the CNSW Operator (GDCE) can form a trusted relationship. The required facilities would entail:

- Specifically-configured and general-purpose application software to enable the functions needed for CNSW (This may be a Commercial off the Shelf solution, a development using advance application development tools for Workflow Management solutions, or a combination of such tools.)
- Necessary physical infrastructure at the primary and business-continuity site (i.e. data center build and fit-out)
- Technical infrastructure to enable the functions to support the processes, i.e. software, devices, appliances, equipment and materials for wide area data telecommunications networks and equipment, local area networks, computer servers, computer center infrastructure servers, infrastructure software
- For Government Agencies at each roll-out-site, the acquisition by CNSW project of WAN-DTE and LAN software, devices, appliances, equipment and materials, and end-user devices such as desktop computers, mobile computers, mobile devices such as tablets and smart phones.
- Similarly the project would also entail similar acquisitions for the CNSW Steering Committee and Secretariat and also for the operational and facility management personnel of the CNSW Operator.

The technical capacity needed for the acquisition, installation, configuration, roll-out, enhancement, and support and maintenance of a service of the scale of CNSW as envisaged does not reside in full within GDCE at present. The hardware, software and service solutions needed to comprehensively cover CNSW direction, definition, acceptance and operation will require an infusion of expertise in new products and new management technology.

(2) *Operational Phase*

Refer also to Figure 18 which illustrates the roles and activities of CNSW Operator (GDCE) and other actors (Traders, Government Agencies, and others) in the operation of CNSW.

The operation of CNSW entails provision of a service to Traders and Government Agencies including offices of GDCE and Customs offices. This is distinctly different to the current operation for ASYCUDA that is essentially a facility for its own organization of Customs offices. The needs of all stakeholders in CNSW will require prioritization of resources to meet service level agreements for CNSW. The CNSW Operator requires an organizational culture prioritizing a 'service provider ethos' (while the broader GDCE maintains (and in fact strengthens) its ongoing regulatory role.

It is recommended that operation of CNBSW is undertaken by a newly created and physically separated organization (e.g. The Office of the CNSW Operator) within the GDCE staffed GDCE with support from external service providers for specific skills under the direction of a DDG or the DG in the position of a CNSW Chief Operating Officer as a clearly designated role.

The overall CNSW program should include a thorough, long-time-frame, complementary change management component for the CNSW Operator unit.

3.9.3 Fee & Revenue Model

CNSW financing would occur in two phases: (i) an implementation phase, which would be financed by the Royal Government of Cambodia, probably with the assistance of a development partner(s); and (ii) an operation phase, for which the first year of operation would be underwritten by RGC perhaps also with a development partner, and thereafter self-sustaining with a fee levied on users of CNSW to provide for operations, support, maintenance and enhancement. The CNSW financing proposal in *Report #211 Revenue*

Model and Fee Structure provides analysis and recommendations on fee structure to be paid by users of the CNSW and required revenue administration.

In formulating a user fee for the CNSW the following guiding principles have been taken into account. These principles are derived from international agreements, and in particular with WTO, discussions with GDCE and other CLPIAs and by taking into account international practice as well as the specific circumstances of Cambodia.

(1) The fee structure must be designed to only recover costs (broadly specified) and cannot be formulated to provide revenue beyond the defined level of costs. However, cost recovery can include funding for system improvements, modernization and expansion.
(2) The fee structure should be fair and transparent and perceived as being fair and transparent by users and clients.
(3) Fairness and transparency are enhanced by simple, non-complex fee structures which are easily understandable and which foster a willingness to comply on the part of clients and users.
(4) In an environment in which expanded trade is to be fostered and encouraged, fee structures should not be constructed so as to impose graduated fees on higher volume users.
(5) Payment of fees should be easy and efficient and the payment process should take full advantage of the system's automated capacity.

Based on the above guiding principles, and models used elsewhere, three potential models are considered:

(1) Registration and/or annual subscription fee for the traders (importers, exporters, brokers, agents, freight forwarders etc.) who will register for and use CNSW
(2) Fee based on data volumes
(3) Fee based on number of transactions (i.e. issued certificates, licenses, permits (CLPs) and/or Customs declarations).

Stemming from the guiding principles, *Report #211* suggest a simple formula for the calculation of the user fee:

$$\textbf{CNSW Usage Fee} = \frac{\textbf{Total Annual estimated cost of sustainable operation}}{\textbf{no. of CNSW usage fee events per annum}}$$

A *CNSW Usage fee event* is defined as the event (perhaps 'transaction') that triggers a payment of a fee being due for a usage of CNSW. For CNSW, the *event* is recommended to be SAD declaration by a Trader om-line through CNSW.

For reasons of equity and to minimize impediments to take-up of CNSW, the registration / subscription approach alone does not seem appropriate, however, it may be considered in association with a transaction-based fee. For reasons of simplicity and transparency, a data volume based approach has not been recommended. Due to the relatively low transaction volumes and so as to encourage acceptance of CNSW by Traders, a usage fee for obtaining a CLP is not recommended.

The report recommends a transaction based approach to fee setting and collection charged against each Customs declaration (SAD).

The indicative outcomes tabulated in the *Report #211* result in a first-year fee of USD 10 to USD 11 per Customs declaration, taking CNSW operational costs into consideration only. This indication is based on an estimated annual cost of CNSW operation of USD 3.5 million as detailed in Figure 19. The amounts listed at items 1, 2 and 3 in Figure 19 are drawn from *Report #205 Functional & Technical Specifications.* Item 5 is based on a schedule of indicative costs for a CNSW Secretariat listed in *Report 211*.

Figure 19 Estimated Total Annual CNSW Cost for Sustainable Operations

Operational Component	Per annum estimate USD
1. Operation of the ICT facilities, including possibly the Office of the CNSW Operator and the position of Chief Operating Officer 2. Recurrent services such as for data telecommunications, primary and back-up, power, water, and physical site maintenance 3. Support and Maintenance of the ICT facilities	2,675,000
4. Allowances for expansion, enhancement and modernization	Included above
5. CNSW Secretariat support the CNSW Steering Committee in its governance duties	655,000
SUB-TOTAL (rounded)	3,300,000
FINANCING CHARGE[7] (rounded)	170,000
TOTAL (rounded)	3,500,000

Figure 20 provides a breakdown of SAD volumes and resulting cost recovery fee by year.

Figure 20 CNSW Fee per Transaction – based on SAD volumes

	2013	2014	2015	2016	2017	2018	2019	2020
CNSW Total Operational Cost p.a. (USD)		$3.5 mill	$3.5 mill	$3.5 mill	$3.5 mill	$3.5 mill	$3.5 mill	$3.5 mill
Number of Import SAD p.a.	150,420	160,000	170,000	181,000	192,000	204,000	217,000	231,000
Number of Export SAD p.a.	127,360	136,000	145,000	154,000	164,000	174,000	185,000	197,000
Total Number of SAD p.a.	277,780	296,000	315,000	335,000	356,000	378,000	402,000	428,000
CNSW Cost-recovery fee per SAD (USD)	n/a	n/a	n/a[8]	$10.50	$9.90	$9.30	$8.80	$8.20

The actual fee level would be reviewed by the CNSW Steering Committee from time to time (say annually) when better information is known about (a) the costs that RGC elects to cover through CNSW usage fees, (b) the actual costs of operation and (c) project transaction volumes for the subsequent period.

