UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

UNCTAD

Developing traceability systems for CITES-listed species (Appendices II and III)

Dr Heiner Lehr
Andrew Baxter
UNCTAD Consultants
info@syntesa.eu

CITES 69th meeting of the Standing Committee
Geneva (Switzerland), 29 Nov 2017

BIOTRADE III FACILITATION PROGRAMME

Content

1. Introduction
2. Experiences with traceability in CITES
3. Defining traceability in a CITES context
4. Best practices for implementation
5. Summary and recommendations

INTRODUCTION

Traceability definitions

GS1	GS1 Global Traceability Standard	"the ability to track forward the movement through specified stage(s) of the extended supply chain and trace backward the history, application or location of that which is under consideration"
ISO	ISO 9000:2015	"the ability to trace the history, application or location of an object" in a supply chain
OIE	Animal traceability data exchange	Animal traceability is the ability to follow an animal or a group of animals during all the stages of its life.) Traceability information should give an answer on the Why, What, Where and When questions about a (group of) animal(s) or an animal related event.
Olsen & Borit (2013)	Trends in Food Science & Technology	"the ability to access any or all information relating to that which is under consideration, throughout its entire life cycle, by means of recorded identifications"
UN/CEFACT	CEFACT/2014 (Animal traceability data exchange)	Traceability is retrieving information about the origin and history of an animal, a group of animals or animal products. Traceability information should give an answer on the Why, What, Where and When questions about a (group of) animal(s) or an animal related event.
UN/CEFACT	ECE/TRADE/429 (Traceability for sustainable trade)	"The ability to substantiate a Policy Claim that requires the involvement of a Public Authority via the collection of relevant data generated along international supply chains."

Types of traceability systems

Type	Application area	Traceable Unit (TU)	Aggregation level	Relationship to physical product	Implem-entation effort	Integrity level	Potential for information loss in value chain	Examples
Single Item	Solid materials Few units Large, valuable	Single item	Low	Yes	High	High	Low	Diamonds
Batch/ Segregation	Materials produced: non-continuous	One batch of production	Med	Yes	Med	Med	Med	Foodstuff
Mass Balance	Commodities	Production mass per time unit	High	No	Low	Low	High	Commodities (Palm oil, cotton, coffee)

Summary of international efforts

Better Cotton Initiative

- For sustainable cotton production
- Why of interest? About 900,000 smallholders participate
- Key learnings?
  - Shift from compliance to farmer capacitation
  - Value addition for farmers first
  - Flexible scheme
  - Local partnerships

