



World Organisation
for Animal Health



Biosecurity and Management Requirements for Design Zones and Compartments

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Presentation covers

- Define critical biosecurity requirements for zone/compartment establishment
- Outline management protocols for maintaining compartment integrity
- Share practical experiences from SPF (specific pathogen free) systems in China
- Provide actionable frameworks for southeast asian contexts



Understanding the Context: Zoning vs. Compartmentalization

Common Requirements: Both require robust biosecurity and management systems

Zoning:

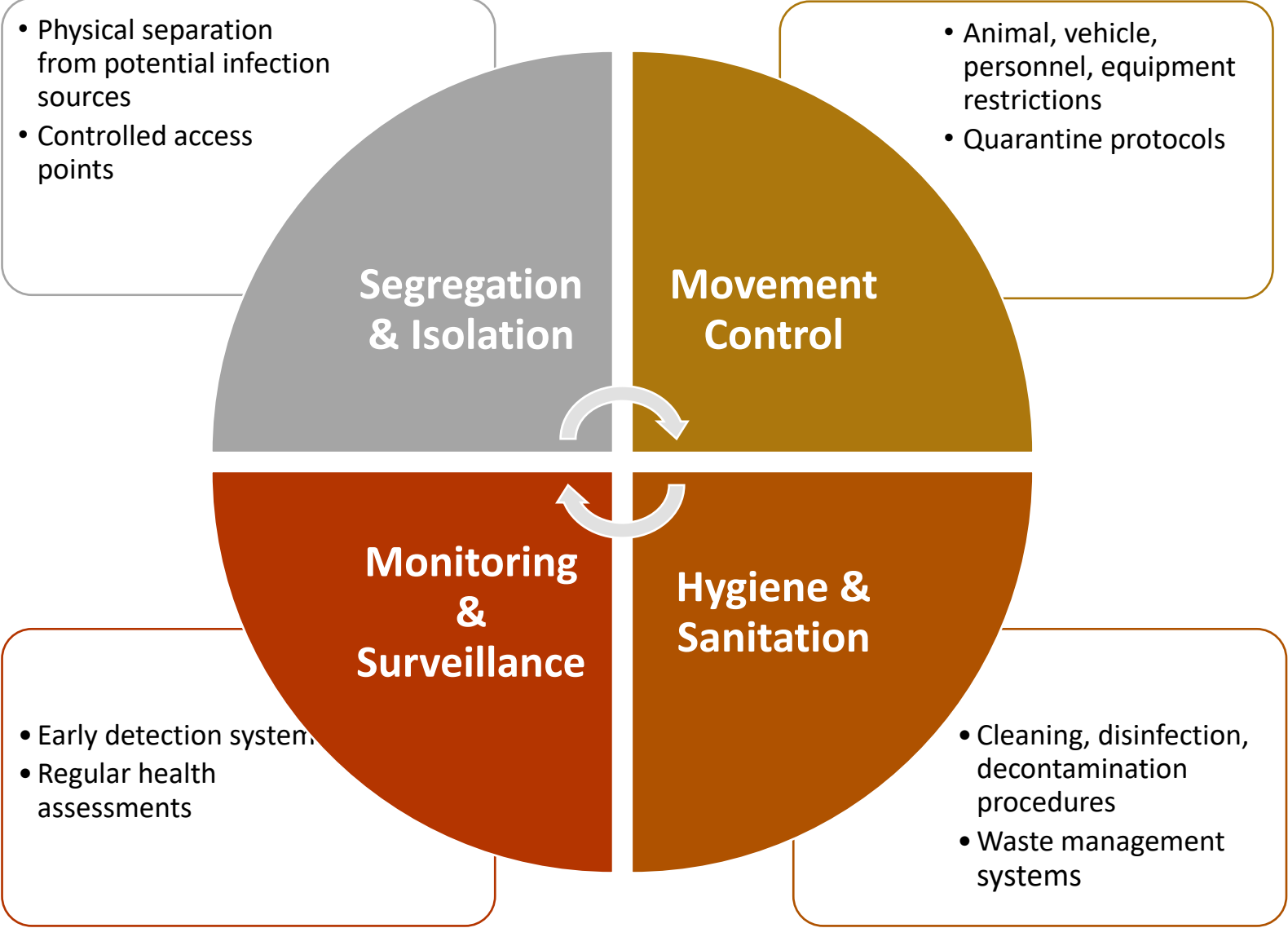
- Geographic-based disease control
- Epidemiologically distinct area
- Natural or artificial boundaries