Revenue Administration

In line with RGC policy, sustainable operation of CNSW would be underwritten by a CNSW usage fee (recommended to be on a per SAD basis) as described above.

It is anticipated that the collection and accounting of the CNSW usage fee would occur when a trader submits a SAD and that the collection would use e-payment facilitates within the CNSW on-line service.

There are additional opportunities to modernize revenue collection and accounting for all GAs participating in CNSW.

In the current environment traders make payments for transaction and other charges manually. This involves multiple stops to secure cash or bank drafts, visits to agencies to apply for or receive permits often involving a number of visits and transactions. Payments are made on a transaction by transaction basis and the process is labor intensive and inefficient requiring a considerable amount of time from traders, their agents or their staff.

[7] Calculated at 10% interest rate of 50% of annual SUB-TOTAL i.e. a recurrent credit for six months operating costs.
[8] First year of operation absorbed by RGC, perhaps with assistance of development partner per RGC policy.

CNSW workflows at CLPIAs would make e-payment facilities available for the collection of any professional service fees or any other CLPIA fee. The e-payment facility could be used by Traders to make deposits directly into the accounts managed by CLPIAs. It is anticipated that in the early implementation phase, CLPIAs may be slow to adopt e-payment methods. However, for the benefits of a modernized CNSW to accrue more fully, it is recommended that the modernization strategy for each CLPIA encompasses an automated and streamlined payment process. Traders would see additional real and measureable improvements in service by CLPIAs through introduction of the CNSW. E-payments and automated billing and payment would be a key feature of such improvements.

The following outlines suggestions for the model for revenue administration enabled through CNSW:

(1) A trader would need to pay a CNSW usage fee per SAD transaction regardless of the purpose of the SAD. Two options could be applied with both in operation long-term:
    a. Actual Payment per declaration at a point in the cycle to be determined that could be at the time of lodgment or as part of the final step before Customs clearance.
    b. Deferred payment per declaration for authorized traders (e.g. under a form of authorized economic operator facility) whereby such traders would have a periodic, say monthly, billing.
(2) All CNSW usage fees should be managed in such a way as to quarantine the monies for the intended purpose, viz. operation, support and maintenance of CNSW, broadly defined.
(3) For reasons of good governance the CNSW Steering Committee would have ownership and oversight of all accounts and ultimately direct the allocation of funds by the CNSW Operator to various purposes such as necessary for operation, support and maintenance.
(4) In order to react responsively to the demands of providing a robust, reliable and responsive CNSW service, the CNSW Operator within GDCE would have authorized access to the CNSW Usage Fee accounts for disbursements to suppliers.
(5) CNSW would require an accounting system that was linked to the identification (trader registration) subsystem. The accounting system would require accounts payables, banking, remittances, accounts receivable, reporting and audit modules.
(6) CNSW requires an accounting keeping unit for oversight of the accounting system
(7) A trader would need to have an active subscription (that may attract an annual subscription).
(8) CLPIA would not have their revenue administration within CNSW. However, CNSW would provide facilities to modernize the collection and accounting of CLPIA fees where applicable:
    a. A payment step in each specific CLPIA and permit workflow
    b. Provision for electronic payment where that payment would be a transaction between the trader and the CLPIA through a commercial bank e-payment facility accessed through CNSW as part of the workflow
    c. Recording and reporting of payments transacted
(9) Traders would benefit from simplification of the payment step to have single payment for all duties, taxes, fees and charges related to the Customs clearance paid in a single step.
    a. This could be at the start of the process based on the trader's estimated value of duties and taxes, fees and charges. In the event of an uplift due to the procedures followed and / or findings of the Customs clearance process, an additional amount could be levied as part of the final step before Customs clearance.
    b. This could be at the conclusion of the clearance process as part of the final step before Customs clearance.

It is further recommended that the participating CLPIAs collaborate to identify ways to rationalize fees and fee payments to further simplify the relationship between Trader and GAs.

4 CNSW IMPLEMENTATION

This section provides summary of the technical assistance reports concerned with the implementation of the Cambodia National Single Window.

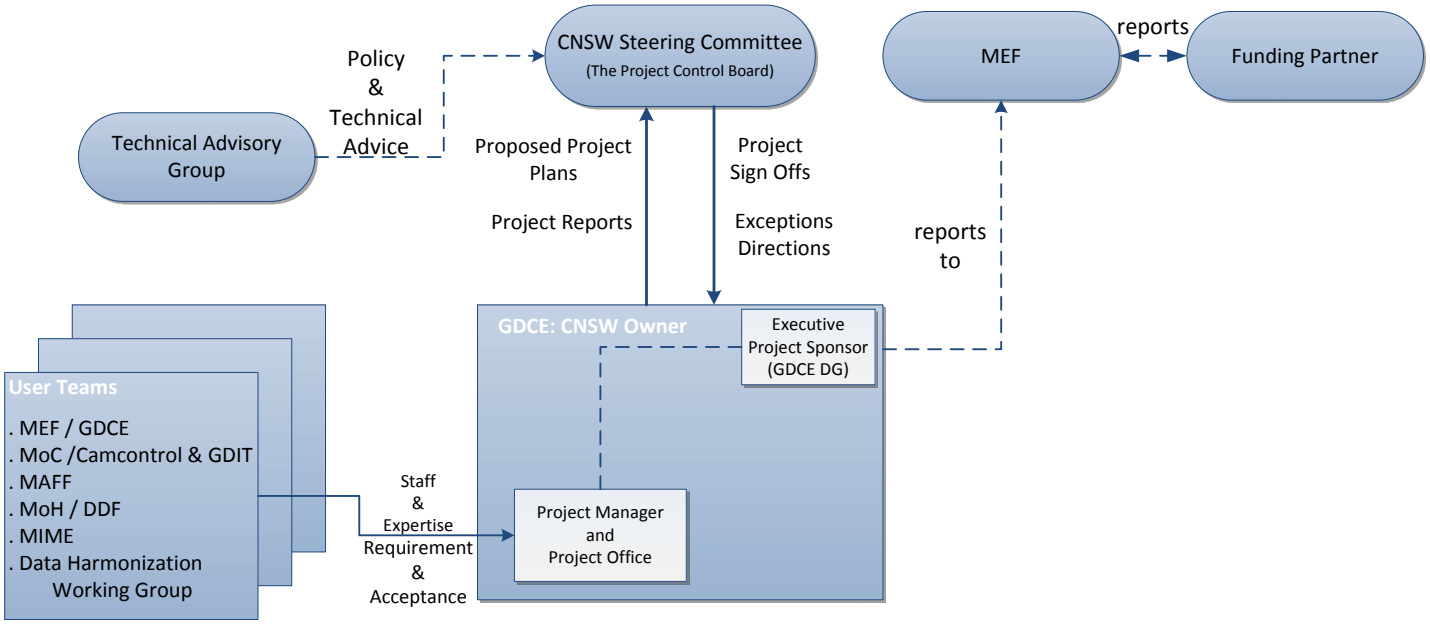
Report #212 Implementation Plan for the CNSW comprehensively proposes an approach for the coordination, management and oversight of the implementation phase of CNSW including those of IT infrastructure. It suggests the implementation phase of CNSW should be regarded as an 'ICT-enabled business modernization project' and to apply the principles of better practice project management to the specifics of CNSW.

