

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



Sixty-sixth meeting of the Standing Committee
Geneva (Switzerland), 11-15 January 2016

Interpretation and implementation of the Convention

Trade control and traceability

Traceability

SOCIO-ECONOMIC CONSIDERATIONS IN THE DEVELOPMENT OF A
GLOBAL TRACEABILITY INFORMATION SYSTEM FOR REPTILE SKINS

1. This document has been submitted by Mexico and was prepared by the Responsible Ecosystems Sourcing Platform (RESP).*
2. At its 16th meeting in Bangkok, the Conference of the Parties adopted Decision 16.105 which directed the Animals Committee to:
 - a) *consider the reports and recommendations from the Animals Committee and the Secretariat provided in accordance with Decisions 16.102 and 16.103 and, as appropriate, [...] any other relevant available information;*
 - b) *examine [...] any other relevant available information concerning:*
 - i) *the socio-economic implications of such a traceability system; and*
 - ii) *the potential costs of the system at all levels along the supply chain, from producers to consumers;*
 - c) *make recommendations to the Parties, the Animals Committee and the Secretariat as appropriate; and*
 - d) *report on the implementation of Decisions 16.102, 16.104 and 16.105 at CoP17, with recommendations for consideration by the Parties, if deemed necessary.*
3. At its 65th Meeting, the Standing Committee noted document [SC65 Doc. 44](#) and the oral report of the Secretariat and the Chair (Switzerland) of the Standing Committee Working Group on snake trade and conservation management and endorsed the recommendations in paragraph 23.
4. As a contribution to the work of the Standing Committee outlined in Decision 16.105, Italy, Mexico, Indonesia and South Africa, have been actively advancing the development of a global traceability information system for reptile skins to complement and strengthen the current CITES permitting system related to this trade. This work has been led by RESP through its International Working Group on Reptile Skins (IWG-RS).

* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

5. The system aims to ensure legal, sustainable, stable and continuous supply chains for reptile skins by tracing skins from their origin in the wild or breeding facility up to the final product with controls along the entire supply and regulatory chain, in a biologically feasible and economically viable way.
6. As a first step, the IWG-RS undertook an international consultation process, which involved more than 130 stakeholders. The main findings of this consultation process were documented and analysed by RESP in the document "[System Requirements for a Global Traceability Information System for Reptile Skins](#)" which was presented to the 27th Meeting of the Animals Committee of CITES under agenda item 19.4 ([AC27 Doc. 19.4](#)).
7. During 2014, extensive research was undertaken by the IWG-RS and its technical partners in close collaboration with stakeholders in Indonesia, Mexico and Italy on the development of an identification carrier able to withstand the tannery chemical and mechanical operations, as this was identified as the crucial bridge in the value chain.
8. In April 2015, the proof of concept of the identification carrier was validated by RESP.
9. The results of the proof of concept were presented by Italy and Mexico in document [AC28 Doc. 14.2.2](#) to the 28th Meeting of the Animals Committee of CITES, as a contribution to the development of a global traceability information system for reptile skins, within the framework of the Convention. The Animals Committee and the Working Group on snake trade and conservation management noted the contribution of [AC28 Doc. 14.2.2](#) to the development of guidance on traceability systems.
10. Within the recommendations of AC28 to be referred to the present Standing Committee meeting ([AC28 Com. 6 Rev. by Sec.](#)), a resolution on conservation, sustainable use of and trade in snakes was drafted, which among other things encourages Parties to share experiences in the use of traceability systems for specimens of CITES-listed snakes, including the use of identification technologies. Also, a draft decision on traceability at a broader scale was proposed, that includes the establishment of a working group on traceability systems in collaboration with CITES Secretariat in order to, *inter alia*, collaborate with United Nations and other relevant organizations involved and that have experience in the development and use of traceability standards and systems.
11. Following the validation of the proof of concept of the identification carrier, the IWG-RS worked together with Indonesia, Italy, Mexico and South Africa to structure the main elements for the setting-up and implementation of the pilot testing of the reptile skins traceability information system.
12. In November 2015, the pilot traceability project scheme was agreed by RESP and the attached Annex provides the general description of this scheme, as well as the elements and processes that will be undertaken with the aim of field-testing and validating – in a semi-controlled commercial environment – the effectiveness, efficiency and viability of the proposed global traceability information system for reptile skins and potential governance structure throughout the entire business and regulatory chains.

Recommendations

13. The Standing Committee is invited to:
 - a) Take note of the progress and results of the RESP IWG-RS to-date;
 - b) Consider the proposed scheme for the pilot testing of the traceability information system and, in particular, the elements referring to practically assessing the socio-economic implications and potential costs of the system;
 - c) Provide comments on the proposed scheme for the pilot testing of a global traceability information system for reptile skins;
 - d) Incorporate this initiative as one of the concrete examples of traceability systems and identification technologies development to be considered within the draft Decision resulting from the 28th meeting of the Animals Committee ([AC28 Com. 6 Rev. by Sec.](#)) that will be discussed during the present meeting to provide recommendations to the CoP17.
 - e) Forward the outcome of discussions at this meeting to the Conference of the Parties for their consideration at their 17th meeting.