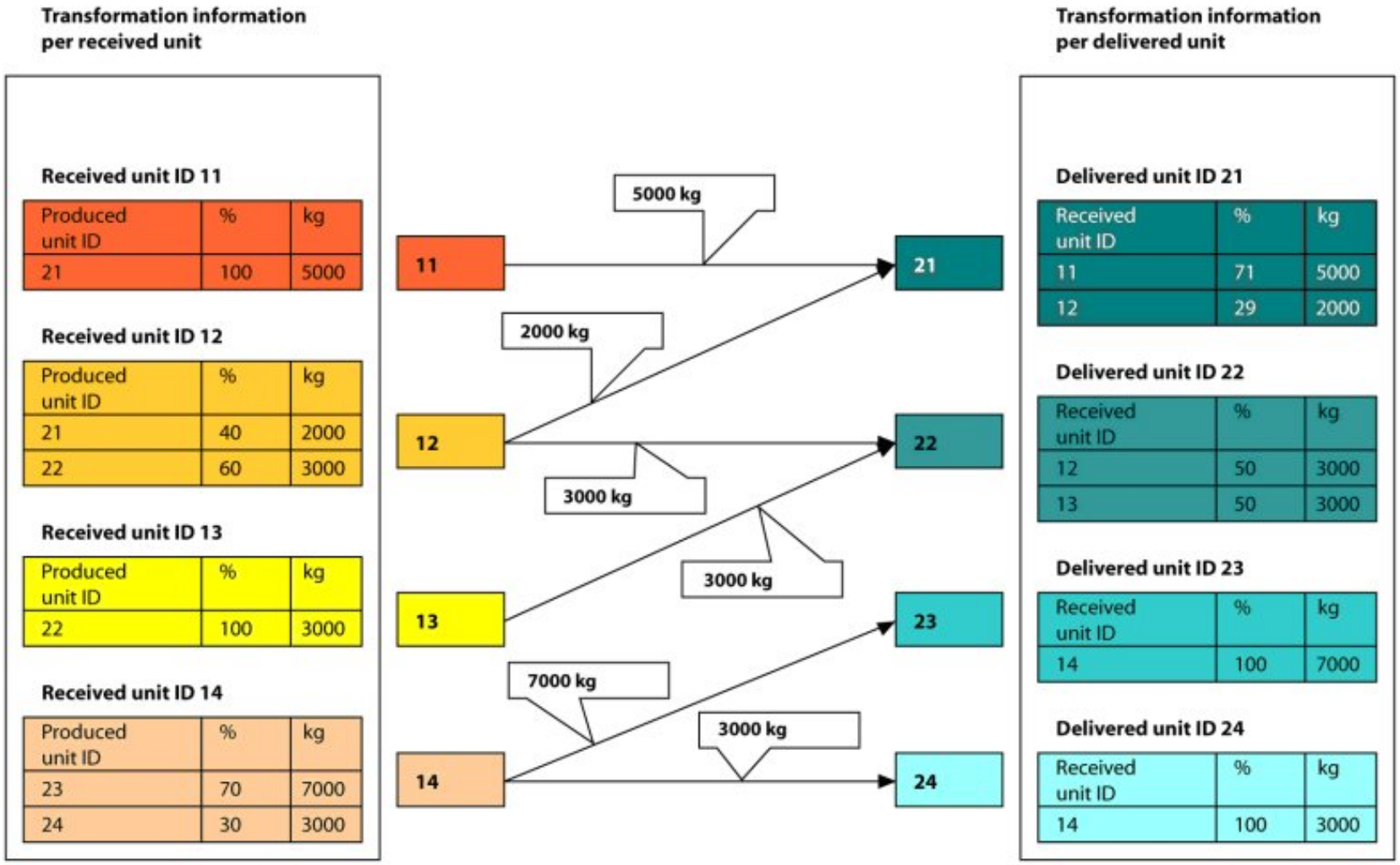
GrapeNet

- Mandatory traceability for grape exports to EU
- Why of interest? End-to-end quality management with traceability has seen 100% price increase for 40,000 farmers
- Key learnings?
  - Built on strong legislation
  - Electronic failsafe system avoids corruption and collusion

CocoaTrace

- E-traceability system for cocoa
- Why of interest? 40,0000 smallholders participate
- Key learnings?
  - Premiums are an excellent incentive for smallholders
  - BUT: other instruments are also important
  - Organisation of farmers is key

Principles of traceability



Identifiers

❑ Accessing information

- ➢ In order to be able to access information, information "packages" are often labelled with an identifier.
- ➢ Identifiers can themselves hold (partial) information (significant identifiers) or simply serve as keys for information lookup (non-significant identifiers)
- ➢ The first principle of traceability is that of "unique identification"
- ➢ Identifiers should always travel with whatever they identify
- ➢ There are two main types of identifiers: those based on natural features of that which is being traced and those that are not based on natural features, for example, serial numbers

❑ Natural identifier

- ➢ An identifier that is derived from the natural features of the item itself, such as visual patterns, microstructure of the surface, DNA

❑ Form of identifiers (data carriers)

- ➢ A data carrier is a means by which an identifier can be attached to an item.
- ➢ The purpose of the data carrier is to enable reading of the identifier either by a human or a machine (or both)

Data carriers

AUTOMATED IDENTIFICATION AND DATA CAPTURE TECHNOLOGIES

One-dimensional barcodes	Two-dimensional barcodes	Radio-frequency identifiers (RFID)	Natural feature identifiers
Standards: e.g. Code128	Standards: QRCode	Standards: EPCGlobal	Standards: GS1 identifier GDTI

IMPORTANT: data carriers do not by themselves establish traceability

Traceable item/asset

❑ A traceable item/asset can be:

- ➢ Shipment
  - ❖ May contain one or more logistics unit(s)
- ➢ Logistic unit (LU)
  - ❖ An item of any composition established for transport and/or storage that needs to be managed through the supply chain
- ➢ Trade Unit (TU)
  - ❖ Any item upon which there is a need to retrieve predefined information and that may be priced, or ordered, or invoiced at any point in any supply chain