4.1 IMPLEMENTATION MANAGEMENT

Effective implementation projects require effective governance mechanisms to ensure that the desired products are delivered to a required standard, on time and in budget. A governance/oversight approach to implementation is therefore suggested that recommends the CNSW Steering Committee (possibly reconstituted) could fulfill the role of 'Project Control Board' with responsibility for ensuring adequate resources and approving project scope, phasing and deliverables and for monitoring achievement and 'sign off' on outcomes and products.

Report #212 further suggests the establishment of a full-time Project Management Office in the GDCE, reporting to the Director General of GDCE as the project 'owner' and Project Executive Sponsor. A full-time project manager should be appointed and in support a Project Quality Assurance Advisor and Project Team appointed. Together, the Project Manager, the Project Quality Advisor and the Project Team comprise the Project Management Office. An illustration of the governance and management framework suggested for CNSW implementation is depicted in Figure 21.

Figure 21 Governance and Management Framework for CNSW Implementation Project

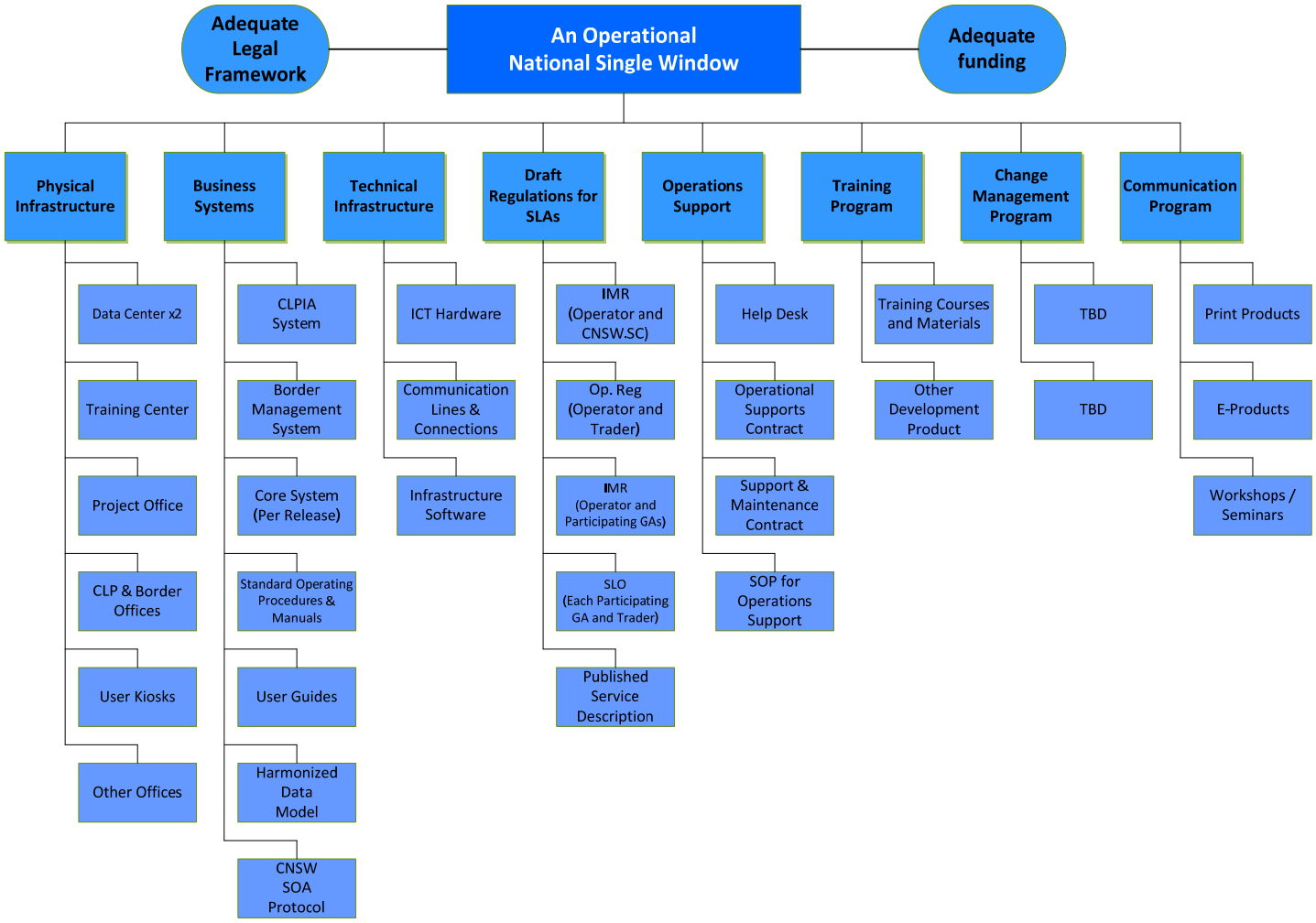


4.2 PROJECT PRODUCTS

Consistent with best practise management principles of PRINCE[2] the following project products/deliverables are identified for the total CNSW implementation as illustrated in Figure 22. A product description is described within *Report #212* for each product group.

The overall product of the Implementation Project is an Operational NSW. The Project would be responsible for the technical product groups and products (represented as rectangles). The Project would monitor progress towards the products shown as ellipses but cannot actually build those products. The overall Product relies on the presence of all the Technical Products.

Figure 22 Project Technical Products



In addition to the Technical Products, the Project would be responsible for *Management Products* and *Quality Products*. Management Products include the Project Plan, Quality Management Plan, Risk Management Plan, Configuration Management, Project Change Management products, Issue Management products, and Project Reporting products and so on. Quality Products include Testing Plans, Acceptance Plans, Testing Results, and Acceptance Results and so on.

Of note, the Technical Infrastructure product includes all information and communications technology items required to implement, run and operate CNSW. It covers all ICT hardware of servers, data storage, communications and related devices installed at the data centers that will host the CNSW system and its associated services. It also includes the end-office computing and communications equipment to be located at the CLPIAs, border offices and at the CNSW project office and secretariat. At the data centers the ICT hardware shall also comprise the necessities of backup power supply, security equipment and fire prevention systems.

The Technical Infrastructure product also contains the underlying software infrastructure that will establish the software operating platform for CNSW and deliver the required operating environment and associated services to be provided, such as network security and monitoring, internet access and antivirus controls, amongst others. It is upon the software infrastructure that the CNSW business systems and databases shall reside and operate.

The final attribute of the Technical Infrastructure product will consist of the telecommunications lines and connections. This will include both the private leased line wide area network for interconnection of all government agencies to CNSW, and internet connections to allow the private sector to access CNSW and provide backup and remote connections for the government agencies. Contracts for the WAN and internet connections shall be let under commercial terms and will include both wired cabling connections and also 3G (or later) internet connections over mobile devices.

4.3 Implementation Plan

Assuming an expeditious process, with active, positive engagement by the key stakeholders, it is estimated that CNSW implementation (to meet the defined scope and vision statements) can be achieved in a total elapse time of 42 months. This includes 18 months of preliminaries and project establishment (including establishment of the Project Office, procurement of key suppliers and preparation of detailed sub-plans and stakeholder agreements) and 24 months of system build, test and operationalization.