INTERNATIONAL WORKING GROUP ON REPTILE SKINS

SOCIO-ECONOMIC CONSIDERATIONS IN THE DEVELOPMENT OF A GLOBAL TRACEABILITY INFORMATION SYSTEM FOR REPTILE SKINS

Scheme and main elements for pilot testing

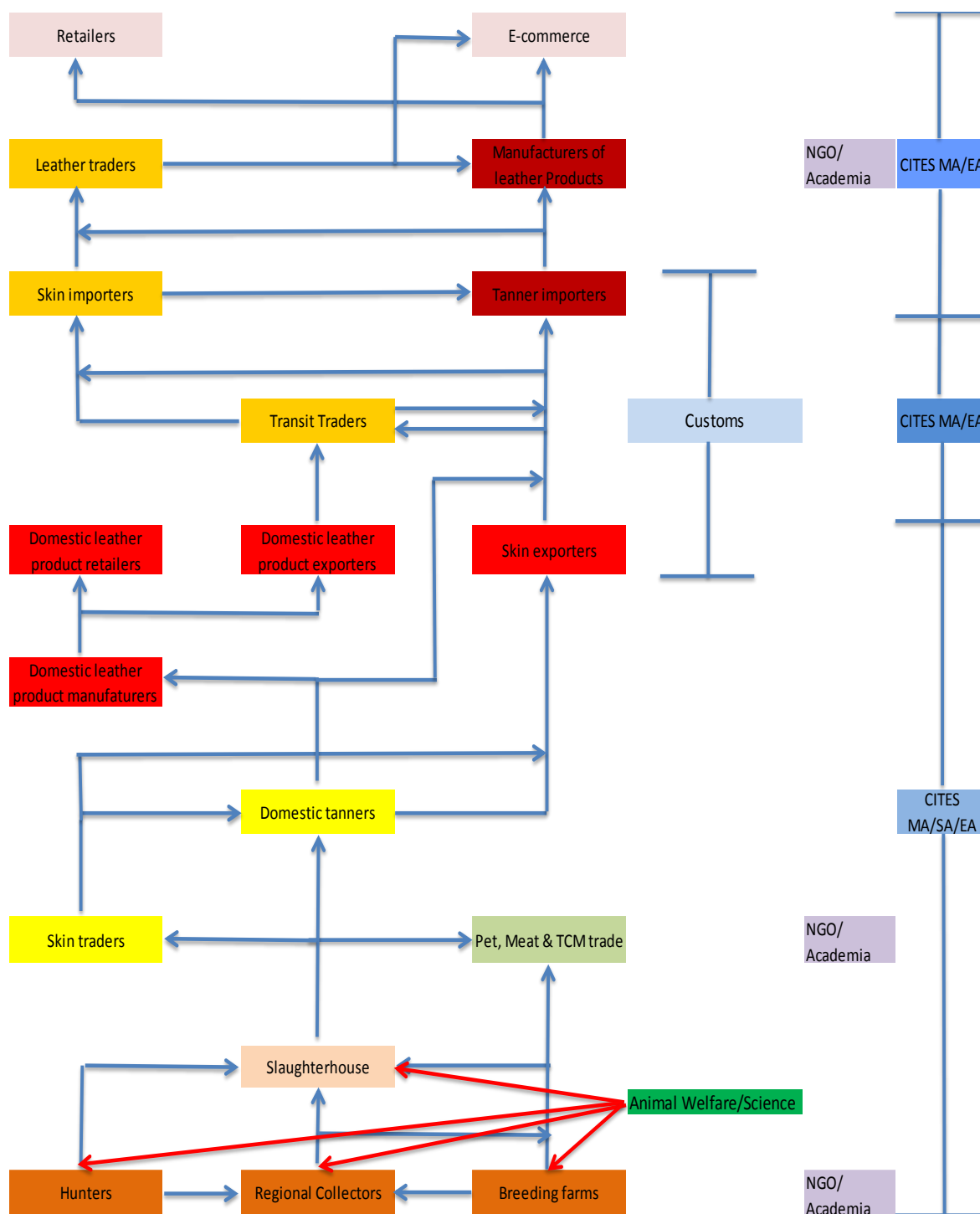
Introduction

1. The International Working Group on Reptile Skins (IWG-RS) of the Responsible Ecosystems Sourcing Platform (RESP) has set a goal to develop, test and implement a global traceability information system for reptile skins and its corresponding information system in a number of pilot countries by the end of 2016, as a contribution to complementing and strengthening the CITES permitting system related to this trade.
2. The system aims to ensure legal, sustainable, stable and continuous supply chains for reptile skins by tracing skins from their origin in the wild or breeding facility up to the final product with controls along the entire supply and regulatory chains, in a biologically feasible and economically viable way.
3. This document has been prepared by RESP and summarises the outcomes of work undertaken by the IWG-RS with its technical partners, and in collaboration with stakeholders in Colombia, Indonesia, Italy, Mexico and South Africa as a contribution to the work of the Standing Committee outlined in [Decision 16.105](#).
4. The composition of the IWG-RS is provided in Appendix 2. The IWG-RS has worked continuously through virtual meetings and calls, and has met two times in the period between May and November 2015 to assess the advancements of progress and take decisions regarding next steps.
5. This report builds from the document [AC27 Doc 19.4](#) which was presented and discussed at the 27th Meeting of the Animals Committee in Veracruz, Mexico and the document [AC28 Doc 14.2.2](#) which was presented and discussed at the 28th Meeting of the Animals Committee in Tel Aviv, Israel. It also considers the report from the Secretariat and Animals Committee submitted to the Standing Committee in document [SC65 Doc.44](#), in particular paragraphs 13, 14 and 23 of this document, and the recommendations for future work provided by the Animals Committee Working Group on Snake trade and conservation management ([AC27 WG4 Doc. 1](#) and [AC28 Com. 6 \(Rev. by Sec.\)](#)).
6. In the period between May and November 2015, the work focused on the development of the pilot testing scheme in a semi-controlled commercial environment in three pilot countries: Indonesia, Italy and Mexico, with the aim of validating the effectiveness, efficiency and viability of the proposed global traceability information system for reptile skins, and potential governance structure throughout the entire business and regulatory chains, in accordance to following characteristics:
 - i. Be simple, affordable, sustainable;
 - ii. Operate throughout all the supply chain from the raw material to the final product;
 - iii. Be secure, tamperproof and resist chemical and mechanical processing;
 - iv. Be easy to apply and implement at all production levels;
 - v. Be capable of distinguishing skins of all reptile species to the amount of 7 - 10 million specimens per species, which is the estimated trade over a period of 10 years;
 - vi. Offer real-time on-line registration and verification.

