

English

# Technical report



CITES MODULE

## Development of an electronic CITES permitting system for the international trade of wild flora and fauna in Guyana



Photo: © Tom Fisk



**Permanent Secretariat /  
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| Technical report |

# **Development of an electronic CITES permitting system for the international trade of wild flora and fauna in Guyana**

Consultancy for the development of an electronic CITES permitting system for the  
international trade of wild flora and fauna in Guyana

***Chiara Nicola and Larissa Langlotz***

## Development of an electronic CITES permitting system for the international trade of wild flora and fauna in Guyana

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The analysis and results contained here express the opinion of the authors and do not necessarily reflect the views of the ACTO/ARO.

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This project would not have been possible without ACTO as well as the organization's donor KfW (German Development Bank) who provided the funding to the GWCMC for the implementation of their new digital CITES solution – following the previous consultancy project – by cBrain.

**Scarlet Macaw (*Ara macao*)**  
Photo: © Tim Mossholder on Unsplash





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| Technical report |

## Table of Content

<b>Presentation</b>	11
<b>Introduction</b>	13
<b>"The good Delivery Method" as implementation methodology &amp; project management approach</b>	17
<b>The challenge</b>	21
<b>Project Start-up Phase</b>	25
<b>Design phase</b>	29
<b>The digital bureaucracy</b>	32
<b>Responsability</b>	32
<b>Step diagrams</b>	33

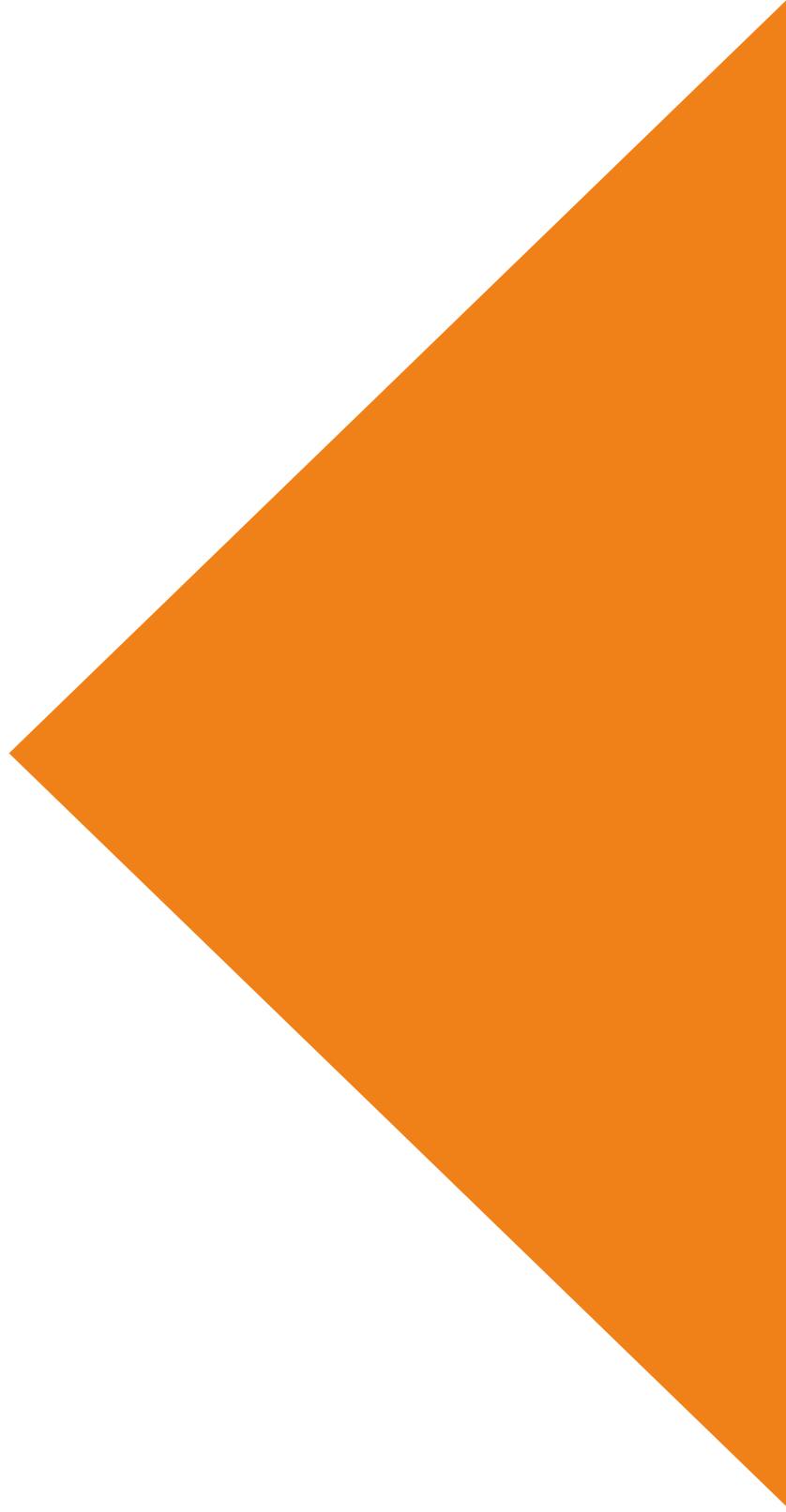
<b>Installation Phase</b>	37
<b>Configuration Phase</b>	41
<b>Testing and Training Phase</b>	45
<b>Testing</b>	47
<b>Plan and schedule of training workshops</b>	49
<b>Training for exporters (external users)</b>	49
<b>Training for GWCMC staff (internal users)</b>	49
<b>Training materials</b>	50
<b>Integrations</b>	51
<b>Go live / Launch Phase</b>	53
<b>The Results</b>	57
<b>Benefits of the new digital CITES permitting solution</b>	61
<b>Conclusions and Recommendations</b>	65

## List of figures, tables and References

<b>Number and name of the figure/table</b>	<b>Page</b>
Figure 1: 'The Good Delivery Method'	19
Figure 2: cBrain model and methods	31
Figure 3: The Digital Bureaucracy	32
Figure 4: Example of a step diagram (Annual Export License)	33
Figure 5: Documentation	35
Figure 6 & 7: Example of Export permit process: Front-end, online application form (left) and Back-end, case guide process management (right)	43
Table 1: Project Plan for the CITES implementation at GWCMC	27
Table 2: Bugs identified after User Acceptance Testing at GWCMC	48

### List of References

(1) Amazon Regional Observatory (ARO) (2022). About ARO. <https://oraotca.org/en/about-aro/>. Accessed: July 2022.