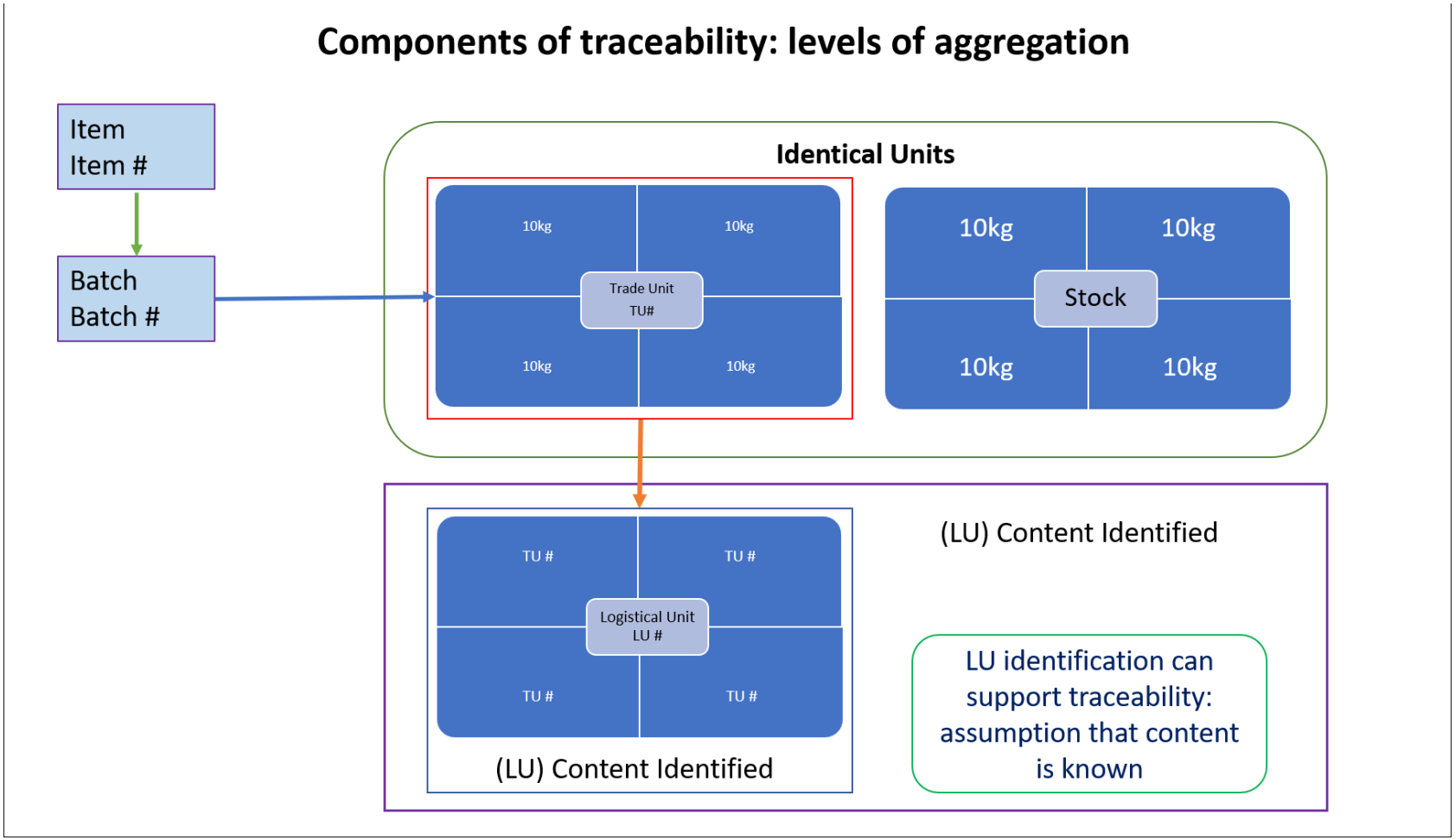
❑ Under CITES a traceable item/asset is:

- ➢ Specimen or batch of specimen
- ➢ An asset or an item for which information is recorded in the form of events during its lifetime, which needs to be accessed at some point in time for traceability purposes
- ➢ In a CITES traceability system, the asset needs to be traced to fulfil a policy claim

❑ Batch or lot

- ➢ Definite amount of material produced during a single manufacturing cycle, and intended to have uniform character and quality
- ➢ Items or units are considered as identical twins

Components of traceability



CITES TRACEABILITY EXPERIENCES

Experiences

❑ Pilot and or studies

- ➢ Reptile Skins
  - ❖ Pilot
- ➢ South-East Asian Python Skins
  - ❖ Study and pilot
- ➢ Traceability study in shark products
  - ❖ Study and pilot
- ➢ Ornamental plants
  - ❖ Study
- ➢ Medicinal plants
  - ❖ Study