The components of the global traceability information system

7. In document [AC27 Doc.19.4](#), RESP presented the mapping of the reptile skins business chain as illustrated in Figure 1 below:

Figure 1. General schematic representation of reptile skin value chain

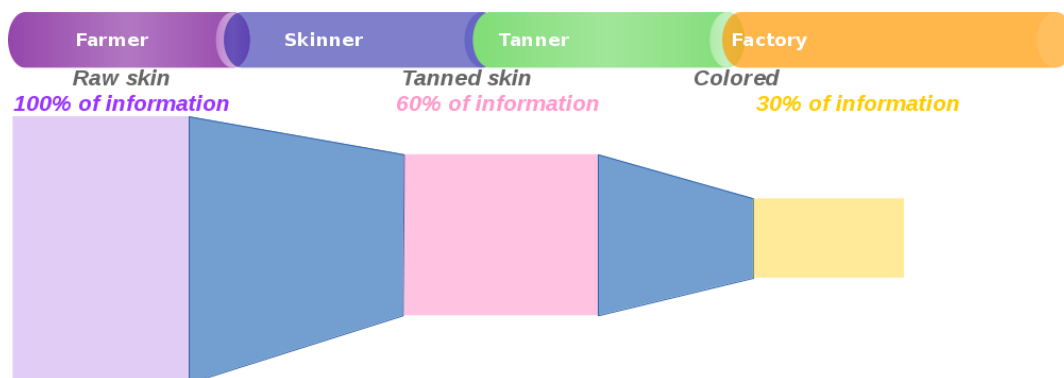


8. In the same document, four main components of a global traceability information system for reptile skins were identified:

- i. The identification carrier;
- ii. The application device;
- iii. The tracking system;
- iv. The information system and governance structure;

9. In line with the four components identified through the system requirements analysis contained in document [AC27 Doc.19.4](#), RESP began the proof of concept and development phases of the four components.
10. Regarding the identification carrier, after identifying and analysing a number of potential carriers, the solution based on biometric image recognition was further analysed and validated in April 2015, as presented in document [AC28 Doc.14.2.2](#), as the viable option that compared with several others, better guarantees secure traceability of each skin and parts thereof.
11. The identification carrier is grounded on a biometric image recognition algorithm that creates a Unique Fingerprint Identification (UFI) based on macroscopic skin appearance identification of wrinkles of the surface of the scales, and the shape and relative centre positions of the scales for each individual skin as well as the spaces between scales. The UFI is capable of analysing approximately 2,000 unique features in a 3x3 cm patch of each skin or part thereof at any stage of the transformation process from the live animal to the cut pieces incorporated into the final product, as shown in Figure 2 below:

Figure 2: Survival of biometric information throughout the supply chain.



12. The application device and the tracking system have been developed as one component configured within a mobile phone application compatible with both iOS and Android platforms that controls all the required parameters for the acquisition of images or videos, the secure capture, sector dedicated and username and password protected access and management of information at each control point. The unique visible number of the image acquisition of a skin is part of an automatically generated string of information that includes time and location tracking through GPS, operator data, biological data, document numbers, transport routes, etc.
13. The mobile phone application is compatible with both low and high-resolution phones and inter-phased with international identification information standards that would provide a universal accepted and standardised method for capturing, analysing and confirming legal origin of any skin or part thereof. Figures 3 and 4 below provide an example of the current development stage of the mobile phone application to be used during the pilot testing.
14. The information management system has been structured to be capable of linking to transport documentation, national databases and CITES permitting protocols allowing electronic permitting and cross-border sharing of data and monitoring related to wildlife trade and trafficking.
15. Figure 5 below illustrates the traceability and authentication interactions at three levels: the end to end authentication protocols, the account and reporting management, and the responsible reptile skin management.

Figure 3: Simulation of the mobile application enrolling a new skin.