## Presentation

The Amazon Cooperation Treaty Organization (ACTO) is pleased to present the results of consultancies and technical studies carried out within the scope of its Regional Project for the Management, Monitoring and Control of Species of Wild Fauna and Flora Threatened by Trade (Bioamazon Project), in the format of the publications of the Amazon Regional Observatory (ARO).

In this way, we support the recording and dissemination of knowledge produced during the implementation of the Bioamazon Project by placing the studies available in the CITES Module of the Observatory. These consultancies and studies would not have been possible without the invaluable collaboration of partner institutions in ACTO Member Countries, as well as the organization's donor KfW (German Development Bank) who provided the funding.

In this Technical Report "Development of an electronic CITES permitting system for the international trade of wild flora and fauna in Guyana", developed for the Guyana Wildlife Conservation and Management Commission (GWCMC), one will find out how an end-to-end

digital solution for managing the processes around the Import/Export of endangered species, including those protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was created.

A streamlined digital process for an improved digital CITES was implemented allowing the GWCMC the overarching goal of combatting illegal trade of endangered species in a more transparent, controllable, and efficient way. All of it by implementing improved processes and digital technologies.

As part of the new CITES system, developed with the help of the consultancy of cBrain, an integration was created to allow the Amazon Regional Observatory (ARO) to receive relevant data from the database to support constant communication around the type of species, quantity, appendix no., etc. exported, allowing for more accurate national monitoring on endangered species' trade in Guyana and in the wider Amazon Region.

We thank the German International Cooperation and the German Development Bank (kfw) for supporting

ACTO over the years with the Bioamazon Project and the Amazon Regional Observatory.

Finally, we hope the contribution of this Technical Report to the knowledge

management will inspire other institutions and countries to improve their practices in implementing CITES Convention on the Amazon Region.

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**María Alexandra Moreira López**  
General Secretary  
Amazon Cooperation Treaty  
Organization - ACTO

# Introduction

**An Amazonian frog**  
Photo: © iStock





An Amazonian frog  
Photo: © iStock

## Introduction

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) protects endangered wild animals and plants by controlling international trade of these species. As part of the regional Bioamazon Project, the Guyana Wildlife Conservation and Management Commission (GWCMC), with support from the Amazon Cooperation Treaty Organization (ACTO) and funding from the German Development Bank (KfW), aimed to strengthen CITES enforcement.

Guyana's location in the Amazon rainforest contributes to its rich biodiversity and important role in global climate change. Therefore, this project's primary goal – implementing processes and technologies to tackle illegal trade of endangered species in a more transparent, controllable, and efficient way – is an issue of global importance.

As Denmark has been named the number 1 country in public digitalization, leading e-government development, by the United Nations for the third time in 2022, cBrain

has taken its Danish CITES experience from its long-lasting partnership with the Danish Agency of Environmental Protection (EPA) to the international realm by completing this project for the Guyana Wildlife Conservation and Management Commission (GWCMC). In relation to CITES, cBrain had previously designed and built a system to manage this process for the Danish government using cBrain's standard software platform F2 as well.

cBrain A/S helped the GWCMC by making use of cBrain's familiarity with CITES regulations and best practices for electronic permitting systems, as well as government process automation and compliance to international regulations. The project was characterized by a constructive and positive synergy between the GWCMC and cBrain, where it became apparent that numerous benefits could be achieved through the transformation of Guyana's current CITES process with the use of new digital tools. These tools were provided using the 100% standard platform F2, which was

configured and adapted to match the local requirements of the country.

As a result of this project, which lasted nine months (August 2021 – April 2022),

the GWCMC now benefits from a brand new CITES software system, which will improve staff productivity, transparency and visibility of species quotas, and conservation outcomes.

**"The good delivery method" as implementation methodology & project management approach**

**A captive turtle**  
Photo: © iStock





**A captive turtle**  
Photo: © iStock

## “The Good Delivery Method” as implementation methodology & project management approach

This section aims at describing cBrain’s implementation approach to building the solution based on the method called “The Good Delivery” and best practices, learned and developed by working with government organizations since 2005. These methods are adjusted to the actual target of delivery of each solution and customer. The graphic below illustrates the different phases and steps of the model, divided into three main

phases: ‘Start up’ (kick off), ‘Prepare’ (design, configuration, verification and technical installation) and ‘Use’ (go live and embed). cBrain’s method of implementation follows agile best practices, while still retaining some of the key control and decision points found in more traditional project management methods such as waterfall / Prince II.

**FIGURE 1.**  
The Good Delivery Method



Figure Source: cBRAIN

Throughout the project’s implementation at GWCMC, cBrain has broken down the above approach into the following

project phases, which you will be able to read more details about in the remainder of the report.

1. Project Start-up
2. Design
3. Installation
4. Configuration
5. Testing and Training
6. Launch / Go Live

The main governance documents in addition to regular project management and ad-hoc meetings used to control

project progress, were the bi-weekly progress reports and the updated project plan. During the implementation phase, those progress reports were produced by cBrain detailing high-points of previous week / following week activity, milestones completed, risks, issues, actions, change requests, and financial status.

## The challenge



**Amazonian flower**  
Photo: © iStock



**Amazonian flower**  
Photo: © iStock

## The challenge

The Guyana Wildlife Conservation and Management Commission needed to create an end-to-end digital solution for managing all processes around the Import/Export of endangered species, including the one protected under the CITES Convention.

Previously, Exporters had to make multiple visits to GWCMC's offices to apply for permits, licenses, and shipment requests with paper forms. Permit officers spent time filing documents in paper folders and recording the same information in multiple places. Before

the implementation of the new solution, GWCMC had been using their Wildlife Trade Management software to track applications and enforce each quota, although it was a 'black-box' that did not provide transparency into how calculations were performed or how quota balances were updated. Errors in the system were difficult to detect or correct, due to a lack of transparency into the business logic. Reporting to the international CITES and regional ACTO organizations was a long process to compile.



# Project Start-up Phase



Photo: © iStock



Photo: © iStock



The topic of authentication was another important item of the kick-off phase to be clarified, where it became apparent that the new digital CITES solution would make use of GWCMC's previously utilized authentication mechanism. This meant requesting an ID number from individuals, e.g. a passport or National Authentication ID card number, as well as presenting official company documents during the CITES application process.