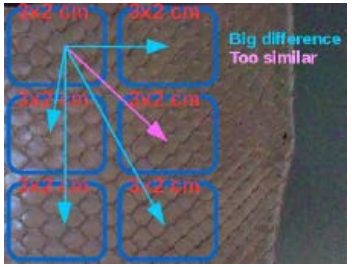
❑ Regulatory systems

- ➢ Caviar: Traceability systems in the CITES context
- ➢ Seafood Import Monitoring Programme (SIMP)
- ➢ Traceability project Viet Nam

Reptile Skins - Pilot

❑ Pilot testing of a global traceability information system for reptile skins

- Sponsor: Mexico
- Lead agency: RESP
- Key words: Biometric, mobile application
- Aim: Ensure legal, sustainable, stable and continuous supply chains for reptile skins
- Geographical area: Colombia, Indonesia and Mexico (range countries), Italy (importing country)
- Breadth: Tracing skins from their origin in the wild or a breeding facility up to the final product with controls along the entire supply and regulatory chains
- Five main components of a global information system were identified
  - The identification carrier
  - The application device
  - The tracking system
  - The information system
  - The governance structure



❑ Key recommendation

- Take note of the initiative on traceability of reptile skins as a valid example on traceability systems and identification technologies

Python Skins – Study and pilot

- Traceability Systems for a sustainable trade in South-East Asian Python Skins
  - Sponsor: Switzerland and UNCTAD
  - Lead agency: GS1 and UNCTAD
  - Key words: UNECE traceability architecture, tags and RFID
  - Aim: Ensure legal, sustainable, stable and continuous supply chains for reptile skins by tracing skins from their origin in the wild or a breeding facility up to the final product with controls along the entire supply and regulatory chains in a biologically feasible and economically viable way
  - Geographical area: South-East Asia
  - Breadth: Analyses traceability systems for Python skin trade to confirm the legal origin of snake skins and the economic feasibility of current technologies to implement such a traceability and marking system.

Python Skins – Study and pilot: continued

❑ Key Recommendations: UNCTAD study and pilot

- ➢ Improved traceability and diversion of trade to legal sources are essential to support and underscore the credibility of the CITES permitting system
- ➢ The CITES Snakes Working Group should serve as a regular forum.
- ➢ CITES export permits should be issued by the Management Authority closest to the origin of python skins
- ➢ All skins from range states must be marked appropriately.
- ➢ Stockpiles of skins need to be registered and marked appropriately
- ➢ A regular protocol for facility inspections, reviews of inventory reports and other compliance requirements should be a part of best management practices
- ➢ The issues and options of setting national quotas should be carefully reviewed
- ➢ Available traceability systems need to be tested more

Python Skins – Study and pilot: continued

❑ Key Recommendations: AC29 Doc31.3

- CITES community needs to examine the drivers of illegal trade
- Establish a holistic traceability and authenticity approach focused on batch traceability and a limited number of identification keys and technologies
- All CITES countries should describe the traceability component systems to have a synthetic view of their policy claim and law enforcement measures
- The relationship with WCO to design better connections between traceability standards and single window/e-permit approach should be deepened

Shark products – Study and pilot

❑ Traceability study in shark products

- Sponsor: European Union (study) and Germany (pilot)
- Lead agency: Secretariat
- Key words: Shark fins and simple shark products, legal origination
- Aim: Review the market chains of products derived from CITES-listed shark species and the use of traceability to identify the products in trade.
- Geographical area: No specific area for the study; pilot: Costa Rica

❑ Key recommendations from the study

- Traceability can help avoid the entry of illegal, unregulated and unreported material into legal supply chains
- Traceability and in particular linking trade data to the origin of the raw materials can be used by Parties in the process of making more robust Non-Detriment and Legal Acquisition Findings
- Link permits and certificates to a suitable legal origination process
- Highly recommended that such certificates of origination are recorded electronically Do not place undue burden on food business operators that would discourage their buy-in
- Link the traceability system with a risk management system

Shark products – Study and pilot

Key recommendations from the pilot

- To strengthen CITES permit processes an online system for consultation of relevant certificates and permits is recommended
- An impact study of artisanal fisheries is suggested to understand the need to include this fishery in the established traceability system
- Stakeholder involvement through e.g. a traceability round table is key to success
- A user-friendly, mobile fishery inspector data capture tool and the corresponding management database should be considered