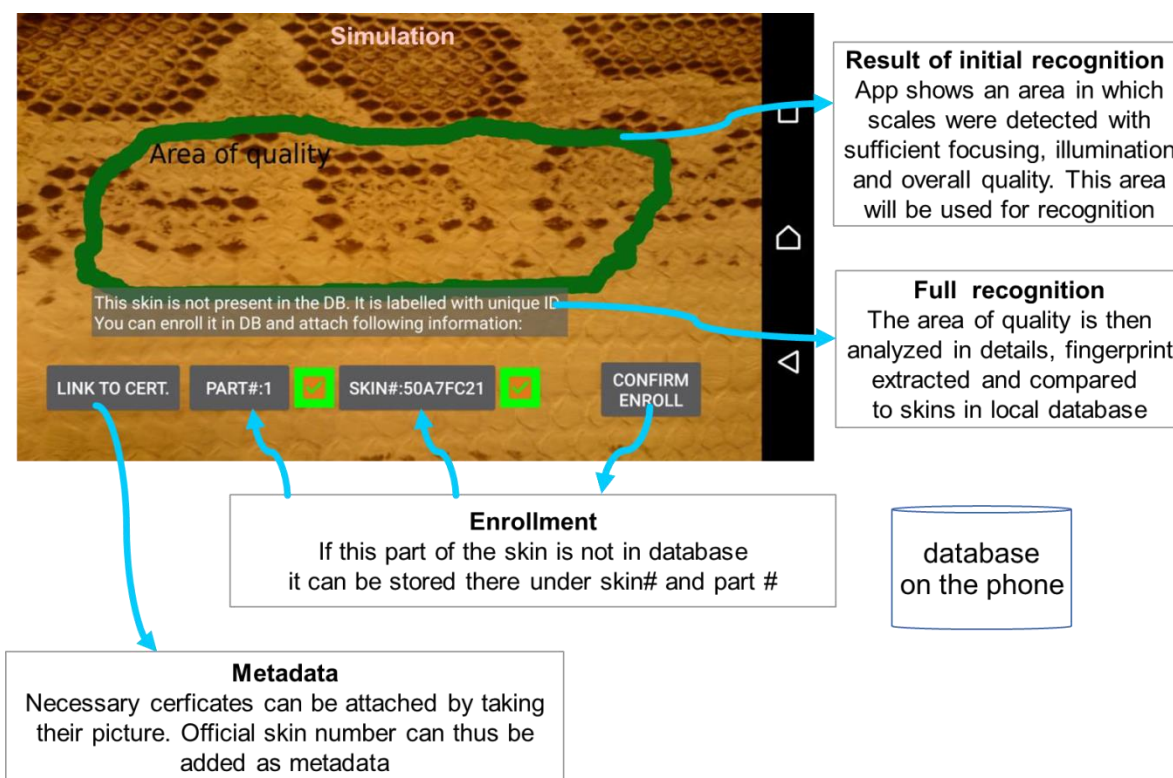


Figure 4: Simulation of the mobile application verifying a skin.

