The Importance of Supporting Animal I&R Systems in Developing Countries

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Definitions

- Animal identification means the combination of the identification and registration of an animal **individually**, with a unique identifier, or **collectively** by its epidemiological unit or group, with a unique group identifier

- Animal identification system is the inclusion and linking of components such as identification of establishment / owner(s), the person(s) responsible for the animals, movements and other records with animal identification

- Traceability is the ability to follow an animal, or group of animals, during all stages of its life (OIE/WHO).

Animal identification a tool for

- Genetic improvement
  - *Pedigree and performance recording*
  - *Artificial insemination schemes*
- Farm management
- Biodiversity management
- Prevention & control of zoonosis and other animal diseases
- Proof of ownership
  - *subsidy payment schemes*
- Livestock Information System (Statistics, decision making…)
- Theft control
- Insurance

Traceability a tool to:

Public & Animal health

- identify, trace and control animal movements
- identify, trace and recall unsafe foods (and feeds) at any stage
- Ensure inspection and certification for animal health
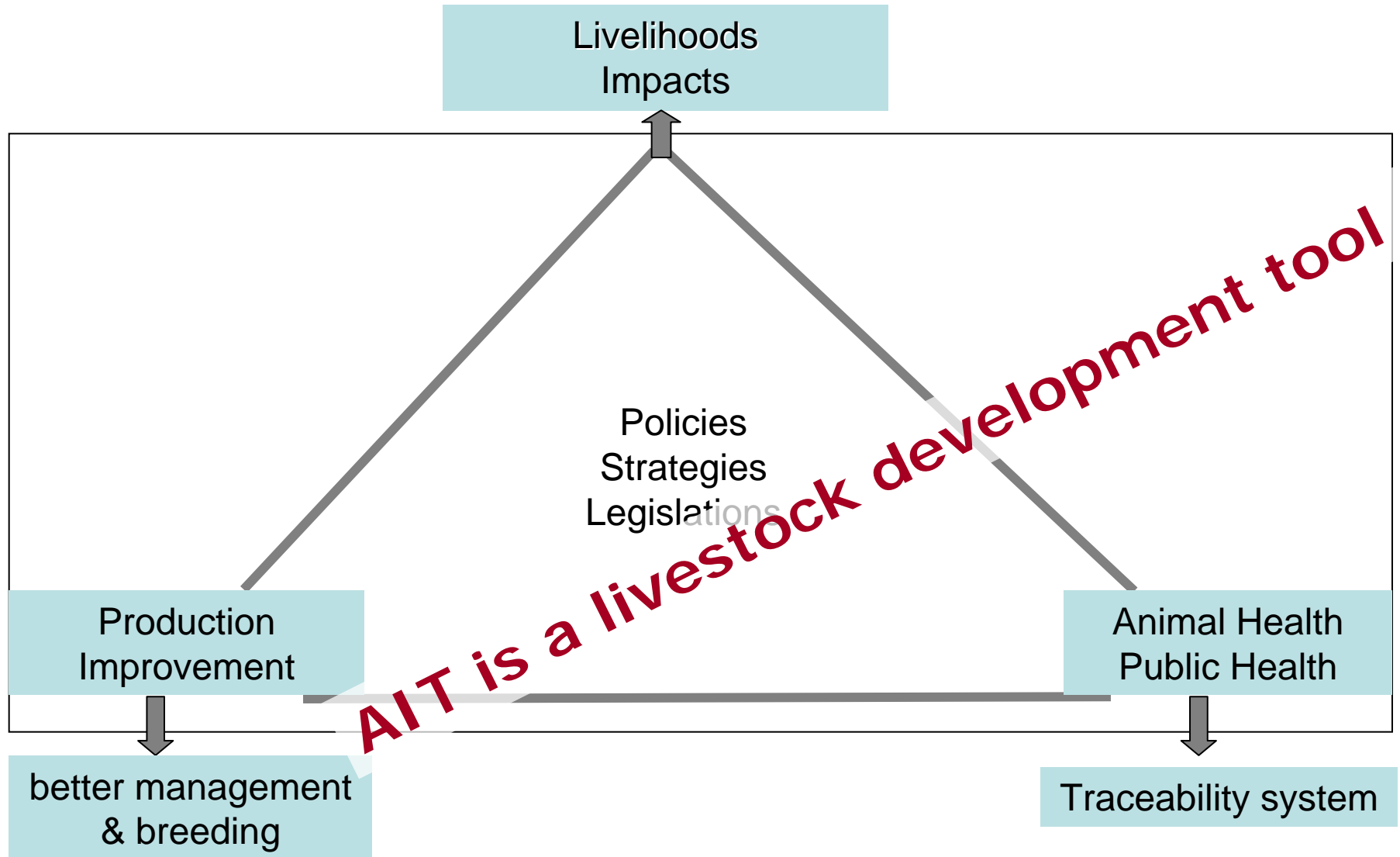- Risk management tool