Part of this initial phase was to clarify the framework, scope and timeframe of the project, to make sure all stakeholders were informed about what to expect and what was expected. One of the things agreed was that cBrain would work on establishing a dedicated environment as early as possible, to be able to make sure the fully remote installation would work without delays and to get timely feedback on the configured solution and the various processes included.

GWCMC committed to providing all missing documentation, including a wish list for reports to be provided via the new solution, an organizational chart of the stakeholders at GWCMC, a list of licensed users / registered exporters and importers and information on the technical setup in place at the start of the project at GWCMC. cBrain and GWCMC agreed on remote installation and access to GWCMC's servers.

The topic of annual maintenance and support was agreed to be discussed separately, approx. six months after kick-off in January 2022, which led to a separate contract between GWCMC and cBrain for this purpose.

cBrain and GWCMC conducted several technical setup clarification meetings to discuss GWCMC's technical setup (servers, software/hardware requirements) and to define and communicate the installation plan. An updated project plan reflected concrete start dates of each phase, and deadlines, indicating the review periods/action expected from both GWCMC and cBrain.

The technical installation plan was meant to be used by the appointed IT support at GWCMC to be able to install the F2 software on their servers successfully. This plan provided system stability and improved performance of GWCMC's new CITES solution. The plan took its point of departure in the agreement that GWCMC will provide the hardware, server operating system (Windows Server), and other supporting business software (Microsoft Office, Adobe, SQL Server) needed to run the F2 standard platform as specified by cBrain. GWCMC provided a technical lead person to assist cBrain in installing F2 and take over as the local IT system administrator of the hardware and software platform.

## Design Phase



**Blue-and-yellow Macaw (*Ara ararauna*)**  
Photo: © iStock



Blue-and-yellow Macaw (*Ara ararauna*)  
Photo: © iStock

## Design Phase

The design phase has been executed following cBrain's model and methodology, which works using an iterative process: from analyzing the procedures and processes – via a step diagram, to recording all information in a design document and ultimately configuring the solution sheets.

The design phase was essential to capture all highlights related to the CITES permitting processes that were refined in the course of multiple design workshop sessions in collaboration with the GWCMC. During the workshops, cBrain clarified pending design questions, to ensure

every detail was correctly captured and reflected in the new solution.

In order to achieve a streamlined result, cBrain has conducted several virtual live demos from the Alpha version to the Beta version of the solution built in order to receive constant feedback actively from GWCMC staff who will be using the new solution in their daily work.

Please see below a visual overview of cBrain's methodology in analyzing and mapping out processes, to ultimately be able to translate them into a specification language and configure the solution.

**FIGURE 2.**  
cBrain model and methods

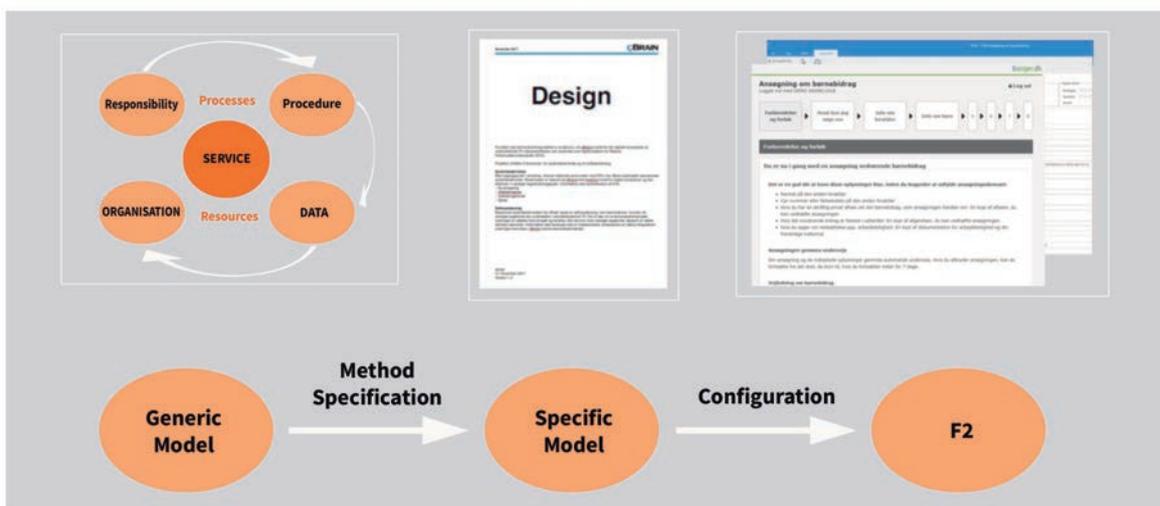


Figure Source: cBRAIN

**FIGURE 3.**  
The Digital Bureaucracy



Figure Source: cBRAIN

cBrain’s methodology and approach when designing a solution is based on best practices specialized for public authorities’ routines and compliance work, based on cBrain’s Digital Bureaucracy standard platform, called F2. The main structure of the process layer is built on top of the standard platform and is designed using ‘The Digital Bureaucracy’ method.

### Responsibility

A case process consists of steps, where a step is characterized by the fact that it has a condition ("Awaiting review") and that it is attached to a responsible unit. During the process, the case changes to different boxes (steps), corresponding to two types of conditions:

### The Digital Bureaucracy

The Digital Bureaucracy model is cBrain's method for clarifying and designing professional processes in F2. It consists of four dimensions:

- (1) Responsibilities and steps,
  - (2) Procedure,
  - (3) Organization,
  - and (4) Data.
- Based on these dimensions, the case processes are described in the following sections.

**Process**

**Awaiting**

In addition, the box below is used when another type of case is created, updated or related:

**New case**

A step (box) can have only one state and one responsible. In connection with the description of the course of the case, the case therefore changes to a new state (box), each time the case either changes state and / or potentially changes responsible. The condition can be registered in the form of progress codes and a change of responsibility occurs when a case is distributed or taken on by a caseworker, which is responsible for the case.

In connection with the description, arrows are used, to indicate the common shifts between steps. When describing the course of a case, the aim is to describe the various steps in connection with the progress of the case. When implemented, one or more steps can often be merged, since a number of steps can be automated completely or in part. The advantage of this approach is that

complete transparency is created in relation to the entire process, thus also leading to a better basis for subsequently rethinking, optimizing and modelling the process with an optimal digital support.