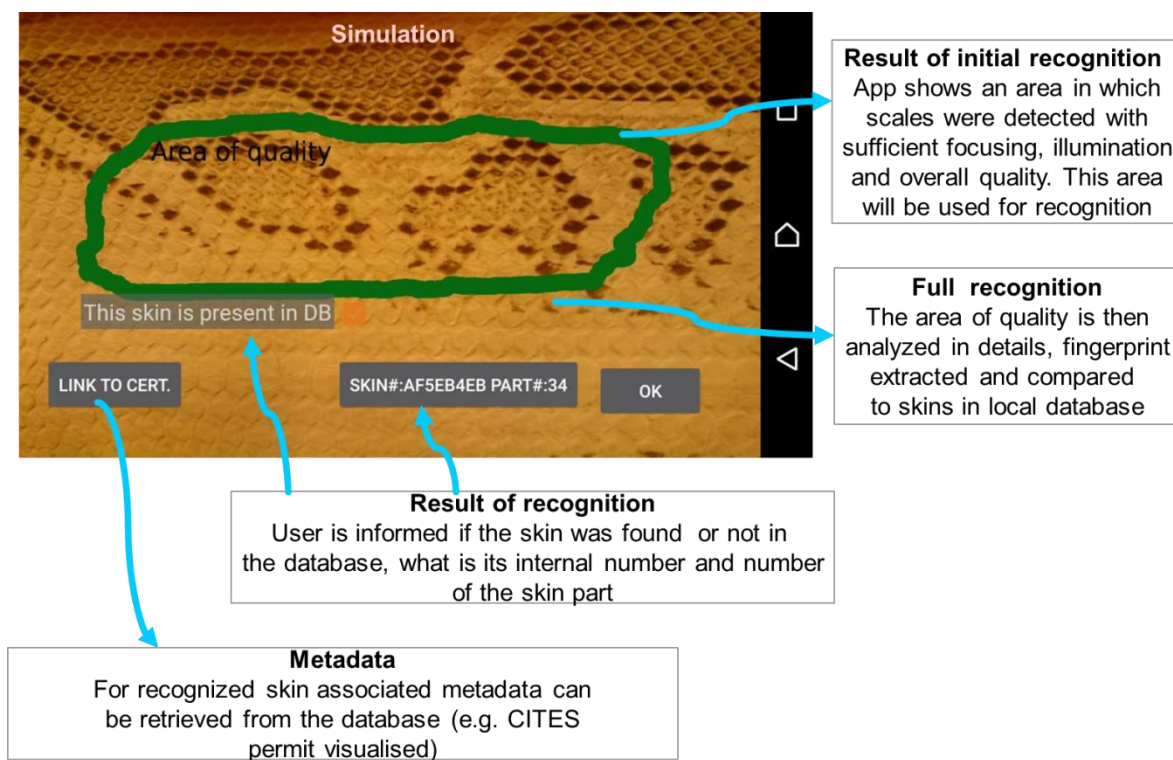
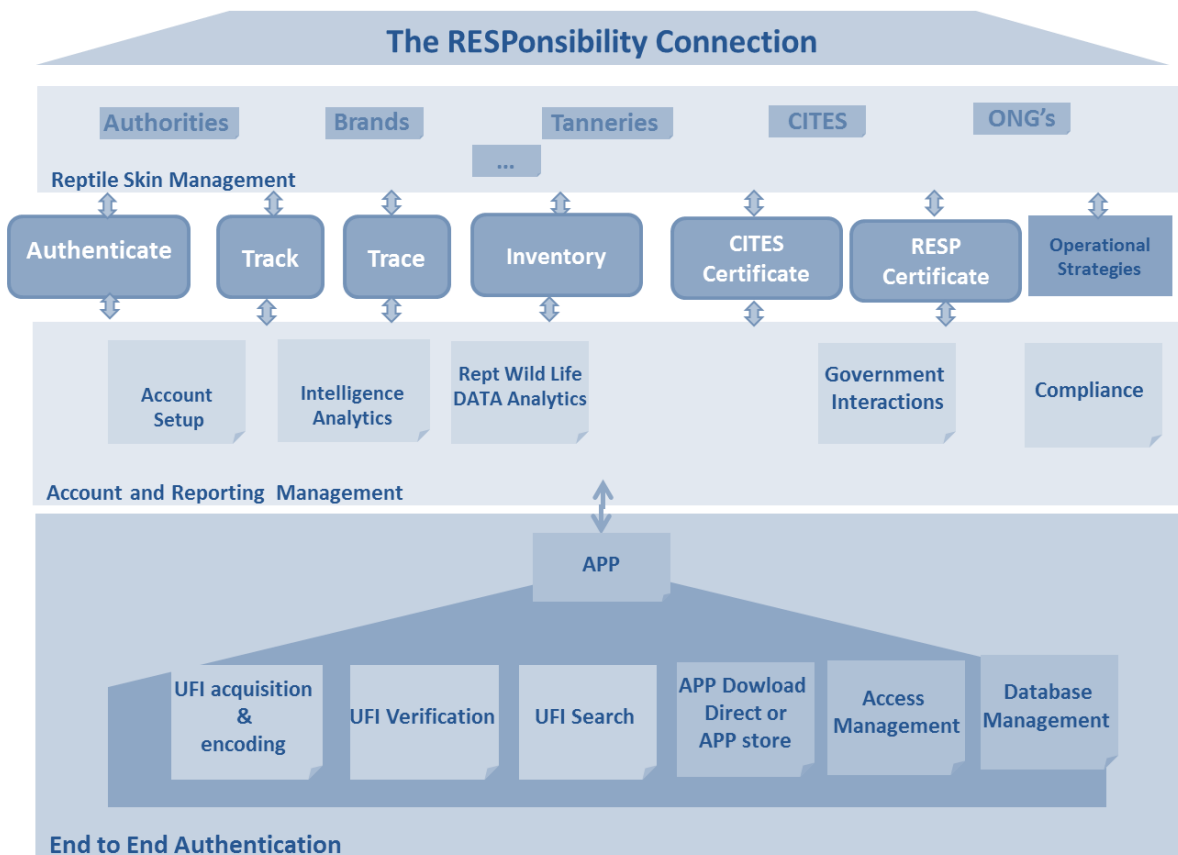


Figure 5: Traceability and authentication interactions



16. The authentication level will be managed by the mobile application, in which the enrolment and verification modules will be complemented by a number of other protocols for search, storage, and access and database management and security protocols.
17. The second level refers to the management of user accounts and analytical framework that will serve as a bridge between the authentication protocols and the users of the system. In order to ensure strict compliance and security of the system all users will require a user account and password. The analytical and compliance modules will be managed where the system will be able to analyse and manage the data against a number of criteria and the global and local databases.
18. The third level of final users will be linked to the second level through a number of potential processes. Depending on their roles in the system they might be able to authenticate, verify valid permits, follow the flow of the material throughout the supply chain, access scientific information, etc. The access of the final users will be managed at this level.

Determining the costs points of the system

19. Since the biometric image recognition system comprises a global information management system and does not require a physical identification carrier (although any type of physical carrier could be added to the initial stages of the supply chain to facilitate trade and controls), a simple cost estimation based on the price of the physical carrier (e.g. plastic tag or barcode sticker) would not provide an adequate estimation of the costs of the system. The system does not require specialised equipment as existing and locally available smart phones can be used after downloading the mobile application.
20. In order to correctly assess the costs of the system and the potential socio-economic implications – both positive and negative – a holistic analysis of the entire system is necessary, as well as the value it will add for each stakeholder.
21. As a first step, the potential users of the system were identified to include hunters, ranchers, farmers, skimmers, collectors, traders, exporters, importers, tanners, manufacturers, retailers, consumers, CITES

authorities, enforcement and customs officials, policy-makers, as well as environmental, animal welfare and development organisations.

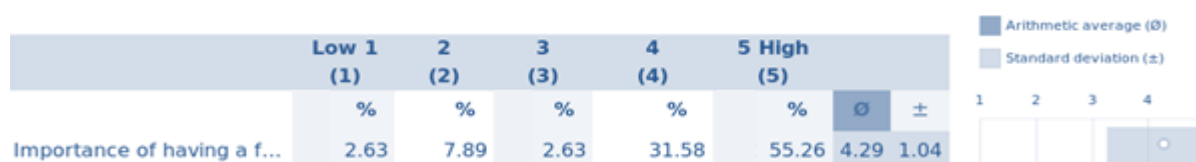
22. Section 3.4 of the document [AC27 Doc.19.4](#) outlined the perceived added value and opportunities that an effective and well-structured traceability system could bring if implemented to complement and strengthen the CITES permitting system. Table 1 below presents the main opportunities identified.