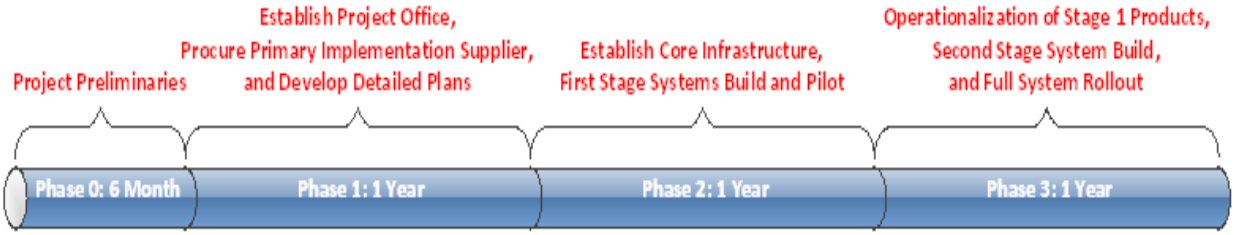
Implementation is divided in to 4 phases as shown in Figure 23.

Figure 23 CNSW Phases of Implementation

Phase	Description	Timeframe
Phase 0	Project Preliminaries	6 months;
Phase 1	Establishment of full Project Office, procurement of primary implementation suppliers and detailed plan development	12 months;
Phase 2	Establish core physical and ICT infrastructure and First Stage systems build, test and pilot	12 months
Phase 3	Operationalization of Stage 1 products, Second Stage system build and full system rollout	12 months

A more detailed overview of the project phases is contained within Figure 24.

Figure 24 Project phases - overview



- Resolution of implementation funding source and establish funding agreement
- Establish mechanism for Legislative / Legal impediments and coordinate and follow-up.
- Make core appointments to Project Office – Project Manager and Procurement.
- Engage PMO/Procurement Support Consultant (expeditiously e.g. through available funding streams).
- Locate / establish CNSW Project Office space, fit-out office space, acquire technical resources.
- Develop Procurement Documents for primary CNSW Implementation Supplier.
- Follow Procurement Modalities pursuant to the Funding Agreement.
- Develop Phase 0 and Phase 1 Implementation Plans.
- Prepare possible submission for the CNSW SC regarding desirability of and a possible strategy for reviewing existing fees applied to traders by participating CNSW agencies – to examine the possibility for rationalization as part of an overall CNSW fee.
- Some work will be required in this phase on drafting of a sub-Decree for the CNSW SC.

- Establish full Project Office – including functions for overall CNSW Implementation including:
  - Project Management, Technical Management, Contract Management, Change Management, Communications Management, Quality Management, Financial Management, User Liaison Training Capability
- Procure Project Specialist Support including:
  - ICT Advisor
  - Contract management and quality assurance
- Procure/Appoint Primary CNSW Implementation supplier.
- Prepare detailed Plans:
  - Change Management Plan
  - Communications Plan
  - Risk Management Plan
  - Quality Management Plan
  - Overall Monitoring Plan
- Establish short term supply contract for Specialist to conduct Baseline CLP Process Time Studies for reference in later benefits monitoring and analysis.
- Conduct Baseline Time Studies.
- Procure Prime Physical Works Supplier

- Establish Data Centers x2:
  (1) Procure works and goods and services for physical infrastructure
  (2) Execute physical infrastructure project
  (3) Technical Infrastructure fit-out
- Build and test Core Business System (CNSW Implementation Supplier)
- Build CLP functionality for 4x CLPs (including 2 CLPs in GDCE) and pilot
- Build Border agency functionality and pilot in 3 locations
- Acceptance testing (by PMO with support by CNSW Implementation Support)
- Procure Operational Support Sub-contractor
- Establish First Stage Communications Infrastructure:
  - Procure and Establish Communications Infrastructure Contract(s)
  - Procure and Appoint ISP (or ISPs)
  - Establish WAN technical infrastructure (thru CNSW Implementation Supplier)
- Establish Ongoing Operations Support Capacity :
  - Help Desk
  - Network Administration
  - Database Administration
  - Infrastructure Administration
  - Applications Administration
  - Registration Administration
  - Agency User Administration

- Build and test Remaining CLP functionality (for 8 CLPs) and implement
- Rollout border agency functionality to 18 further border locations
- Acceptance testing
- Conduct follow up Process Time Studies for CLPs.
- Procure and Establish expanded Second Stage Communications Infrastructure.
  - Expand Communications Infrastructure
  - Procure and Appoint expanded ISP (or ISPs)
- Expand WAN infrastructure
- Expand Operations Support Capacity as required
- Maintain ongoing operations support
- Operationalized full time CNSW secretariat
- Project Completion and Handover to Ongoing Operator

Quality Managment Program

Change Managment Program & Communication Program

Training Program

4.4 PROCUREMENT PLANNING

Procurement planning is the process of identifying and consolidating requirements into well-defined contract packages, providing a cost estimate for the packages, and determining the method and timeframes for their procurement. The aim is to have those packages delivered as and when they may be required as indicated in an overall project implementation plan.

The CNSW solution will be a large and complex project that will entail the delivery of a diverse range of procurement packages that encompass goods, works and services and in some case a combination of all three. Procurement will therefore need planning and active management to conform to government and external funding partner expectations and requirements.

The procurement packages identified for CNSW consist of the following:

- Package 1 – Project Procurement Consultants
- Package 2 – Technical Consultant
- Package 3 – Baseline Time Studies for Candidate CLPIA's
- Package 4 – CNSW Implementation Partner/Supplier
- Package 5 – Contracts Management and QA Consultant
- Package 6 – Physical Infrastructure
- Package 7 – Operational Support
- Package 8 – WAN Communications Provider
- Package 9 – Internet Service Provider
- Package 10 – Post Implementation Time Studies of CNSW

Figure 25 is a table that summarizes the estimated costs of the procurement packages showing the capital cost elements and recurrent cost elements and nominally projecting contracts for five years of recurrent cost budgets. These costs cover the Implementation Project period and extend beyond for a nominal period.