### Step diagrams

Using this method, cBrain prepares so-called “Step Diagrams”, where an end-to-end process, that defines a type of case, is outlined step-by-step in a diagram. A process and its connected case therefore have a start, a progress and responsible for each step and an outcome. Typically, at the end of a process, when no further action is required, the case is closed. The step diagram is the fundamental starting point and reference guide used to configure the process layer of the executable tasks in F2 and in the self-service:

**FIGURE 4.**  
Example of a step diagram (Annual Export License)

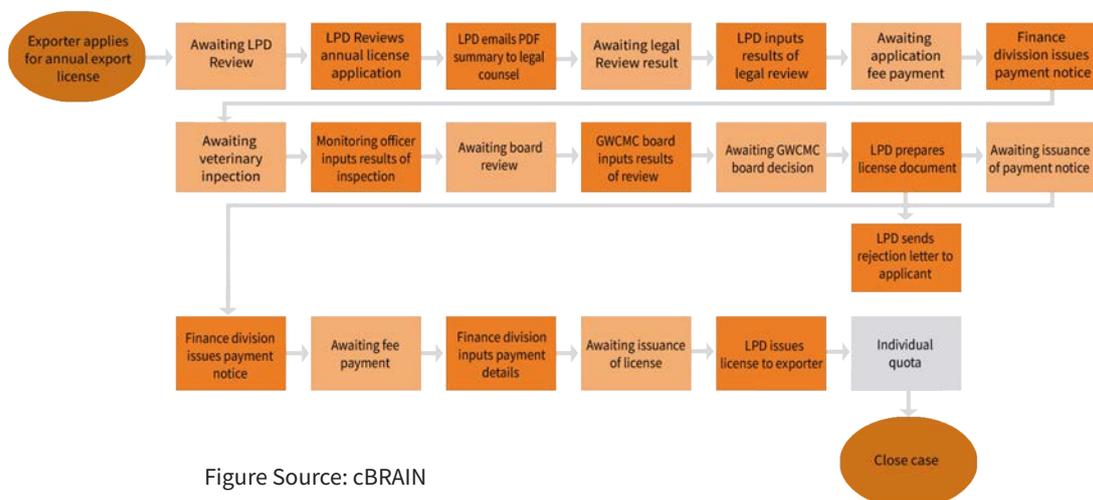


Figure Source: cBRAIN

cBrain has designed and implemented the following processes as part of GWCMC's new CITES solution:

**Back-end with the relevant business process case guide checklist:**

- Allocating Annual Export quota
- Allocating Annual Individual quota
- Issuing Annual Export licenses
- Issuing Export permits
- Issuing Import permit
- Quota request
- Shipment request form

**Self-service:**

The self-service is designed for online applications of import /export related processes. It is accessed directly from the GWCMC web page, and it consists of five e-forms:

- Annual export licence Application
- Export permit Application (CITES and Non-CITES)
- Exporter's shipment form
- Quota request ('Extra quota' and 'Without individual quota')
- Import permit Application

**Hearing links:**

Two hearing links related to the submission of the health certificate application (accessible only via shared link from GWCMC staff):

- GLDA Health Certificate Application
- Upload Health Certificate

The below image shows the iterative process during the delivery phases of the solution in detail: The step diagram is the starting point to elaborate on the process and the procedures' description. Everything is recorded in the Design document, which is a comprehensive piece of documentation of all processes described thoroughly and narrated as a succession of steps on how a process is executed and how the change of responsible is done. That analysis is used to prepare configuration sheets, called 'Configuration schemes' used as a working tool to share the documentation between the designer and the developer. In these sheets, all details on how the process layer has to be configured for each process are outlined and mapped, from e.g. automations to change progress codes or responsible, to the type of auto-generated document and email body text, etc.

**FIGURE 5.**  
Documentation

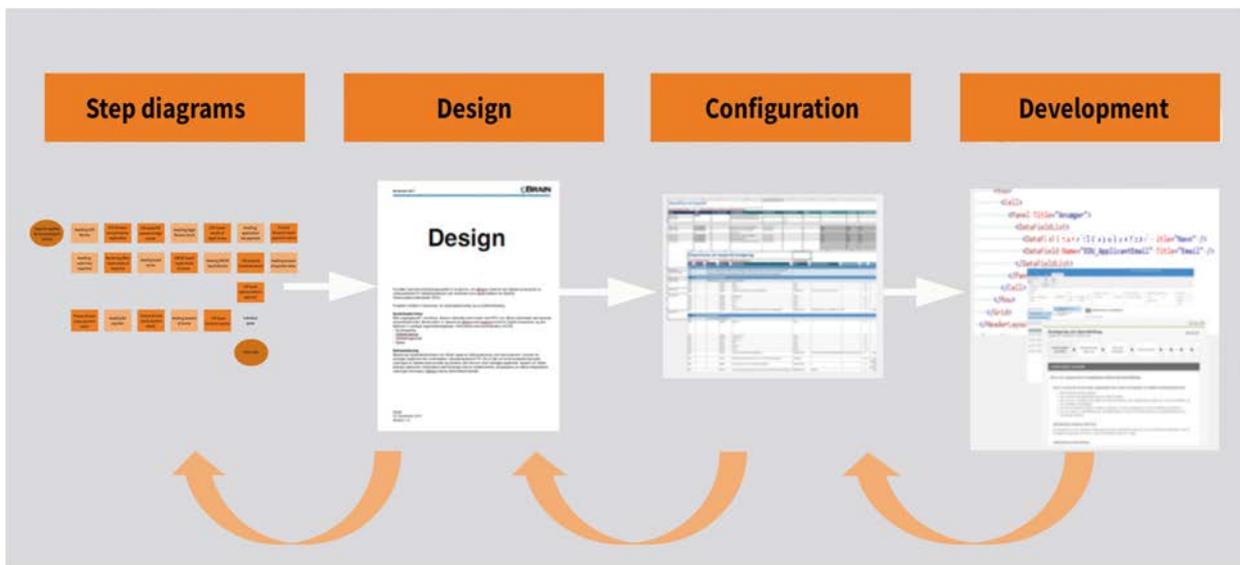


Figure Source: cBRAIN

The developers use the configuration sheet to develop and code the solution. The process is based on iterations

and waves, allowing to smoothly do adjustments and iterations back and forth among the different phases.