Compartmentalization:

- Management-based disease control
- Common biosecurity management system
- Independent of geographic location



Foundational Biosecurity Principles





Physical Infrastructure Requirements

Perimeter Security



- Fencing, gates, access control systems
- Buffer zones

Facility Design



- Animal housing with proper ventilation
- Separate clean/dirty areas
- Decontamination stations

Biosecurity Zones



- Clean zone (animals, feed, water)
- Transition zone (personnel, equipment)
- Dirty zone (visitors, vehicles)



Operational Management Protocols

Personnel Management



- Training programs for all staff
- Access control and tracking systems
- Health monitoring of personnel

Animal Management



- All-in-all-out production systems
- Controlled breeding and replacement
- Health monitoring protocols

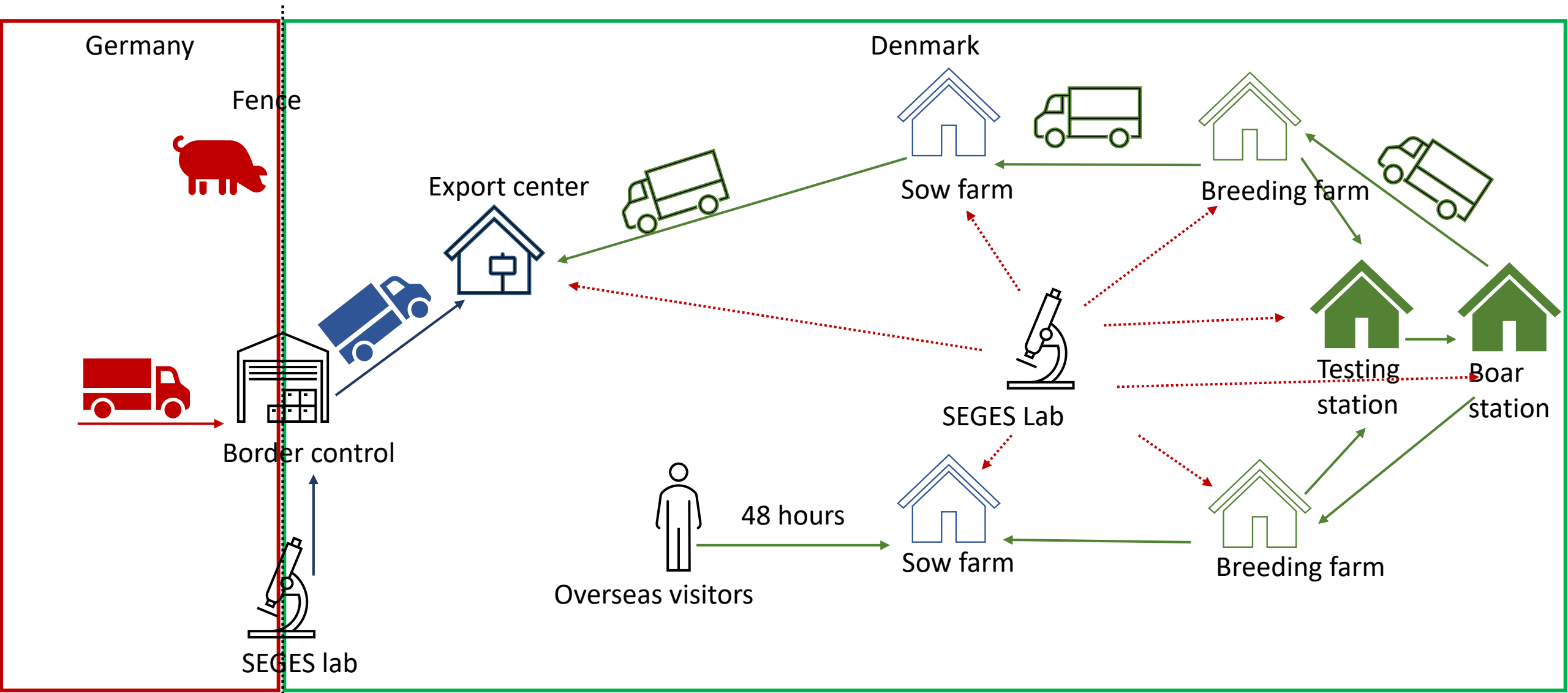
Equipment & Materials



- Dedicated equipment per zone
- Decontamination procedures
- Supply chain controls