Table 1. Summary of perceived opportunities of an effective traceability system.

Opportunities
<ul style="list-style-type: none"> • Strengthen CITES objectives • Legalisation of the value chain • Transparency and credibility of the value chain • Ethical and sustainable sourcing • Simplification of bureaucracy • Real-time verification and controls • Contribution to biodiversity and sustainability research and actions • Improvement of animal welfare practices • Improvement of social and financial conditions of the upstream value chain • Cradle to grave traceability of reptile products • Consumer confidence and protection • Funding wildlife sustainability programs • Capacity building for human resources • Trade facilitation

23. The cost assessment of the system also needs to consider the importance of attaching a funding scheme to (co)finance conservation and monitoring activities in range states. Graph 1 below, which was originally presented in document [AC27 Doc. 19.4](#), highlights the importance of this dedicated funding where 86.45% of the respondents to the traceability system requirements questionnaire felt that it was either important or very important to have such a funding scheme.

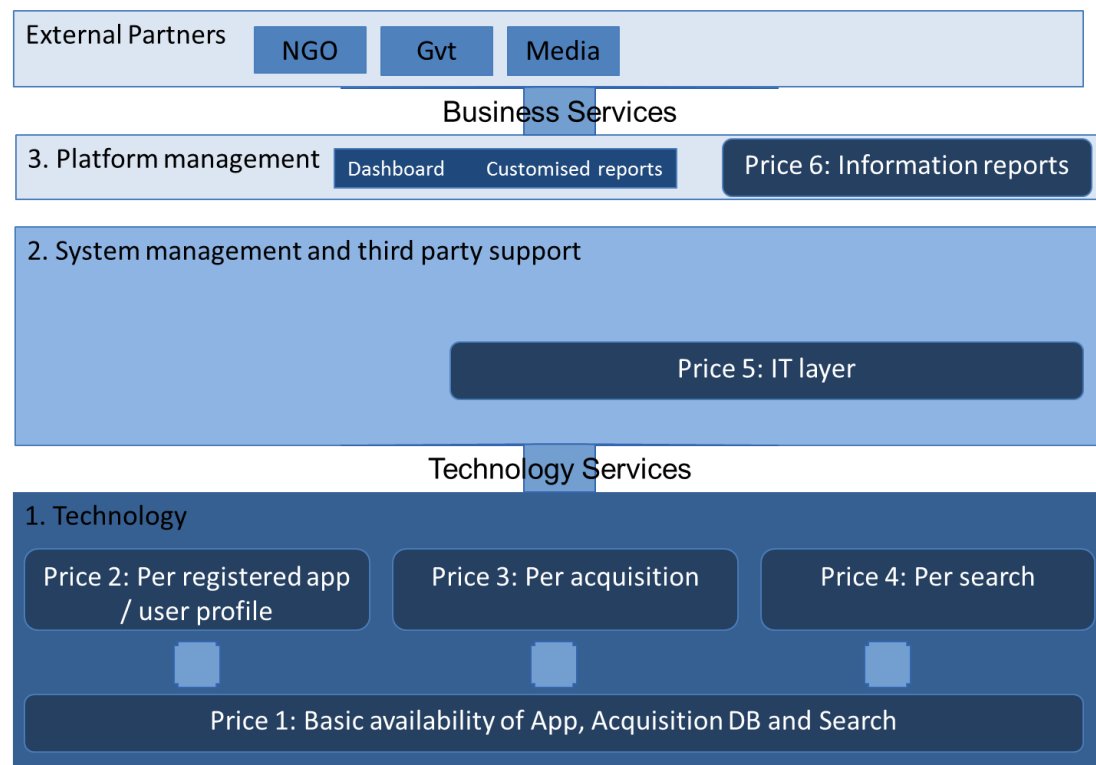
Graph 1. Importance given to having a funding scheme to co-finance conservation and monitoring activities



24. Taking into account the considerations outlined above, and building from the proposed system's architecture presented in the section above, a number of price points that could be applied to the system were identified depending on its potential uses. A mix of these different price points would be tested to identify the best formula for financing the entire system, while at the same time generating a benefit that could be used for the dedicated funding and to continue improving the system.
25. As shown in Figure 6, there are three main cost items for the system: 1) the technology, 2) the management of the information system and the third party support, and 3) the management of the user-facing information platform. If the use of a physical carrier to facilitate trade and controls would be desired, the cost of the carrier would also need to be calculated. However, given that the physical carrier would not be used for ensuring the integrity of the system, the most inexpensive option would be sufficient.
26. For the technology cost item, which includes the availability and maintenance of the mobile application and its functionalities, three potential price points have been identified: a price for registered user, a price per acquisition of a skin, and a price for search in the database. All of these items would together incorporate the price for the technology services.
27. For the system management cost item, which would include any third party support to manage the information system, a general information technology fee could be applied.
28. The management of the user interface platform, which would allow for the interaction between the users and the system depending on their roles, could enable the production of customised analytical reports.

29. The management of the system and the platform together would incorporate the price for the business services of the traceability information system.