## Installation Phase



**White-lipped Peccary (*Tayassu pecari*)**  
Photo: © iStock



**White-lipped Peccary (*Tayassu pecari*)**  
Photo: © iStock

## Installation Phase

The purpose of this phase was to install the F2 software platform successfully on GWCMC's servers via remote installation. On 11th August 2021, cBrain held a kick-off meeting with GWCMC to discuss the organization's IT environment and began preparations for installation of the F2 software.

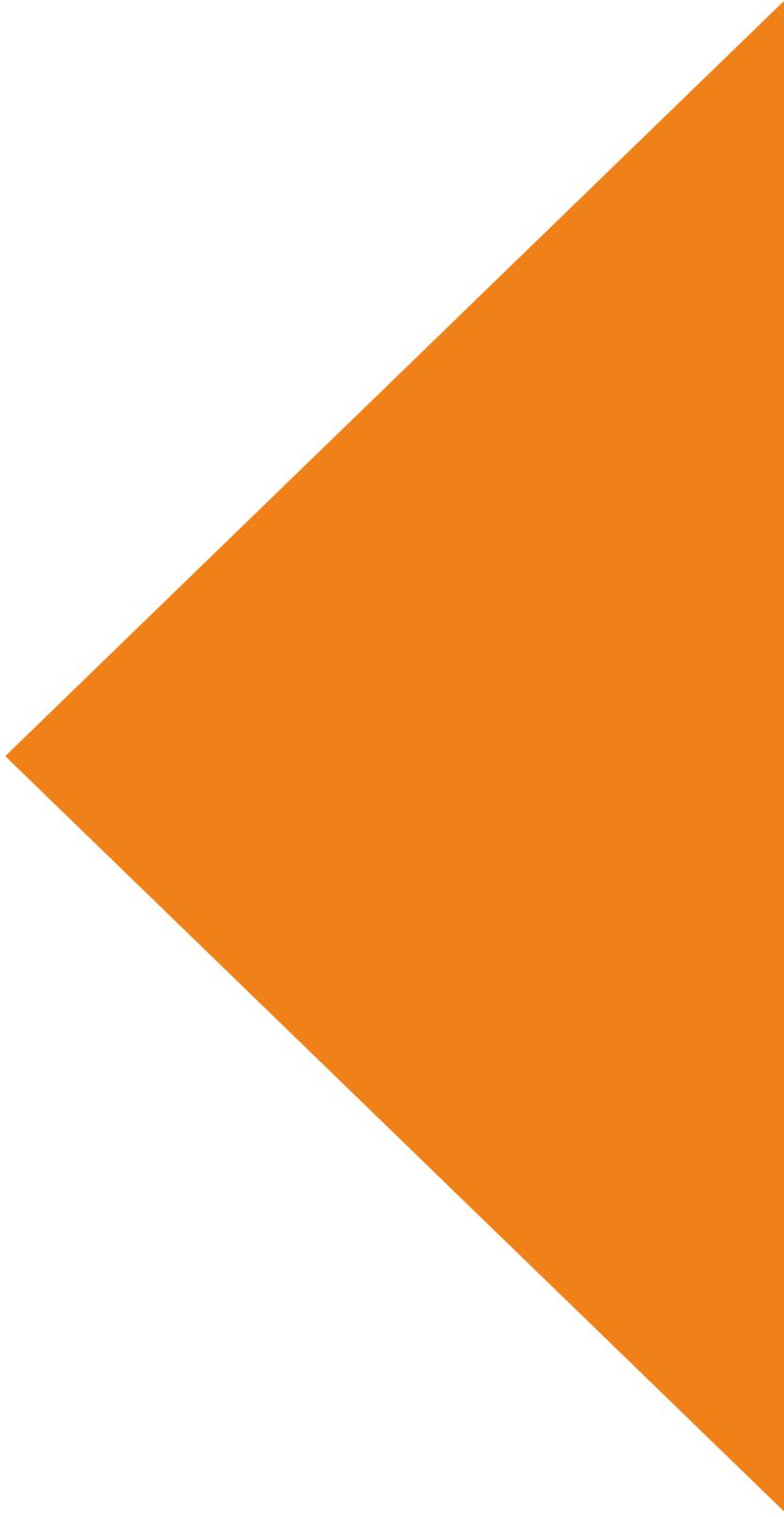
From mid-August until late September, GWCMC staff worked to prepare the computing environments for Test and Production.

By early October 2021, GWCMC had set up all required virtual machines (VMs) for the test and production servers and provided cBrain with VPN access. By 18th October 2021, cBrain was able to access the different servers via VPN, confirm that SQL Server Management had been installed on the database server, and verify that GWCMC had created two database instances for test and production. By 4th

November 2021, cBrain was able to access the database and complete installation of the F2 software in the TEST and PROD environments. The respective URLs were created.

By 9th November 2021, cBrain had created two security groups in GWCMC's Active Directory. Users placed in these security groups by the Active Directory administrator were imported into and created as users in F2.

By 12th November 2021, cBrain was able to confirm that Microsoft Office package had been activated on all required servers and that GWCMC had created user accounts for the project team to access F2 in the TEST environment. GWCMC staff uses a desktop client installation of both TEST and PROD application that is downloaded locally on each user's laptop and accessed using the AD credentials.



## Configuration Phase



**Orange-winged Amazon (*Amazona amazonica*)**  
Photo: © iStock



**Orange-winged Amazon (*Amazona amazonica*)**

Photo: © iStock

## Configuration Phase

The configuration phase followed the design phase (see image Figure 6: Documentation), where cBrain introduced the 'Configuration scheme'. This document was used as an extensive tool that gave a detailed overview of all the elements, previously mapped in the design phase that the developer used to configure the solution. The configuration was prepared for:

- The front-end, the citizen-/ company-facing e-services:

cBrain has converted six (6) paper form applications and configured them into online forms to allow applicants to apply directly from the GWCMC website.

- The back-end, where the Commission's staff handles the forms submitted online and automatically created cases with a process case guide inside the F2 platform.

### FIGURES 6 - 7.

Example of Export permit process: Front-end, online application form (left) and Back-end, case guide process management (right)

**GUYANA WILDLIFE CONSERVATION AND MANAGEMENT COMMISSION**

### Export Permit Application

VERIFICATION

INTRODUCTION

Exporter and Importer Information (selected)

Species Information

Timber Information

Summary

Are you a Licensed or Unlicensed exporter?