Ornamental plants – Study

- The applicability of traceability systems for CITES ornamental plants with a focus on the Andean and other Latin American countries – A Preliminary Assessment
  - Sponsor: UNCTAD
  - Lead agency: Syntesa
  - Key words: UNECE traceability architecture, complex value chain
  - Aim: To analyses the trade of CITES Appendix II- and Appendix III-listed ornamental plants and analyses the use of traceability systems as a tool to strengthen existing CITES permit processes.
  - Geographical area: Andean and selected Latin American countries
  - Breadth: A traceability system was recommended based on the process elements, i.e. recording of receptions, recording and control of stocks, linking of CITES export permits and certificates to registered stocks. The socioeconomic impacts arising from the use of such a traceability system should be understood and integrated into a pilot project

Ornamental plants – Study: Continued

Key recommendations from the study

- Parties must recognize the need to strengthen CITES processes through the use of traceability systems for ornamental plants
- Technical viability of the proposed system needs to be verified, in particular, regarding identification and record keeping at the nurseries, including small-scale nurseries
- The right mix of positive and negative incentives for the private industry needs to be found for them to participate
- Open, international standards and norms should be employed when available, and joint work with standard setting organizations envisioned
- Provision of capacity-building initiatives for developing countries
- The creation of a traceability toolkit (or integration into the e-permitting toolkit)
- Feasibility of the recommended processes in regarding technical, economic and conservational aspects must be demonstrated e.g. by conducting a socioeconomic impact analysis
- A pilot project should be implemented to check the viability of the recommendations

Medicinal plants – Study

- The applicability of traceability systems for CITES-Listed Medicinal Plants (Appendices II & III)-Greater Mekong: Preliminary Assessment
  - Sponsor: UNCTAD
  - Lead agency: Syntesa
  - Key words: UNECE traceability architecture, complex value chain
  - Aim: To analyses the use of traceability systems as a tool to strengthen existing CITES processes, in particular legal acquisition findings (LAFs) and non-detriment findings (NDFs), for non-timber plant species, particularly medicinal plants, listed under CITES Appendices II and III in the Greater Mekong sub region.
  - Geographical area: Greater Mekong sub region
  - Breadth: The proposed traceability system aims to balance the need to control the legality of the raw material source and the practicalities of businesses

Medicinal plants – Study: Continued

Key recommendations from the study

- Parties must recognize the need to strengthen CITES processes through the use of traceability systems for medicinal plants and products thereof
- Formation of partnerships with sustainability schemes should be considered to provide the right mix of positive and negative incentives for the private industry
- Provision of capacity-building initiatives for developing countries
- Improving the cross-border reporting of exports and imports to ensure a better understanding of the traded volumes of medicinal species
- Identification procedures for wild collected or artificially propagated plant species should be improved
- Open, international standards and norms should be employed when available, and joint work with standard setting organizations envisioned
- Creation of a traceability toolkit (or integration into the e-permitting toolkit)
- Feasibility of the recommended processes in regarding technical, economic and conservational aspects must be demonstrated e.g. by conducting a socioeconomic impact analysis
- A pilot project should be implemented to check the viability of the recommendations

DEFINING TRACEABILITY IN A CITES CONTEXT

Objectives of a CITES traceability system

Primary objective

- Substantiate a legal acquisition finding

Secondary objective

- Contribute to data-based non-detriment findings

CITES definition of traceability

❑ Elements of a traceability definition for CITES

- Traceability can be different in the State of export and State of re-export
- The definition needs to link to legal acquisition and support non-detriment findings of a species
- Country-internal traceability cannot be prescribed
  - Export states must be able to determine the exact nature of internal traceability to a specimens' origin (whether processed or not), taking into consideration the type of events to be recorded
  - Re-export states players can be assumed to be more advanced; batch traceability should be able to link export goods to incoming CITES permits
- A globally unique identifier for CITES permits is suggested to allow consolidation of permits and volumes
- It is also suggested to create a global repository of CITES permits (ideally updated with actual exported quantities) for consolidation

CITES definition of traceability

Traceability is the ability to access information on specimens and events in a CITES supply chain to substantiate a legal acquisition finding