Figure 25 Table of estimated procurement packages costs

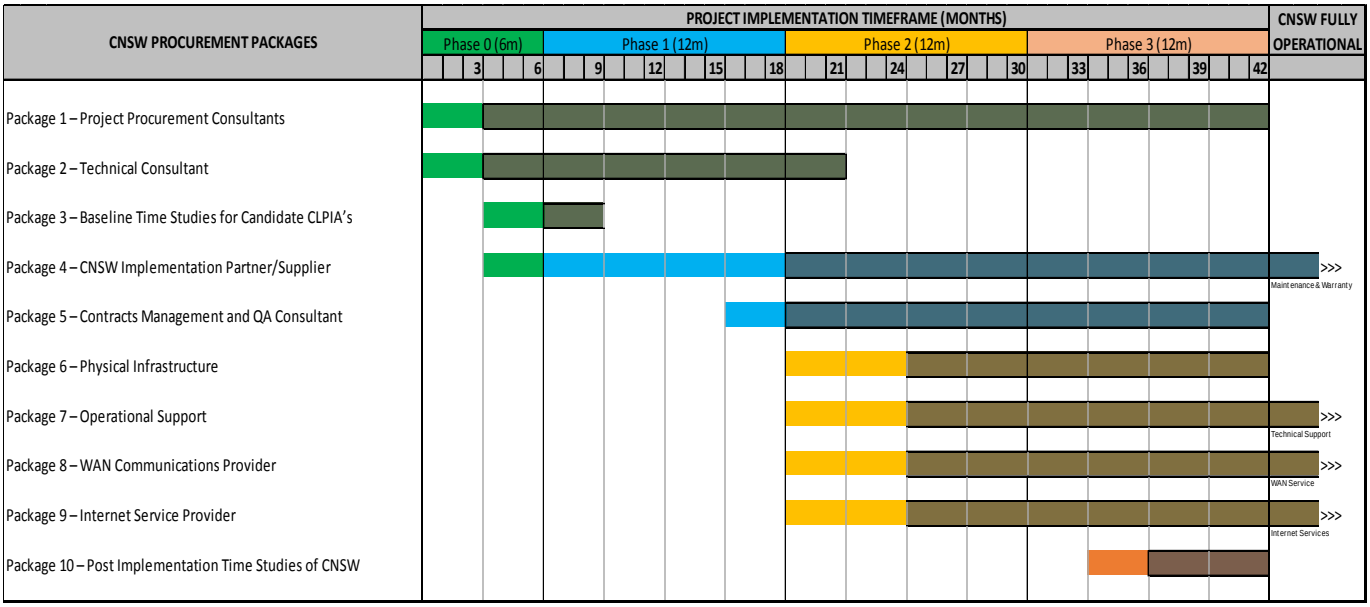
Procurement Packages - Capital Cost Estimates	**USD**
Package 1 – Project Procurement Consultants	240,000
Package 2 – Technical Consultant	240,000
Package 3 – Baseline Time Studies for Candidate CLPIA's	50,000
Package 4(a) – CNSW Implementation Supplier	9,606,000
Package 5 – Project Contract Management and Quality Assurance Consultant	480,000
Package 6 – Physical Infrastructure	830,000
Package 8(a) – WAN Communications Provider (installation)	33,000
Package 10 – Post Implementation Time Studies of CNSW	50,000
Package 11 - Other Miscellaneous Services	200,000
Sub-total Capital Cost Implementation Packages	**11,729,000**

Procurement Packages - Recurrent Costs Estimates per annum	
Package 4(b) – CNSW Implementation Partner/Supplier	727,000
Package 7 – Operational Support	1,200,000
Package 8(b) – WAN Communications Provider	252,000
Package 9 – Internet Service Provider	55,000
Recurrent Cost per annum included in Procurement Packages	**2,234,000**

Detailed information relating to costs and cost breakdown is set-out in TA *Reports #203 Service Specifications*, *#205 Functional and Technical Specifications,* and *#212 Implementation Plan.*

Figure 26 provides an indicative schedule for procurement and timeframe for delivery of those packages across the 4 phases of implementation.

Figure 26 Procurement Schedule/Timeframe



4.5 Implementation Project Cost Estimates

The Implementation Project costs comprise all capital cost elements to be procured, a portion of the recurrent costs incurred within the duration of the Implementation Project and costs associated with staff and offices needed for the Project Management Office for the duration of the project and CNSW Secretariat (for one year).

[The recurrent costs and costs associated with an *Office of the CNSW Operator* (which would likely be built from the Project Management Office at project closure), and CNSW Secretariat would continue with the ongoing operation of CNSW.]

The projection for the comprehensive total implementation cost of CNSW implementation over the 42 months implementation project period is approximately USD17 million and includes:

- ICT project capital costs of approximately USD 9.61 million for the prime implementation support provider;
- USD 1.16 million for consultant support to and miscellaneous costs for the Project Management Office;
- USD 0.86 million for physical infrastructure and WAN communications;
- USD 0.10 million for baseline and end state time studies;
- an amount of USD 3.35 million for operational support services which will be required at the later phases of the 42 month implementation program; and
- USD 1.28 million for the core operation of the Project Management Office (over 42 months);
- USD 0.66 million for the establishment and operation of a new CNSW Secretariat office in project Phase 3.

An overall summary of anticipated implementation project costs is contained in Figure 27.

Figure 27 Estimated overall implementation project costs

Overall Implementation Costs		USD
Procurement Packages Capital Cost (all within Implementation Project).	Refer to Figure 25.	11,729,000
Procurement Packages Recurrent Costs included in Implementation Project.	Refer to Figure 28.	3,352,000
Project Management Office (within GDCE) [9]	Refer to Figure 29.	1,280,000
CNSW Secretariat (Setup and first year of operation) [10]	Refer to *Revenue and Fee Model* Report.	655,000
	Total	**17,016,000**

The table at Figure 28 summarizes the estimated costs of the recurrent cost elements in procurement packages during the implementation project showing 18 months of supply that are contained within the time frame of the implementation project.

Figure 28 Table of estimated procurement packages costs – during implementation phase

Operational Costs included in Implementation Packages (for 18 months)	
Package 4(b) – CNSW Implementation Partner/Supplier ($727,000 pa)	1,091,000
Package 7 – Operational Support ($1.2m pa)	1,800,000
Package 8(b) – WAN Communications Provider ($252,000 pa)	378,000
Package 9 – Internet Service Provider ($55,000 pa)	83,000
Sub-total Operational Cost included in Implementation Packages	**3,352,000**

A breakdown of the cost of the Project Management Office (per annum and over the life of the implementation project) is provides at Figure 29.

The Implementation Project cost schedules encompass all anticipated costs for physical and technical infrastructure, application software, configuration and customisation and a comprehensive range of implementation services including 18 months (within the implementation period) of operation support. Further detailed information relating to cost s and cost breakdowns is set-out in TA *Reports #203 Service Specifications*, *#205 Functional and Technical Specifications,* and *#212 Implementation Plan.*

The estimate covers all goods and services for the full implementation project for physical and technical infrastructure and comprehensive implementation services for all software systems for the core facility and for the roll-out to Government Agencies.

[9] *The establishment, staffing and proper operation of the Project Management Office is essential for project success. The Project Management Office needs capable and professional personnel seconded to it full-time from the ranks of GDCE and OGA. The Project Manager must be an authority from within GDCE. The physical and working conditions for the Project Management team must be sufficient to obtain the right personnel.*
No recommendations are contained in the report about the mechanics and applicable rules and regulations that need to be applied to cover the costs for the full-time project team. It is understood that donor contributions for project funding cannot be applied for salaries. The source of funding for the salaries for the project manager and the project team may include normal RGC budget allocation or arrangements for special conditions in recognition of project work.