Licensed

Unlicensed

Exporter email

Exporter address

Exporter country

Guyana

Other Information

Purpose of the transaction

Part of export

Importer Information

Importer name

Issuing Export Permit

A US review permit application

Review Exporter and Importer Information

Review Permit Species Information

Review applicant and animal or plant info.

Verify Exporter remaining quota balance

Select the Plan

Search/Decision on the specimens

US sends copy of Preliminary Export Permit

Health Certificate

US issues Export permit to Exporter

Payment

Monitoring Office updates remaining animal list

US sends email to Exporter with remaining Quota

US calculates end of year refund on permit

Print case

Review Permit Species Information

Before proceeding with the Export permit, add the Annual quota and Individual quota cases per each species listed in the permit

Review Permit Species Information

Are you applying for CITES or Non-CITES? CITES

Application with timber species? No

Category of Wildlife	Business Status
Scientific/Common Name of animal or plant	Larch/Thuja/Redwood
Description of specimen/goods	Live
Description of identifying marks or numbers	None
Is the specimen live?	No
Age	?
Sex	Male
Appendix number	1
Source	A
Was the specimen bred in captivity or artificially propagated for commercial purposes?	No
Quantity	100
Unit	Number
Is the specimen being re-exported?	No
Added individual quota case	2021 - 375 *
Added annual quota case	2021 - 140 *

Category of Wildlife	Business Status
Scientific/Common Name of animal or plant	Cross albatross
Description of specimen/goods	Live

Figure Source: cBRAIN

On October 4th 2021, during the first demo, cBrain demonstrated the preliminary, or 'alpha', version of the software solution and received feedback from end users at GWCMC, followed by a second demonstration on November 5th showcasing a 'beta' version. Subsequently, on Friday, December 10th, cBrain demonstrated the final version of the new digital CITES software solution and received final feedback from end users at GWCMC.

During the multiple demonstrations, cBrain received regular feedback and promptly implemented the changes using the iteration method illustrated above (Figure 6: Documentation). This has been the main process to effortlessly implement changes, communicate internally with the developers, and to ensure that the feedback provided was captured and translated into design elements, then addressed and reflected properly in the software.



## Testing and Training Phase

**Red-and-green Macaw (*Ara chloropterus*) captive**  
Photo: © GWCMC



Red-and-green Macaw (*Ara chloropterus*) captive  
Photo: © GWCMC

## Testing and Training Phase

### Testing

cBrain developed a detailed test plan consisting of more than 300 individual test steps to verify that all system behavior in F2 was performing as designed and agreed with GWCMC. The test plan prepared in Excel format describes nine (9) test scripts that cover all the CITES-related business processes and key variants therein. The Verification Test plan is a tool used during the testing phase. It serves as a guide to streamline the verification of the configured solution, both for the self-service and for the case management solutions in F2.

The tool is used as the customer's guide to walk through every step of the processes and verify that all the expected functionalities and logic are reflected correctly in the actual configured solution. From the front-end with online forms in the self-service to the case guides in the solution in F2, with the purpose of having a well-documented output.

The customer uses the tool as an opportunity to test the specification

of every phase and task designed in the solution further. The tool provides a systematic guidance from a user perspective (it being the 'Exporter' or the 'Caseworker') and every action should be followed step by step, from top to bottom, to reproduce the expected interactions between the user and the software to fully complete a process.

From 3rd – 12th January 2022, cBrain conducted a full end-to-end test in the internal development environment, corrected any bugs identified, and re-tested until a stable release candidate with no known bugs was achieved. On January 13th, cBrain installed the release candidate in GWCMC's TEST environment. Following that, from January 14th – February 2nd, cBrain conducted a full end-to-end test in GWCMC's TEST environment, corrected any bugs found, and re-tested until a stable, acceptable release candidate with no known bugs was reached once more. On February 3, cBrain installed the final release candidate in GWCMC's TEST environment.

During the in-person training conducted at the GWCMC offices in Guyana, on 9th – 11th February, cBrain supported GWCMC staff in conducting User Acceptance Testing. GWCMC staff followed the same Test Plan designed for testing the solution as mentioned above, as well as exploratory testing. cBrain worked with GWCMC to develop a prioritized list of findings and conclusions from User Acceptance Testing, with four main categories:

1. **Critical bugs:** The software generates a fatal error that prevents the user from accomplishing their work and/or the software does not meet an explicitly stated requirement.
2. **Minor bugs:** The software generates an alert or message that the user can ignore or work around and/or the software

does not meet an implied requirement.

3. **Nice-to-have changes:** During testing, the user notices minor points that could be changed, such as adding a data field to capture a number or description that was not previously discussed in the design workshops.
4. **Ideas for future enhancements:** During testing, the user provides input about ways to expand and improve the system in the future, but which are not part of the agreed-upon scope of the project.

The User Acceptance Testing at GWCMC was concluded and broken down to a number of 25 bugs and changes, categorized as follows:

**TABLE 2.**  
**Bugs identified after User Acceptance Testing at GWCMC**

Critical bugs	Minor bugs	Nice-to-have changes	Ideas for future enhancement
0	2	23	0

Table Source: cBRAIN

## **Plan and schedule of training workshops**

### **Training for Exporters (external users)**

On Friday 7th January 2022, cBrain supported GWCMC in conducting a 1.5 hour Zoom video workshop for a group of licensed Exporters in Guyana. The training introduced the Exporters to the new digital forms for applying for CITES licenses, permits, health certificates, shipments, and quota requests. GWCMC staff led the workshop, with cBrain support to answer any software-related questions.

### **Training for GWCMC staff (internal users)**

In the second week of February 2022, cBrain conducted a week of training workshops in-person for GWCMC staff at their office in Georgetown, Guyana. cBrain delivered a training based on a comprehensive approach supported by a step-by-step teaching material for the on-boarding of end-users, as well as for Super Users and Administrators.

To make this as effective as possible for national as well as international clients,

cBrain has established its own “cBrain University”, offering complete training courses and material for all types of users. Taking this as the starting point, cBrain prepared customized material adapted to train all different GWCMC users, as well as an extended training relevant for the different users at the GWCMC divisions, based on roles and responsibilities, to secure local development skills.