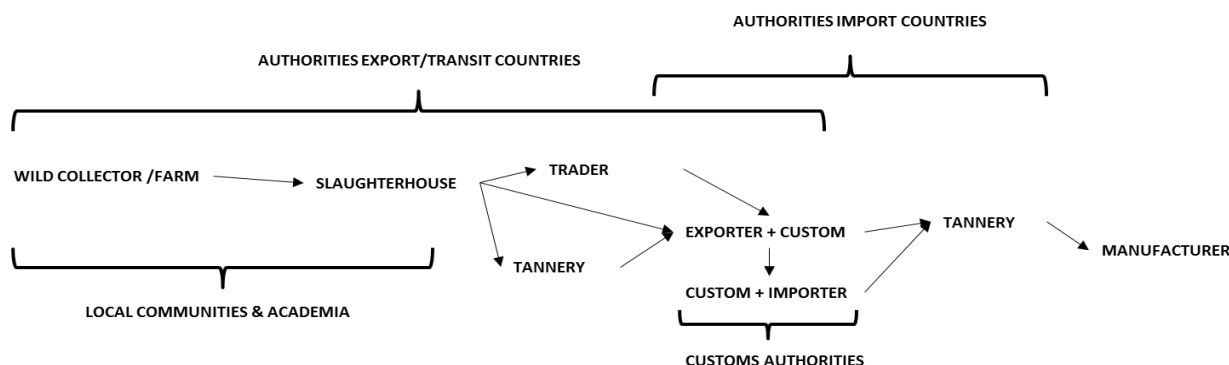
Figure 6. Schematic representation of potential cost items and price points of the system



The pilot testing of the system

30. In October 2015, the IWG-RS of RESP launched the pilot testing phase of the global traceability information system for reptile skins with the objective to qualify and field-test the system (mobile application, process, data, tools, resources, procedures, governance) that will allow the actors along the reptile skin value chain and business processes to trace reptile skins from origin to final product.
31. In order to simulate as closely as possible the potential future functioning of the system, including testing the different roles and responsibilities of the different stakeholders, the pilot testing phase has secured the participation of all stakeholders of the system including: hunters/collectors, farmers, slaughterhouses, traders, tanneries in both exporting and importing/transit countries, manufacturers, brands, CITES authorities, customs authorities, other relevant local authorities, local communities and academia. Figure 7 below provides the schematic representation of the involvement of the different stakeholders.

Figure 7. Schematic representation of stakeholders involved in pilot testing

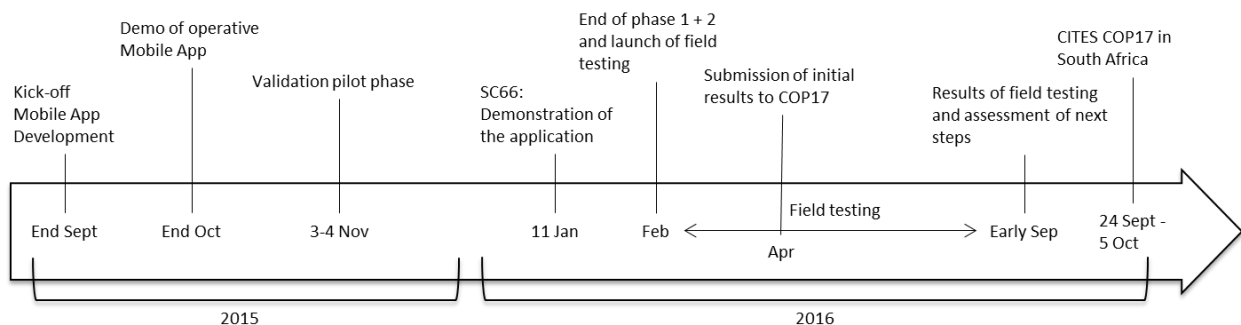


32. In addition, each participating country has set up a national steering committee to oversee the project.
33. The piloting phase will be divided into four specific components that will cover the following elements:

- i. Finalisation of the mobile application for iOS and Android platforms: design, configuration and development of full application for skin image acquisition, identification, processing and verification.
- ii. Development of the information system (database) which will be linked to the mobile application during the pilot testing phase.
- iii. Perform the field tests.
- iv. Development and deployment of the final scalable, multi-country information technology system.

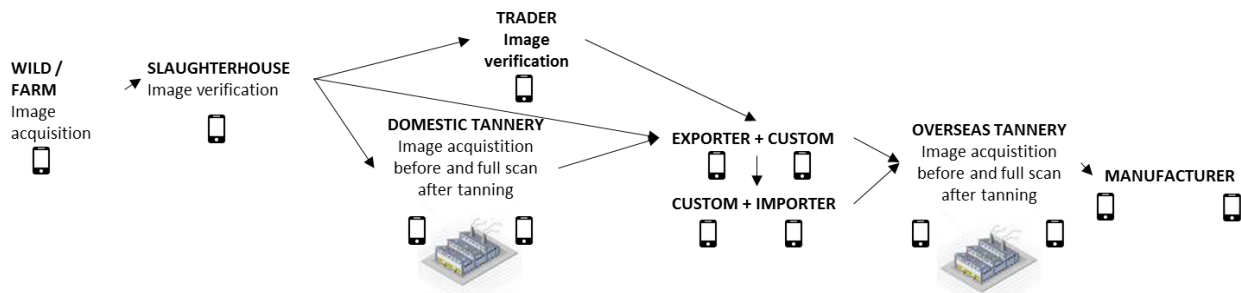
34. Three of the components should be completed by the 17th Meeting of the Conference of the Parties of CITES (COP17), which will take place in South Africa next year. While the fourth component will only start once the field testing results have been validated and comments have been received from a broad range of actors, including inputs and observations received at COP17. Figure 8 below provides a schematic view of the estimated timelines.