Trade opportunities (WTO SPS Agreement)

- trade certification and access to markets for higher quality

Ensure fair practices in food trade (WTO TBT Agreement)

- protect from deceptive practices and fraud in the market place and unsubstantiated product claims (e.g. geographic indication, food quality)

AIT: FAO Multipurpose integrated approach

Elements of the AITS

- Elements
  1. Identification of location or premises (establishments), where animals are housed or otherwise handled
  2. Identification of animals
  3. Tracking of movements between various premises

- Level of implementation
  - (1), setting-up a livestock holding register, annual inventory of livestock numbers
  - (1) and (2), setting up a livestock holding register, identification of animals individually or collectively, annual inventory of livestock kept on farm
  - (1), (2) and (3), setting up a livestock holding register, identification of animal individually or collectively, full traceability

- ## Basic Considerations

  - – Sharing of experience is important, however there is no "blueprint" or "turnkey solution" which can be copied

  - – Building up technical competence within national institutions is indispensable

  - – Autonomous planning and operation of AIT systems and/or contracting of "system providers"

Designing the AITS Strategy

- **Legal framework**
  - Without legal framework
    - The system remains voluntary and may not be recognized by trading partners
    - Various stakeholders adopt different and incompatible systems
      - ➔ AITS needs to be compulsory and nation wide (movements)
  - Primary legislation
    - Separate AIT law or additional articles in the veterinary/animal health law
    - Definition/specification of competent authority
    - Constitutional matters have to be taken into account (e.g. for sanctions, data security, property)
  - Secondary legislation
    - Book of Rules for each species (e.g. technical features; amendments can be made more easily)

Designing the AITS Strategy

- ## System Design
  - Identification means
    - Eartags, RFID eartags, bolus
    - Quality, costs, functionality, loss rates
  - Organization of data capture
    - Contracted field operators
    - Livestock keepers
  - Communication of AIT events to the central application
    - flexible approach of different strategies/technologies of data entry/capture, paper-based, scanners, RFID readers, web-based interfaces or mobile phones
    - Minimizing media breaks for maximum reliability of data
  - Organization of plausibility checks and corrections
    - Field level, regional level , central level

Designing the AITS Strategy

The IT system must support the required activities

AITS management activities
- USERS & PRIVILEGES MANAGEMENT
- ERROR HANDLING
- BILLING
- QUALITY MANAGEMENT
- DASHBOARDS PRODUCTION (cockpit)

Operational activities
- KEEPERS & PREMISES REGISTRATION
- EARTAG MANAGEMENT
- ANIMAL REGISTRATION
- ANIMAL UPDATION (movements)
- ANIMAL HEALTH EVENTS REGISTRATION
- DATABASE OPERATING & HOSTING
- DATA SUPPLY TO STAKEHOLDERS