CITES definition of traceability

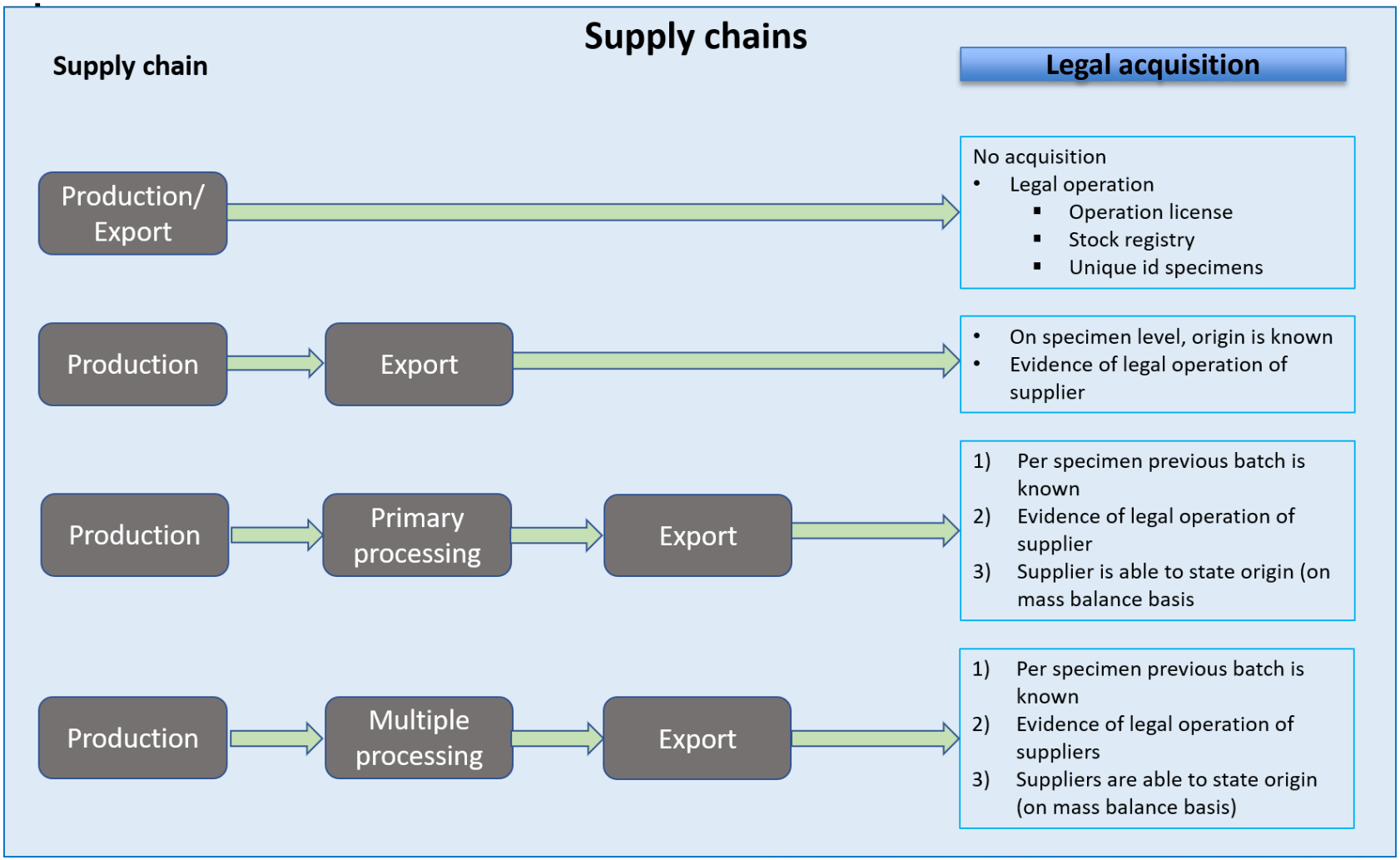
❑ For States of export

- ➢ Adherence requires showing that materials were obtained in accordance to CITES rules and regulations and in a way that allows to judge whether the trade process substantiates a legal acquisition finding

❑ For States of re-export

- ➢ Adherence requires being able to link export specimens to evidence of legal import which could include a certified copy of the original CITES permit or other official documentation demonstrating the legality of the import

Determination of legal acquisition in function of supply chain/trade



Examples – Python skins

- Value chain for a python skin leather jacket
  - State A: where a python is farmed
  - State B: Where skin is tanned before being exported
  - State C: Further processing & consumption
- When the exporter in State A requests a CITES permit for the export of the skin, it will have to demonstrate adherence to CITES rules and regulations
- The MA in State A will require the exporter to have a valid license for farming and extracting the crocodile species
- The MA will require each skin to be uniquely identified (via biometric identification or a tag). The identifier of the skin will be recorded in conjunction with the export permit.
- When the tanned skins are exported to State C, the MA of State B will require that the original identifier is reported for every specimen by providing evidence of legal import.