Figure 8. 2015-2016 timeline of the pilot testing



35. The field testing will need to ensure that it simulates as closely as possible the real commercial and regulatory environment of reptile skin trade. Figure 9 presents the commercial and regulatory flow of the traceability pilot projects, as well as the image acquisition, verification and control points that will be included as part of the field testing.

Figure 9. Commercial and regulatory flow of the field testing



36. The initial skin acquisition will be undertaken at the first point of origin (wild or farm) where the specimen and raw skin will be registered in the system and to which the mobile application automatically attaches a unique identifier and relevant information.
37. After the initial registration of the skins at the point of origin, control and additional information capture points will be set up at the slaughterhouse, the tannery, customs at export, transit and import, and at the manufacturer.
38. The skin will be tracked and traced through a number of different commercial channels:
 - i. The first will entail a tanning process in producing country and the export of crust or tanned skins that are then exported to the importing country for further processing and manufacturing.
 - ii. The second will entail the export of non-tanned skins through a trader that exports them directly to the tannery in the importing country.
 - iii. The third will entail the direct export of non-tanned skins by the producer directly to the tannery in the importing country.

39. Prior to the tanning processes, the skins will be verified and after the chemical and mechanical processes the whole skins will be scanned. This will enable an additional registration process where the full skin scan will be seamlessly linked to the original registration of the initial image acquisitions taken at the point of origin.
40. The verification at each control point will be carried out by acquiring images of a selected area of the skins and verifying the information against the database. All of these will be undertaken using the mobile application.
41. All the information generated through the pilot traceability projects will be stored and managed in a dedicated information technology system that has been developed for the pilot testing as shown in the Figure 10 below.

Figure 10. Screenshot of the information technology system being developed for the pilot testing

The screenshot shows the RESP®fingerprint system interface. The top navigation bar includes tabs for Products, Users, Companies, Acquisition Devices, Automation Control, Enrolment, Verification, Verify, Result, and Admin. The main content area is divided into several sections:

- Product Information:** Contains fields for Company (Anteleon), Product Name (Skin black), Product Number (1), Status (Product is Current), and Comments (Inserted at Anteleon).
- Product Meta Data Definition:** Contains fields for Code (CASING), Name (Black), and DATE (01-01-13).
- Image Processing Settings:** Contains fields for Name (FOCAL-LENGTH) and Value (25).
- Process Definition:** Contains fields for Process Category (Synchronization) and Process Name (SYNC_DOTS).

The footer of the interface includes the following text: © 2015 by Anteleon Imaging, Avenue Industrielle 4, 1227 Carouge, Switzerland, Tel: +41 22 342 42 04, Fax: +41 22 342 42 04.

Potential recommendations

42. Potential recommendations (and/or support) that the Standing Committee might wish to make to Parties considering the information presented above, might include, where appropriate, some of the issues listed below.
 - i. Support the development and implementation of a pilot testing phase in a semi controlled commercial environment, to provide fact based information in support of assessing the feasibility of implementing such a global traceability information system by the Conference of the Parties;
 - ii. Provide inputs to the testing and validation of the system from at least two producing countries to one importing country and the respective customs and regulatory processes.
 - iii. Engage in and provide inputs to the definition of a set of acceptance criteria agreed with the aim of qualifying and validating the results of the pilot testing phase, including the price costing and governance structure;
 - iv. Support the involvement of their local authorities and industry actors in the further development of the information management system;
 - v. Call for funding to be made available from various sources including CITES Parties, development cooperation agencies and industry actors to support the pilot testing of the proposed system.

Composition of the RESP International Working Group on Reptile Skins

The International Working Group on Reptile Skins (IWG-RS) of the Responsible Ecosystems Sourcing Platform (RESP) was established in 2013 by a group of entities from the industry, governments, research institutions and civil society organisations committed to take collective action towards defining, measuring and promoting the sustainable management of crocodilian, snakes and lizards as a means to contributing to achieving sustainable and inclusive growth that benefit people and nature.

Members of the IWG-RS:

- Agropecuaria Setten, Brazil
- International Leather Bracelets Association (AQC), Switzerland
- Balamku, Mexico
- Burberry, United Kingdom
- Caimanes y Cocodrilos de Chiapas, Mexico
- Cocodrilia, Mexico
- Cocodrilos Maya, Mexico
- Colibri de la Antigua, Mexico
- Giorgio Armani, Italy
- Istituto Europe di Design Madrid, Spain
- Italian Tanners' Association (UNIC), Italy
 - Anaconda, Italy
 - Centrorettili, Italy
 - Italrettili, Italy
 - Italven Conceria, Italy
 - Legnotan, Italy
 - Dolmen, Italy
 - Reptilis, Italy
- Küpfer Cuir, Switzerland
- LVMH Group, France
- Mulberry, United Kingdom
- Pure Fashion Lab, Norway
- TopCroc, Colombia
- University of the Arts London, United Kingdom

Partners:

- Anteleon Imaging
- Analytical SRL