[10] *The establishment, staffing and proper operation of the CNSW Secretariat is also an important element for the successful operation of CNSW. Refer to the Governance and Operational Model Report for description of the role of the CNSW Secretariat. The costs Again, no recommendations are contained in the report about the mechanics and applicable rules and regulations that need to be applied to cover the costs for the Secretariat.*

Figure 29 CNSW Project Office Costs

Annual cost estimate:

Item	USD p.a.
Office accommodation	50,000
10 professional full time staff (incl. Project Manager) @ USD2,000 / month all up cost	240,000
Administrative support (lump sum)	25,000
Travel (1 per professional @USD10,000)	100,000
Professional development – covered by capacity building / training	Nil
ICT Facilities – covered by CNSW Implementation / support and maintenance	Nil
Total p.a.	415,000

The basis for calculating the full project life cost of the CNSW Project Office is as follows:

Phase 0 – nominal partial cost	USD 125,000
Phase 1 – nominal partial cost	USD 325,000
Phase 2 – full Project Office operation	USD 415,000
Phase 3 – full Project Office operation	USD 415,000
Total over Implementation Project	USD 1,280,000

It is important to note that the budget identified above includes and amount of USD 3.352 million for services during the Implementation Project for system operations (occurring while final builds and roll-outs take place) and USD 0.66 million for Secretariat set up and support in the final implementation phase. This would cease as an implementation cost at System Formal Handover – when operational costs and related support costs (USD 3.5 million – refer to the *Revenue and Fee Model* Report) will be met through the proposed user fee.

5 IMMEDIATE NEXT STEPS

The CNSW Blueprint has been described within the framework of the ten SWIF critical components in Section 3 and in greater detail in several TA *Reports*. An implementation project has been described in Section 4 and elaborated in TA *Report 212*. Taken together the Reports provide detailed terms of reference for the CNSW Implementation Project Team, and key suppliers to support the Project Team. However, the implementation project can commence only after several steps are taken and necessary conditions are made ready. This section of the Blueprint provides a situational analysis, an assessment of readiness and a list of important next steps in order that the project can be commenced.

5.1 SITUATIONAL ANALYSIS

In the current environment there are many key positive driving factors supporting a successful introduction of the CNSW. These driving factors represent substantial building blocks for change, however, there are a number of potential restraints for enabling the vision and establishing the CNSW. The following section presents an analyses of those positive driving factors and others that potentially may restrain CNSW establishment unless suitably addressed.

5.1.1 Positive Driving Factors

(1) Government directed and clear driving forces (Rectangular Economic Development Strategy and the 12 Point Action Plan for Improving Investment Climate and Promoting Trade Facilitation).

The use of Information Technology to facilitate trade is directly in line with the Government of Cambodia's 12-point Action Plan for Improving Investment Climate and Promoting Trade Facilitation The introduction of the CNSW directly meets or supports the achievement of 8 of the 12 building blocks in that Plan:

- National Single Window (Building Block 3)
- Coordination and Governance (Building Block 1)
- Relationship with Private Sector (Building Block 4)
- Transparency of Information (Building Block5)
- Capacity Development (Building Block 6)
- IT Capability for non-customs agencies (Building Block 7)
- Import and Export Performance (Building Block 10)
- Compliance with International Commitments (Building Block 12)

(2) ASEAN commitment and active Cambodian participation in ASEAN Single Window working groups.

As a member of ASEAN, Cambodia has an obligation to implement a National Single Window. It was clear that Cambodian officials treat their ASEAN obligations seriously and there was universal acceptance amongst Cambodian officials that the CNSW was a clear and committed obligation that needed to be implemented. Cambodia is also actively represented on the ASEAN SW Technical Working Group so is well positioned to learn from and influence ASEAN directions and experience.

(3) The trading community is eager to see improved, streamlined trade approval processes (greater certainty, clarity, consistency, lower cost and time) and are supportive of automation if it will achieve these.

A number of the significant and influential traders and freight forwarders in Cambodia are very supportive of initiatives that will streamline, simplify and accelerate the permit and clearance processes. The trade has adapted very well to the introduction of ASYCUDA World by the GDCE and is already relatively computer literate. The trade is supportive of arrangements that will reduce multiple handling of documents and multiple physical visits to the government regulators offices. The CNSW offers them significant opportunity to meet their wishes and it could generally be expected that the trade will be supportive – dependent on cost and time benefits.

(4) A Steering Committee has been established.

The Government of Cambodian has already established a senior level CNSW Steering Committee (May 2008), a CNSW Technical Advisory Group (June 2012) and within GDCE an actively engaged CNSW Project Team (June 2012). The CNSW SC has high level representatives from the stakeholder government agencies, the port community and business and traders. The Committee is capable of directing the efforts of the affected agencies in both the decision making and implementation phases of the CNSW.

(5) Project team in place.

The CNSW Project Team is in place within the GDCE. This team is very familiar with the scope of CNSW possibilities and the likely needs of the implementation planning process. This team is well positioned to form the core of an implementation team. It will need to be expanded beyond the GDCE (to include other affected GAs) when decisions have been made on the way forward. The implementation team will need to be a full time dedicated resource when implementation planning commences.

(6) GDCE experience in implementing a major ICT project.

GDCE has experience at implementing and maintaining a major ICT system through the successful roll-out of ASYCUDA World system for customs clearance at most border locations and ports in Cambodia. GDCE maintains this system and network itself, with support from a local ICT service provider.

(7) Technical Assistance / stakeholder engagement.

This TA itself represents a positive driver. With substantial World Bank technical and financial backing, a team of experienced international and local experts have complied reports that represent a significant body of knowledge to help drive and shape the vision and the final CNSW solution.

Engagement through meetings and workshops has been strong and productive and has helped build upon awareness among stakeholder agencies and trader organizations.

(8) Concept been explored for some time – some general awareness amongst senior members of agencies involved in the trade process.

The concept of a CNSW has been discussed and explored by relevant Cambodian government agencies for several years. A good deal of preliminary work has been done with the support of the World Bank. A number of senior Cambodian officials have had the opportunity to see first-hand (through study tours) what other countries in the region have achieved or what they intend to develop with their single window projects. The officials involved have therefore already had exposure to some good practice models and are aware of the range of NSW possibilities.

(9) Good computer literacy in public service and larger trader community (particularly in Phnom Penh).

In Phnom Penh at least there is a good level of computer literacy amongst government agency staff and some of the trading community. Many trained traders and brokers (and their staff) are already using the ASYCUDA World system for loading SAD data and most privately use e-mail, text and the internet more generally in their work and home life. This means that there is a sound pre-existing comfort level for using computers.

(10) Cambodian government workforce and trading community is open to new technology and a number appear eager to see introduction of some automation.

Many agency staff and trade community members are comfortable with using web based technology in their everyday life and are open to the possibility of applying information technology in the office. Whilst there was very limited experience with enterprise applications amongst GA staff, they were largely receptive to the possibilities that automation offers.

(11) General support for streamlining and simplifying processes by trade regulatory agencies.

Senior CLPIA staff, as well as those from GDCE, have a high level of awareness of the government's trade facilitation agenda, streamlining and simplification goals, and a general desire to see that commitment translated into action. The senior officials involved in the CNSW will recognize the prospect it offers for significant advancement or achievement of the government's policy - and as such can be expected to give open and public support to CNSW development.

(12) High staff retention rates in Cambodian government agencies.

Turnover in Cambodia government agencies is very low by international standards. This means that many staff have already got considerable experience in their license, permit or border control roles. If staff can be effectively trained, practiced and prepared for the CNSW they will likely be in a position to utilize the new skills and knowledge for some time (subject to rotation and mobility issues).

(13) Private uptake of e-banking (ATMs and online accounts) is well established in Cambodia and there is a growing appetite for e-business transactions.