AUTHORITIES

AIT UNIT

Commercial Farm or Service Provider

TAGGING ASSISTANT

DATA ENTRY OPERATOR

MARKET AGENT

VET / MEAT INSPECTION

FIELD INSPECTOR/

ANALISYS LAB AGENT

LIVESTOCK ORGANISATIONS AND DATABASES

Designing the AITS Strategy

- IT system Strategy
  - Limited number of commercial AIT Off the-shelf software supplier or specialized AIT software development firms
  - Off-the–shelf software of AIT software supplier may provide fast solutions but bear the risk of software not sufficiently customized to the needs of the client, dependency and lack of integration with existing systems
  - AIT software tenders should be based on detailed technical specifications; reference installations and qualified staff
  - Software development according to functional requirements, business processes and workflows derived from legal base

Designing an AITS Strategy

- ## IT system Software

  - Setting up and maintenance of IT infrastructure (hardware) in-house or hosting outside the competent authority

  - Availability of qualified IT staff to set up and maintain the application

  - Existing IT strategy and data exchange with other IT systems within or outside the institution

  - Commercial software or licence free open source products for operating and database management systems

Costing

– System costs : often underestimated

- **Costs for setting-up the system**
  – IT solution, hardware, eartags or other identification devices, documents, publicity and training

- **Costs for maintaining the system**
  – AIT-unit, field services, control services, eartags or other identification devices, communication, documents

- **Costs for other stakeholders to comply with the system**
  – Livestock farmers, slaughterhouses, industry, livestock markets

Cost structure AITS

Description	$, per new born calf
Ear tags and forms	0,40 - 0,70
AITS unit, regional offices for data entry	0,50 - 0,70
Depreciation/maintenance of hard- and software	0,30 - 0,50
Tagging and mov. recording service incl. transport fee	1,00 - 3,00
AITS control	0,50 - 1,00
Total costs	2,70 - 5,90

* Source: F. Schmitt (aggregated from several projects, adjusted)

Phased implementation of the AITS

- Careful planning and preparation beforehand is needed

- There is only little possibility for modification and adaptation in a later stage of implementation

- Phases:

  - Phase 1: **Planning phase** of around 6 to 12 months

  - Phase 2: **Preparation phase** of at least 12 months

  - Phase 3: **Implementation phase** and **system roll-out**

Phased implementation of the AITS

- Planning Phase
  - Preliminary studies
  - Strategic plan
  - Legal base
  - Institutional development and management
  - Cost-Benefit Analysis/Financing
  - Operational procedures
  - Technical design

- Preparation Phase
  - Procurement of AIT items
  - Set-up AITS unit and training of all involved stakeholders
  - Contracting of field operators
  - Software development/tender for hardware and software
  - Hardware and software installation
  - Preparation of manuals and instructions, Training
  - Communications and public relation
  - Preparation of an action plans specifying the detailed implementation plan (timetable, human and financial resources, enforcement and verification arrangements)

Phased implementation of the AITS

- Implementation Phase
  - Start of holding registration, ear tagging and initial animal registration (1st tagging campaign as short as possible)
    - One shot approach (?) of holding registration, tagging and initial animal registration
    - Data capture on holding registration first followed by a campaign on the registration of individual animals
    - Pilot area ➔ regional ➔ nationwide extension
  - Assuring sustainable ongoing operations animal and movement recording – system maintenance
    - Regular birth and movement recording
    - System monitoring
    - Introduction of AIT control measures based on a risk analysis of the animal data
    - Sharing (shifting) costs with (towards) other stakeholders (keepers?)

AITS Situation in Central Asia

Kazakhstan
Established and functioning. Still need to link with other systems

Tajikistan and Kyrgyzstan
Willing to establish, but unable due to financial limitations

Turkmenistan
Does not have the system, but has no financial limitation

Uzbekistan
Does not have the system, but may be able to finance

Azerbaijan
Is seriously considering the system and are able to finance