During the in-person training week, cBrain provided:

- A general presentation to all users where the focus was to provide an orientation and introduction to F2, how to navigate through the various windows, how to find and organize information, how to communicate and collaborate both internally and externally.
- Group sessions for GWCMC staff designated as ‘Super Users’ and ‘System Administrators’, using the administrator-specific functions course, to be able to support and help other colleagues during the system roll-out.

- Breakout sessions for the divisions responsible for using the F2 CITES solution on a daily basis, to walk them through their specific parts of the business processes and how to perform their job functions in F2:

- o Licensing and Permitting Division and the Director of the Unit
- o Monitoring Officers
- o Finance Division
- o Administrative Division Assistant and Director of the Unit

Furthermore, cBrain ensured that the GWCMC project owners ran through a structured test of the test scripts outlined in the Verification Test plan, to verify performance of all CITES related processes in F2.

### **Training materials**

cBrain prepared training materials targeted at each of the three user groups that received a dedicated training session: Basic end-users, Super Users, and Administrators. The primary training materials were based on a PowerPoint presentation, which cBrain's trainer

used to alternate between presenting key concepts, live demoing the concept in the F2 test environment, and guiding participants through training exercises where they could get comfortable with using the software features themselves. Furthermore, cBrain prepared a 'Starter pack', aimed to easily instruct and guide the new users to perform basic actions in F2. It includes:

- Nine 'quick guides': consisting of one page each to describe basic concepts and functions in F2 (The Quick Guides have also been saved as shared knowledge in GWCMC's F2 production system, so that every GWCMC F2 user can access these at any time.):

- o Access management
- o Advanced search
- o Communication in F2
- o Default lists
- o Document-Records-Cases
- o Icon legend
- o Searches
- o The three windows of F2
- o Tidying up in F2

- Seven short videos, to introduce the new users to F2:

- o The main window
- o Records
- o Cases
- o Searches
- o Columns
- o Communication
- o Access control

In addition, cBrain prepared a final version of the ‘Design Document’ containing a complete description of the overall CITES related processes. It explains each process and related tasks in detail and with a step-by-step approach, in order to guide and support the GWCMC staff, and ease the transition to the new software.

## Integrations

As part of the solution, the new CITES system at GWCMC provides an integration to ACTO’s Amazon Regional Observatory (ARO) database. The Amazon Regional Observatory fosters the flow of information between institutions and intergovernmental authorities of the Member Countries, linked to the study of the Amazonia, becoming a

reference centre for regional scientific-technological information and socio-cultural diversity of the Amazon<sup>1</sup>.

After several meetings, ACTO/ORA and cBrain reached a decision on the type of integration that cBrain would have developed. The integration consists of two web services (Exports and Permits), where organized data is made available, after each export permit is approved, finalized and closed from the F2 solution. Data from the F2 database includes e.g. the scientific species name, quantity and unit, emission date, permit number and more.

cBrain installed the ARO integration on the GWCMC TEST server on 17th of June 2022. The integration is currently under development. cBrain aims to install and finalize the ARO web service on the GWCMC production servers as soon as it is approved.

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<sup>1</sup>Amazon Regional Observatory – ARO: <https://oraotca.org/en/about-aro/>



**Go live / Launch Phase**

**Amazonian tree**  
Photo: © iStock



**Amazonian tree**  
Photo: © iStock

## Go live / Launch Phase

On 14th – 17th February 2022, cBrain completed the assessment of all requested changes, finalized the fixing of all minor bugs, and addressed as many as possible items of the deemed nice-to-have changes before installing the corrected version of the software in the GWCMC TEST environment. In February and March 2022, cBrain worked on implementing the corrections to be installed in GWCMC's TEST environment and re-tested them to confirm the minor bugs were fixed and that the first round of implemented nice-to-have changes were working properly. In a second round, cBrain addressed further accepted changes and ultimately re-tested the solution to make sure everything was ready for installation in the Production environment before Go-Live. In preparation for the launch of the new software, cBrain organized an additional training for the super users at GWCMC, to demonstrate the final changes implemented after the completed testing period at GWCMC.

On March 2022, GWCMC confirmed the final list of users for their F2 CITES solution, and cBrain coordinated with their IT support to ensure the Active Directory group had all GWCMC users listed. By 25th March 2022, cBrain finalized setting up the F2 standard system in the GWCMC PROD environment, to reflect the organizational structure of the users at GWCMC, roles and permissions.

On 4th of April 2022, cBrain installed the final CITES solution, including both back-end and front-end part (case guides and self-services) in the PROD environment at GWCMC. Following the installation, cBrain performed a smoke test to ensure the software's functionality was working properly, in preparation of the Go-Live. During the same period, cBrain transferred the Gmail integration set-up from TEST to PROD and activated the Mail integration service for GWCMC.

On April 8th 2022, the final version of the solution went officially Live in the GWCMC production environment. After the Go-Live, cBrain provided three weeks of Hypercare, from 11th – 29th April 2022. During this period, resources were available for troubleshooting and assessing any potential changes required.

Additionally, during the Hypercare period after Go-Live in the last weeks of April

2022, cBrain provided a series of remote training sessions, focusing on the CITES Export Permit solution, specifically aimed at the Licensing and Permitting workflow, on how to execute tasks for quota handling, generating permit documents, species management, etc. The recorded sessions have been provided to GWCMC as support material for further reference.

## The Results



**Red-and-green Macaw (*Ara chloropterus*)**  
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**Red-and-green Macaw (*Ara chloropterus*)**  
Photo: © iStock

## The Results

The entire end-to-end process – from setting National and Individual quotas, to issuing annual licenses to exporters, to emitting export / import permits and inspecting shipments – is now handled in one platform, F2, where GWCMC staff has an overview of all activities per exporter and complete transparency per case.

The case guides for national quotas, individual quotas, and permits ensure these case types follow the correct workflow and review process every time. Furthermore, the Search templates embedded in the national quota and individual quota case guide allow GWCMC staff to maintain a clear overview as quota balances are used up during the year. The calculations to determine the remaining

balance and whether additional permits can be issued, provide additional transparency.

An integration with the Amazon Regional Observatory ARO database by the Amazon Cooperation Treaty Organization (ACTO) allows specific data about the species and quantities on each approved permit to be made available to ACTO at the completion of each export permit case.