Examples – Ornamental plants

- Value chain for artificially propagated plants
  - Nursery in state A which artificially propagates a parent stock and exports live plants
  - A wholesaler may import orchids into state B and re-export them to a state C
  - State C where the orchids are consumed
- When the exporting nursery requests a CITES permit for the export, it will have to demonstrate adherence to CITES rules and regulations
- The MA in State A requires the nursery to have a valid operating license (the nursery will have to identify and document the source of its parent stock)
- The MA requires that a batch of artificially propagated plants is identified uniquely with the parent plant recorded
- The MA will perform random checks to identify specimens extracted from the wild
- When conditions are met, he MA will record the amount of artificially propagated plant per parent plant and issue a permit.
- Exporting to State C, the MA of State B will require that the original identifier is reported for every specimen by providing evidence of legal import

Examples – Medicinal plants

- The supply chain of oil from CITES-listed medicinal plants
  - A collector in State A that sells dried specimens from the wild on a local market to a trader
  - The trader sells material purchased from a series of collectors to a processor purchasing from a series of traders.
  - The processor extracts the oil and exports it to State B
- The MA of State A will require the exporter to provide evidence of which raw material lots were used to produce the batch(es) of specimen(s) to be exported
- The MA of State A will also require the exporter to provide evidence that its suppliers have been audited and their legal status assessed
- The MA of State A will also require the exporter to provide evidence that in the supplier audit it was determined that the trader knows for a given month of product traded which collectors that materials was purchased from. It will not require that the trader operates a batch traceability system

Which implementation/system?

❑ Systems

- CITES has no mandate over country-internal consumption; therefore targeting a specific form of internal traceability system is complicated
- The best choice of an implementation methodology depends on capacity, trade term, value chain complexity and motivation of the private sector
- Not a single solution will fit all
- Where available, international open standards helps with interoperability

❑ Recommendations

- Recommendations should be elaborated by the Traceability Working Group what type of traceability systems are advisable for different trade terms closely linked to the recommendations for Legal Acquisition Findings