In recent years the population of Cambodia have increasingly embraced the introduction of electronic banking and the use of ATM machines for their day to day financial transactions. The major banks have clearly invested in electronic banking capacity and infrastructure and as such both the banks and the community are now much better prepared for the possible introduction of electronic financial transactions in the government processes.

5.1.2 Potential Restraints

Potential restraining factors, however, also exist in the current environment and those that are considered significant and are considered within *TA Report #212 Implementation Plan* and TA Report *#214 Communications Strategy.*

Identification of these factors in no way represents criticism, rather they are a reflection of the current state of technical development and experience typical in many developing countries. By identifying such factors, and suggesting ways to address them, preparations can be made to address them in the forward planning by developing specific communications approaches to meet the potential restraints.

The key potentially restraining factors to be considered in the Cambodia environment can be summarized as:

(1) Awareness and understanding of the CNSW concept and intent amongst general staff in agencies and in the wider trading community needs to be expanded.

Information about CNSW is mostly only communicated to senior government and trade officials – largely those involved in the initial visioning workshop or the prior study tours or Steering Committee meetings. The interviews and workshops conducted by the technical assistance team have served to spread some level of awareness, hover, much more will be required to inform and engage those who will be affected by the CNSW.

To address this restraint, structured and targeted communications and engagement is required early in the implementation process and resources should be dedicated now to expand awareness amongst the relevant key influential stakeholder groups. This will then need to be followed by a more extensive and general awareness building effort to alert those who will be affected by the CNSW.

(2) Provincial awareness likely very low.

It is likely that there will be even less awareness in Provinces and border posts. The earlier the people affected in these places can hear of intentions, the more likely will be the opportunity to create some enthusiasm for what is to come.

To address this impediment: CNSW requires effective programs for Communications, Capacity Building and Change Management.

(3) Cost and time of implementation for agencies and traders.

The financing and maintenance costing of the CNSW will be a critical issue for traders and government agencies alike. Very few GAs have capacity to fund systems development or technology acquisition. The CNSW proposed solution envisages use of web based interconnectivity. Impact on Traders would be low but the workflow management systems will mean significant changes for the GAs.

To address this impediment: The CNSW program anticipates having the funding through RGC and development partners for the roll out of technical equipment, facilities and services for all the participating agencies and for the necessary implementation services. For ongoing operations, CNSW anticipates a comprehensive model of self-funding by a relatively modest fee for use of CNSW that would be associated with the lodgment of Customs declarations to cover all costs of operation including support and maintenance within OGAs.

(4) Limited experience of governing integrated multi user ICT applications, systems and networks.

Given the lack of current enterprise or integrated ICT systems in place in the Cambodian permit issuing agencies, there is currently limited knowledge or expertise in the implications of those systems. It will therefore be necessary to support each agency to build some capacity for contributing to the design of and then monitoring their own workflow management systems when in place. In the absence of support it is likely that when reliability issues arise some will be quick to criticize the changes and revert to pre-existing methods.

To address this, as a minimum, some form of central help desk will be required to help agencies and individual users to resolve problems if they arise. The software development partner will also need to provide for some training to OGA staff to enable them to contribute most effectively to specific system design and for internal user administration capability.

(5) Current reliance on paper and paper based processes – not all will support change.

The agencies that will be involved in the CNSW currently all use paper based arrangements for processing permits and licenses used by the trade. These have been in place for some time and staff and managers are familiar and skilled at using them. Even in GDCE, where ASYCUDA is used, traders are still required to submit all relevant materials in paper form (along with the electronic SAD). A move away from paper based process will likely be a major shift for a number of staff and it will be important to recognize the likely discomfort that will accompany a change of this nature. This discomfort will be important to acknowledge when planning engagement and communications strategies and will require time and persistence by the implementing team.

This represents a significant potential risk area associated with change to new automated systems for organizations world-wide.

To address this impediment: CNSW requires effective programs for Communications, Capacity Building and Change Management. A key prerequisite will be strong direction, support and commitment from the leadership of each GA and Ministry.

(6) Everyone knows the current system and process and will find new systems uncomfortable in early stages.

Similar to the above, even if participants in the trade process find the current system cumbersome and time consuming they are all familiar with it – they know how to make the current processes work. Some will be skeptical of changes – particularly in the early stages – until they become familiar and see actual time and cost benefits. Even if the first phase of the CNSW delivers an automated “mirror” of the current document based process, there will likely be an initial level of discomfort for all involved.

This is also a significant difficulty associated with change to new automated systems for organizations world-wide.

To address this impediment: CNSW requires effective programs for Communications, Capacity Building and Change Management. A key prerequisite will be strong direction, support and commitment from the leadership of each GA and Ministry.

(7) Possible perceived loss of control – not a strong experience of transparency.

In the current processes, the mechanism for assessment and approval is relatively closed to the traders involved. In the CNSW 'track and trace" capacity envisaged by the architecture a trader will have on line access to the progress of their request or submission. Whilst this may be welcomed by the traders, the government officials may be uncomfortable with this level of transparency. Likewise, within the government agencies, the system will allow for considerably more accurate monitoring of throughput times, numbers, decision points and accountabilities. This may not always be welcomed by the staff involved.

This is a significant difficulty associated with change to new automated systems for organizations world-wide.

To address this impediment: CNSW requires effective programs for Communications, Capacity Building and Change Management. A key prerequisite will be strong direction, support and commitment from the leadership of each GA and Ministry.

(8) Potential trader resistance to the introduction of new fees unless clear benefits/savings in the new process.

Traders will likely be skeptical of any new fees that are levied to maintain the CNSW. They will also expect to see trade facilitation and genuine process improvements (process simplification, improved clearance times, reduction in number of physical visits) before they will willingly support new fees.

To address this impediment: Traders will need to "realize" benefits of the new procedures. Traders in international business are aware of the modern systems in other places, esp. in the major trading economies. They are well aware of the impediments and imperfections in the current practices. Traders have indicated an appetite for modernization, provided the benefits are real and the new systems do not merely add additional steps. Therefore, GAs will need to be forward looking, open in their communications with the trading community and in the early stages offering direction and a strong vision of the national good that can come through CNSW. As CNSW is progressively implemented, information, data and advice about measurable process improvements should be incorporated in CNSW communications material.

(9) A number of small and irregular traders who may not see any benefits.

For the trader who is only an occasional importer or exporter, the benefits of a new system may not be clear. The current clearance times may not be an issue for them if they only engage in it one or two times a year. For these people, process simplification may only offer a small benefit.

Given that these occasional importers will often use the services of an experienced freight forwarder or customs broker, it will be important that these "agents" have a good understanding of the benefits of the new system and are able to explain that to their clients. The communications program should see these groups as key and important stakeholders.

(10) Stamps and signatures.

In the current process, final approvals pass through very senior management for signature and formal stamping. This means that there are currently at least four steps in the internal agency processes – culminating in signatures by generally Directors-General or Deputy Directors-General. The new process will not replace the final approval authority but will allow for the possibility of electronic permits rather

than paper ones. This may not be well supported by some in the early stages until there is acceptance that an electronic authority by the senior decision maker is equivalent to a signature or stamp.