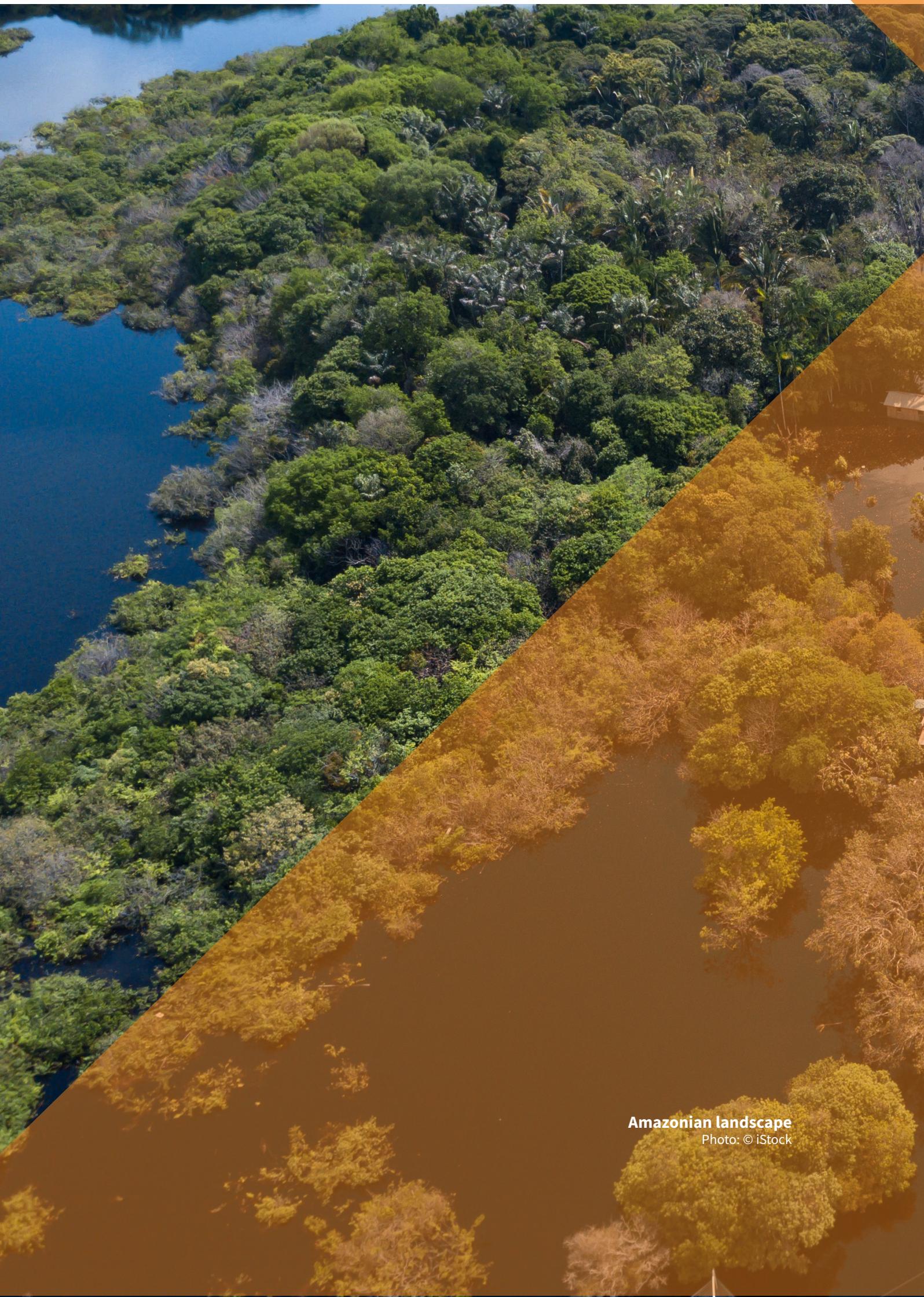
The reporting module included allows GWCMC staff to extract a report with an overview of all key data about export and import permit cases to be used for easy reporting to the CITES Secretariat.



An aerial photograph of a lush Amazonian landscape. A dark blue river winds through a dense, green forest. In the center of the river, a small boat with a red and white canopy is moving. To the left, a small white house with a corrugated metal roof sits on a narrow strip of land. In the foreground, a larger boat is docked near a cluster of buildings with thatched and corrugated metal roofs. The image is partially overlaid with a semi-transparent orange-brown filter on the left and bottom-left corners.

# Benefits of the new digital CITES permitting solution

**Amazonian landscape**  
Photo: © iStock



**Amazonian landscape**  
Photo: © iStock

## Benefits of the new digital CITES permitting solution

The new CITES solution ensures increased transparency around decisions, as all data and documents are accessible to all GWCMC employees in one single system. The export permit enforces the 'four-eyes principle' – i.e., requiring two (2) case workers to review and approve before a final permit can be issued – to ensure no permits are issued inappropriately and to avoid fraud.

Transparency and accuracy with quota management allow for compliance with the annual and individual quota set. The system displays a clear overview of the calculations for each Individual and National quota balance.

All official correspondence with exporters happens via emails generated from within the case guide, ensuring transparency

into all communication. Beyond that, all official documents (license certificates, permits, invoices) are generated automatically using document templates, ensuring consistency and accuracy.

The reporting module eases reporting to the CITES Secretariat. It extracts all data for export / import permits currently issued, providing an overview in Excel format.

The integration with the Amazon Regional Observatory (ARO) allows ARO to receive relevant data from the F2 database. This supports constant communication around the type of species, quantity, appendix number, etc. exported, allowing for more accurate national monitoring on endangered species trade in the Amazon region.



## Conclusions and Recommendations



**A hummingbird**  
Photo: © iStock



**A hummingbird**  
Photo: © iStock

## Conclusion and Recommendations

The new fully integrated digital end-to-end solution to manage all processes related to import / export of CITES endangered species, based on a standard platform, F2, has been successfully implemented at GWCMC.

The F2 standard platform allowed for fast-track digitalization of the processes by simply configuring the process layers, as the core standard software remains the same. This forms the basis for GWCMC to securely onboard and digitalize any other

future processes carried out internally at the Commission, using the existing F2 installation, instead of having to start from scratch.

F2 enables the Commission to plan and execute a 'digital agenda' to onboard all their processes one by one in one single standard platform – built to accommodate the whole administrative workflow, where transparency, efficiency and knowledge sharing are the key foundation.









CITES MODULE

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