BEST PRACTICES FOR IMPLEMENTATION

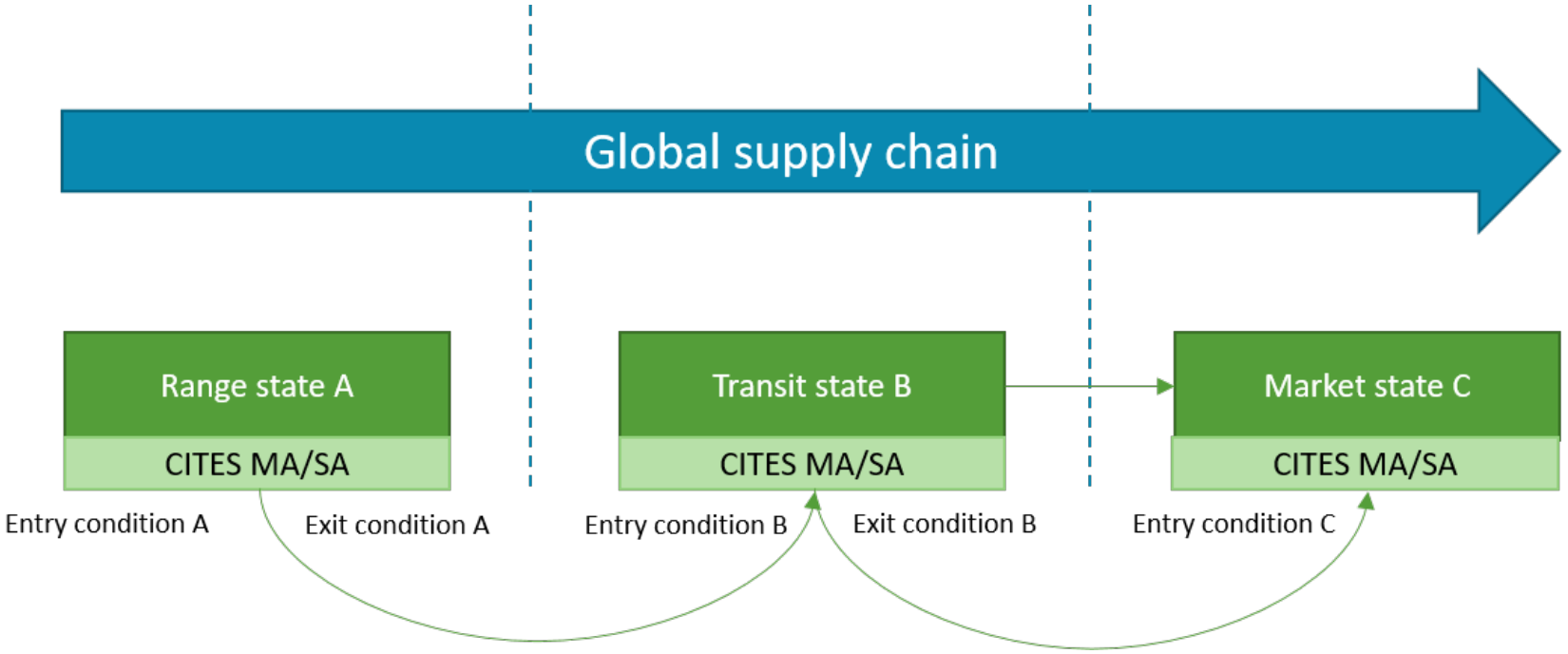
Standards

- Global open standards should be the basis for any CITES traceability system
- Global, open standards have greatly facilitated the implementation of electronic system, in particular also those for cross-border trade
- Global, open standards are accessible to all, a common reference point for the whole supply chain even if using different underlying systems and often best-of-class
  - Better standards through global collaborations
  - Easier and more transparent data exchange
  - Reduced cost of development and investment risk
- For a CITES traceability system, global open standards will ensure that stakeholders use predefined and simple procedures to exchange event information concerning the movement and processing of a CITES specimen to support a legal acquisition finding

Recommended architecture – The UNECE Framework

- UNECE has developed a Framework to design Traceability Systems for Cross Border Trade which provides guidelines to describe the major components (i.e. the architecture) of a traceability system
- A detailed study how to apply the UNECE traceability architecture to support CITES processes was undertaken by UNCTAD in medicinal plants and products made thereof from the Greater Mekong sub region
- It is a generic framework that is flexible enough to work in a CITES supply chain

Full chain traceability



http://www.unece.org/index.php?id=43763

- Entry point: origination process with respect to the Policy Claim
- Exit point: a Traceable Asset leaves the realm of the Policy Claim
- Each entry/exit point has an entry/exit condition
- Between entry and exit points there are **transformation rules**

Best practices for implementation

- ❖An overarching architecture must be identified that supports the required use cases and a feasibility study conducted
- Clear rules and processes need to be defined on how such a system will be built
- Key stakeholders from both public and private sector need to be identified
- Collaboration is key to stakeholder buy-in; it should be nurtured through regular roundtable discussions
- The identified stakeholders need to fully understand their responsibilities and commitments and commit to the implementation of the traceability system
- Before committing to a traceability system, proposed solutions need to be piloted and an impact study conducted
- Where feasible, traceability systems should be based on open, international standard

SUMMARY & RECOMMENDATIONS

Summary

- Traceability has been defined for CITES in the context of demonstrating the legal acquisition of a specimen in a state of export and the correct follow-through until the final consumption
- States of export need to have internal traceability connecting export goods to raw materials legally purchased
- States of export can decide what data requirements they request for a legal acquisition finding
  - Link to legal acquisition at origin (landing certificate, operating license etc)
- Within states of re-export it is required that materials containing CITES-list species can be traced back to the CITES permits (potentially even with mass)
  - This requires internal, batch level traceability within the market state
  - CITES has no requirements how this should be organised: this is up to the market state and it is recommended that this is done through evidence of a legal import document.

Key Recommendations

❑ Traceability

- Subject to availability of funds, guidance material shall be elaborated on how to identify those events in a supply chain that support a legal acquisition finding.

❑ Best Practice

- Apply best practice in planning traceability systems already identified by the private sector
- Follow the *Managerial Best Practice Guidelines for planning and implementing CITES traceability systems*
- Review and continue to develop Best Practice Guidelines taking into account experiences made by Parties in implementing CITES traceability systems as well as relevant progress made in domains outside of CITES
- Collaborate with the United Nations Centre for Trade Facilitation and electronic Business (UN/CEFACT) and other relevant organizations on the further development of managerial best practice for planning and implementation of traceability systems which are relevant to CITES parties

Key Recommendations

❑ Technical standards

- The parties are invited to consider global open standards as a basis for any CITES traceability system.
- Consideration should be given to the continuation of work with UN/CEFACT on a standard for animal and plant traceability with special consideration of the needs of CITES to substantiate legal acquisition

Thank you for your attention

Dr Heiner Lehr
UNCTAD consultant
heiner@syntesa.eu