As covered in other TA reports, a program to modernize legislation and regulation to formally recognize e-signatures as formal legal instruments is an essential implementation task stream.

(11) Agencies not accustomed to day-to-day collaboration and information exchange – often separate and complex "stand alone" manual processes.

It appears that whilst there is regular contact at between some of the agencies involved in the goods permit and clearance processes, and there is a level of collaboration on some specific import issues there is not a general or formal process for collaboration and information sharing between agencies. For the CNSW to be fully effective, all the agencies involved in the trade process will need to cooperate and collaborate for success. The new system will allow for structured and streamlined information flow both within and between agencies, but will only be fully effective when each agency supports others in the chain. A failure to build that collaboration early will represent a significant implementation hurdle later in the project.

A strong lead by the relevant Ministries, the CNSW Steering Committee and the TAG, and early efforts at engagement between the key GA partners in CNSW will be critical to addressing this potential impediment.

5.2 State of Readiness

In many project management methods there is a concept of 'conditions' or readiness of a project step, or in fact a whole project, to take the input products for the step and make the output products. This is illustrated in the diagram to the right.

For National Single Window projects, the recommended Single Window Implementation Framework includes an adaptation of project Readiness Factors from Government of Canada Business Transformation Enablement Program (BTEP).

These readiness factors are tabulated below together with an assessment of readiness for CNSW based on the discussions involving senior officers from GDCE, World Bank personnel and team members of CNSW Technical Assistance team.

Figure 30 Assessment of CNSW Readiness Factors

Readiness Factor	Description	Assessment
Vision	▪ Objectives, components and benefits of the Single Window are clearly identified.	**Ready**. A vision has been articulated and communicated.
Desire and Willingness	▪ Concerned parties understand the need for the SW. ▪ There is a desire to achieve the "vision" and the willingness to accept the work.	**Partially ready**. Awareness building and benefits marketing needs to be continued. Clear commitments need to be sought and obtained from affected agencies.

Readiness Factor	Description	Assessment
Strategic Planning	▪ There is an authority for making strategic decisions about scope, functions and implementation.	**Ready**. CNSW Steering Committee established pursuant RGC Prakas 391, 2008. CNSW Project Team and CNSW Technical Advisory Group established pursuant to Prakas 282 and 283, 2012.
Sponsorship and Leadership	▪ The executive and the senior management support the implementation. ▪ Stakeholders are engaged and represented in decision making and direction setting.	**Partially ready.** Project sponsor within GDCE well engaged. Trader representative bodies engaged, represented and enthusiastic. OGA stakeholders not fully engaged. Benefits marketing needs to be continued to obtain full engagement and input.
Governance	▪ Roles and responsibilities of concerned parties in the project are clearly identified.	**Partially ready.** CNSW Blueprint and its supplements articulate roles and responsibilities. Awareness and recognition not yet fully accepted. Organizational capacity needs to be built.
Funding	▪ There is a funding agreement or base to proceed.	**Not ready.** The CNSW Project needs to build a convincing argument for project financing. RGC needs to approach and reach financing terms with a development partner - such as the World Bank.
IT Capacity to Execute	▪ Ability to perform all the IT tasks required by the project, including the skills, tools, processes, and management capability. ▪ Where support is required it can be obtained.	**Conditionally ready.** CNSW Blueprint and its supplements outline organizational arrangements for project management and implementation and support capacities. GDCE has some experience in implementing large scale ICT project.
Organization's Existing Information Systems	▪ An interoperability framework is in place. ▪ Existing information management systems can interoperate with the SW.	**Conditionally ready.** CNSW Blueprint and its supplements outline functional and technical models and specifications for interoperation. Proof of concept and actualization requires engagement of technology partner(s).
Ability to Implement and Operate	▪ There exists the ability to operate the service ▪ Change can be managed effectively	**Conditionally ready.** CNSW Blueprint and its supplements outline organizational arrangements for ongoing operation and support capacities. **Not Ready – Requires legal framework for CNSW operation.**

5.3 RECOMMENDED ACTIONS

Arising from situational analysis and assessment of readiness, the immediate next actions to be taken to establish the conditions under which the implementation project can proceed are summarized below.

(1) RGC Review and approval of CNSW Blueprint

A clear first step is to have the Blueprint reviewed, revised and adopted to settle the guidelines for design and implementation.

(2) Secure funding for CNSW implementation project

Before substantive work can commence on the preparatory phase of the implementation, resources, and in particular financial resources, need to be acquired and accessible.

(3) Consider proposed restructuring of Steering Committee and project management

The design and implementation guidelines contained within the Blueprint and the referenced TA Reports include proposals for project governance and management arrangements. The existing CNSW Steering Committee has already expressed its intention to adapt its structure and mandate and definition of roles and responsibilities for the implementation phase. In addition, formalization of the CNSW Project Office, and appointment of Project Manager are necessary.

(4) Set-up and staff CNSW Project Office

When the Project Office is formalized and the Project Manager is appointed, and at least part of the resource needed are acquired, the CNSW Project Office can be staffed and set-up for its Phase 0 activities, and then Phase 0 activities can commence.

An early acquisition suggested for the project office includes technical assistance and expertise for ICT project definition and continuity and for procurement in order to expedite the modalities associated with the development partner.

(5) Complete legal gap analysis and initiate required legislative changes

This set of steps may not be appear urgent since the first operation of CNSW would not occur before approximately 30 months from the commencement of the Phase 0 activities. However, the actions in this set of steps has long lead times and needs to be addressed.

The Gaps in existing Laws include:

a. absence of a law on electronic transactions;
b. legal administrative instruments in need of modernization for electronic transactions

The actions to be taken include:

a. Obtain competent advice to review draft Law on Electronic Transactions to assess compatibility with CNSW, recommend and any necessary changes and monitor submission to the National Assembly;
b. Utilize ASEAN technical assistance under the ACTI[11] program and engage competent advice to perform a legal gap analysis across all legislation and regulation related to participating GAs, draft recommended revisions and submission of these to the competent authorities
c. Formulate any necessary regulations for CNSW Operation by GDCE, Inter-Ministerial Regulations and Operational Regulations as envisaged for setting service level agreement and objectives

[11] ACTI: ASEAN Connectivity through Trade and Investment

(6) Ongoing communications / stakeholder liaison

The CNSW Steering Committee and its supporting teams need to continue to keep stakeholder aware of implementation activities and progress.

Traders will be interested in the operational impacts and timing of the implementation project.

GAs will also be interested in the same topics, but will also benefit from ongoing sensitization of what CNSW project, the benefits it will bring and that the GA concerns of role security, service security, data protection and so on will be addressed. In this regard actions might include:

a. Providing a forum of peer organizations with a common interest in the political and technical design and operation of CNSW, to confirm that CNSW functional and technical solution meets the specific needs of each GA
b. Commencement of dialogue between the parties concerning Service Level Agreements between CNSW Operator and each GA;
c. Commencement of discussion concerning (1) effective and strong data protection protocols and services, (2) verifiable, auditable records of CNSW transactions, (3) effective 'human resource' controls.
d. Commencement of the Data Harmonization task group

(7) Setting the fee structure for sustainable operation

Initiate formation of an inter-agency task team to consider fee structures, rationalization opportunities and payment methods and to review the recommendations in *Report #213 Revenue and Fee Model.*