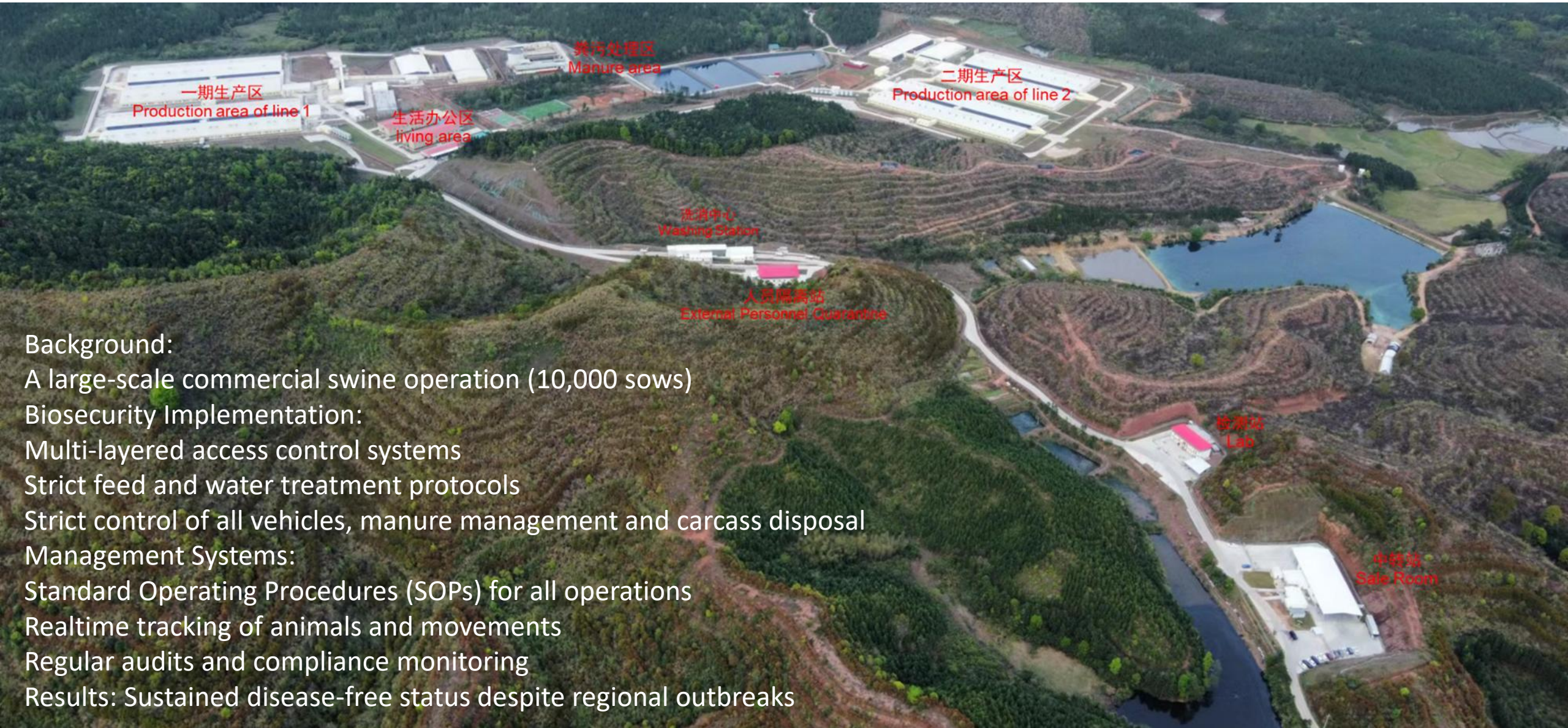


Case Study: Denmark SPF System





Case Study: SPF Systems in Chinese Swine Farms



Background:

A large-scale commercial swine operation (10,000 sows)

Biosecurity Implementation:

Multi-layered access control systems

Strict feed and water treatment protocols

Strict control of all vehicles, manure management and carcass disposal

Management Systems:

Standard Operating Procedures (SOPs) for all operations

Realtime tracking of animals and movements

Regular audits and compliance monitoring

Results: Sustained disease-free status despite regional outbreaks



一期生产区
Production area of line 1

粪污处理区
Manure area

二期生产区
Production area of line 2

生活办公区
living area

4

洗消中心
Washing Station

3

人员隔离站
External Personnel Quarantine

2

检测站
Lab

1

中转站
Sale Room



Loadout

—— 实体围墙 Fences

---- 伸缩门 Retractable door

→ 内部车路线 Internal vehicle routes

→ 外部车路线 External vehicle routes



围栏
Fence

未检测的人员与物资路线
Untested visitors and suppliers' routes

检测阴性的人员与物资路线
Visitors and suppliers' routes tested negative

宿舍&办公
Dormitory & Office

检测站
Lab

Sampling

Waiting room



实体围墙 Fences

密闭升降杆 Closed lifting rod

车辆出场路线 Vehicle exit route

车辆进场路线 Vehicle entry route

人员隔离站
External Personnel
Quarantine

洗消中心
Washing Station

洗消
Washing &
Disinfection

沥干
Drying

烘干
Baking





Personnel and Visitor Access Protocol



检测站
Lab

采样
Sampling

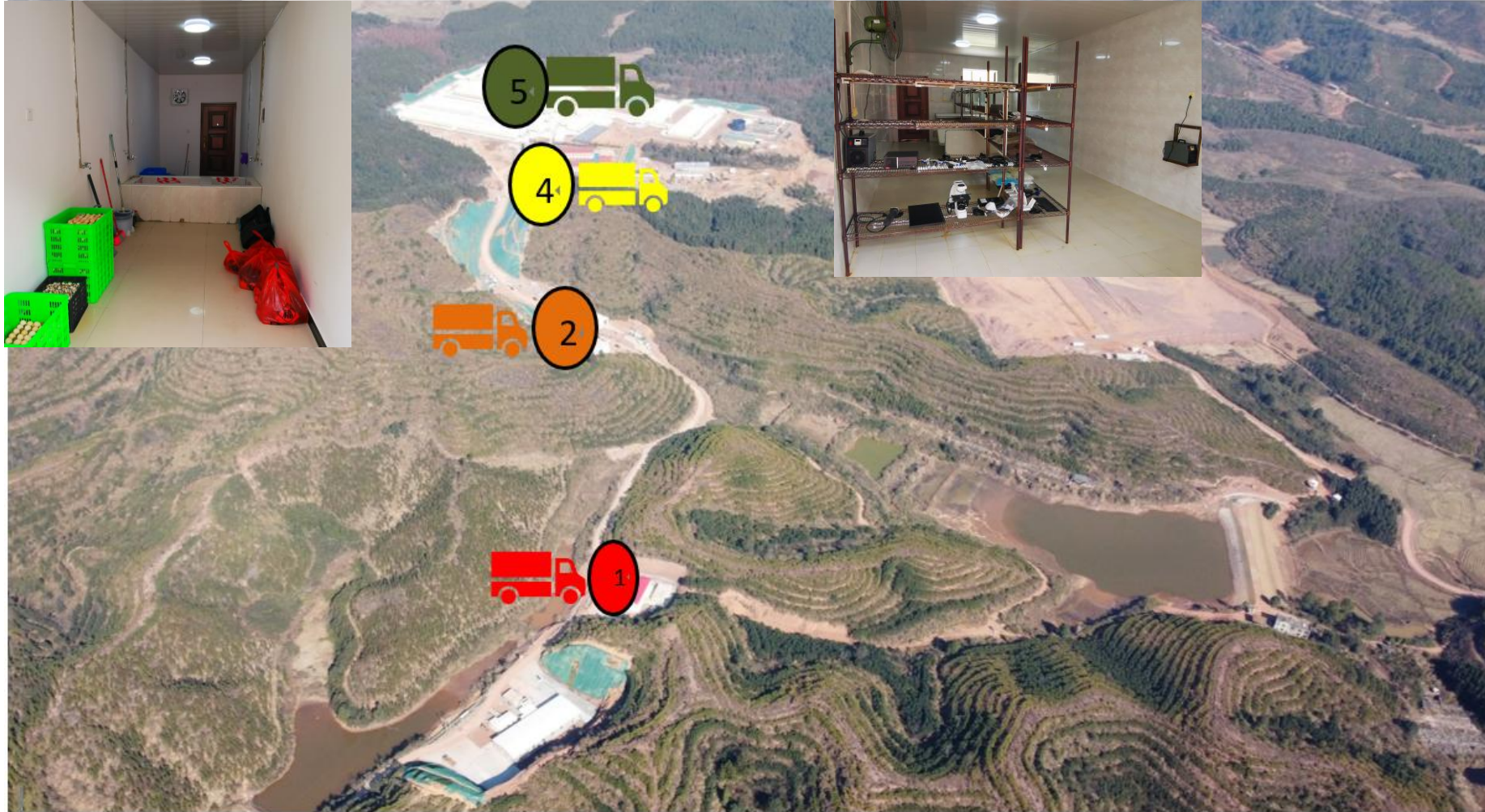
隔离站12小
时 12 hours

生活区24小
时 24 hours

洗澡进入猪
舍 Shower in

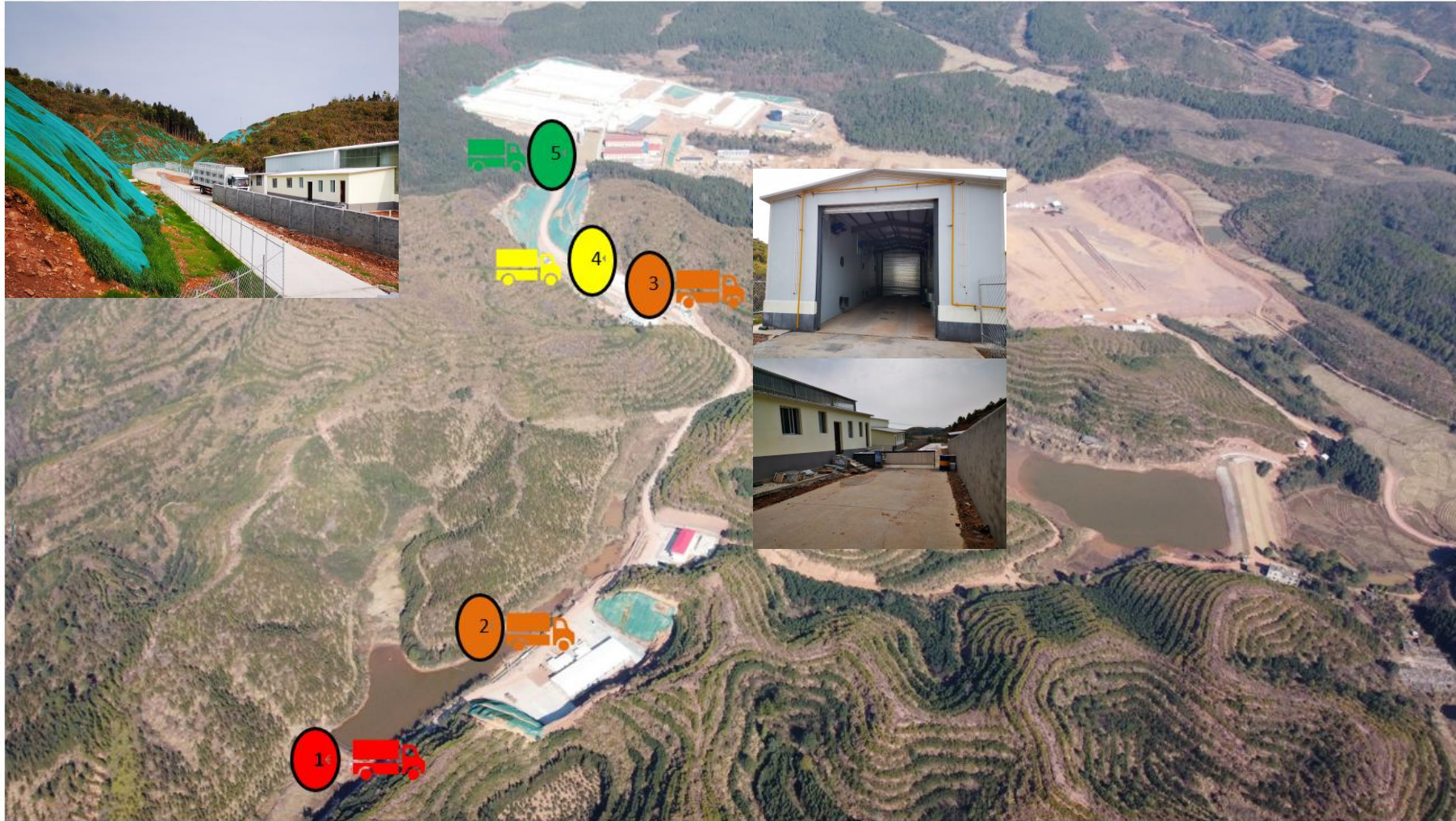


Supplies Access Protocol



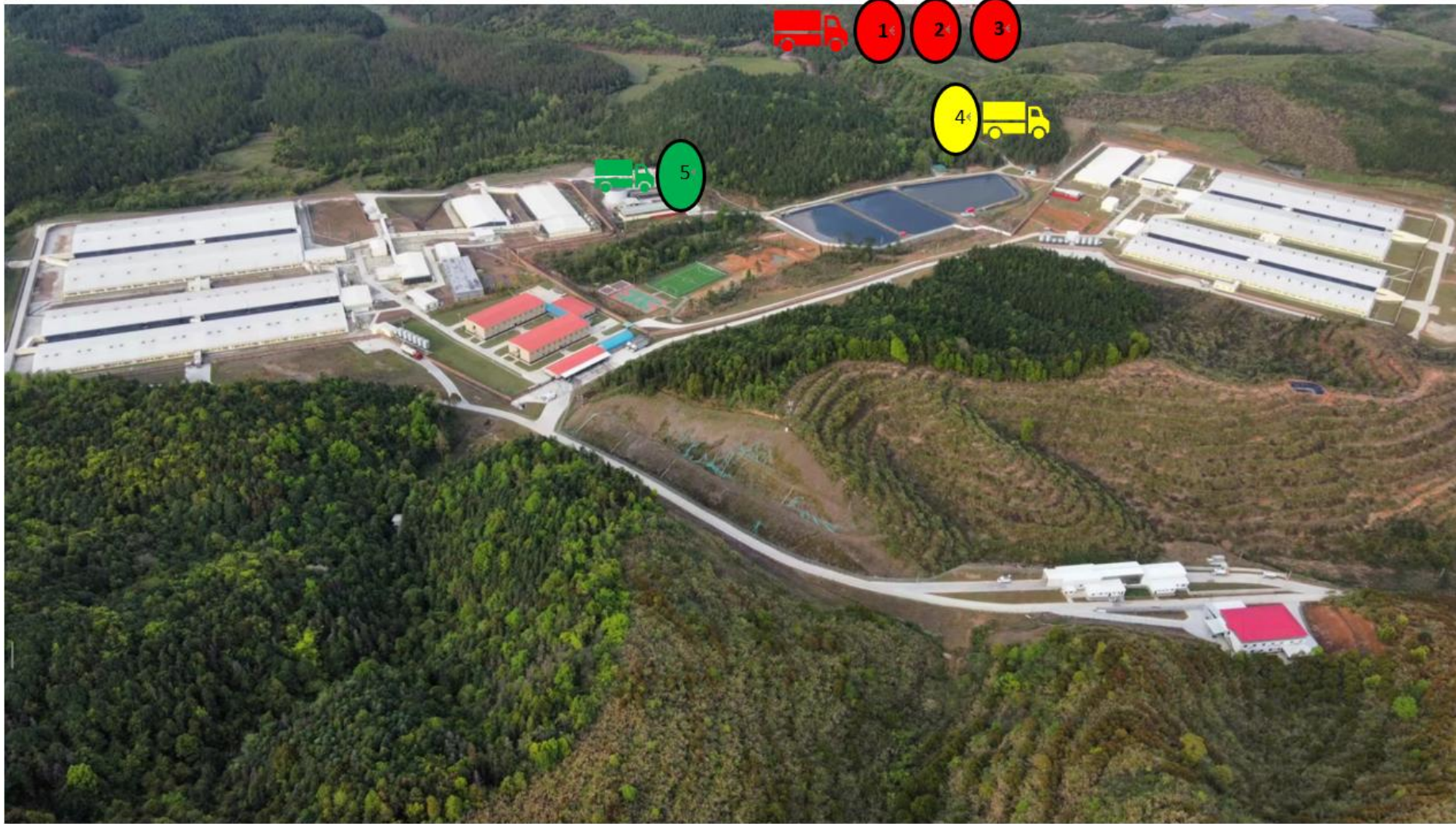


Feed Truck Access Protocol





Manure Truck Access Protocol



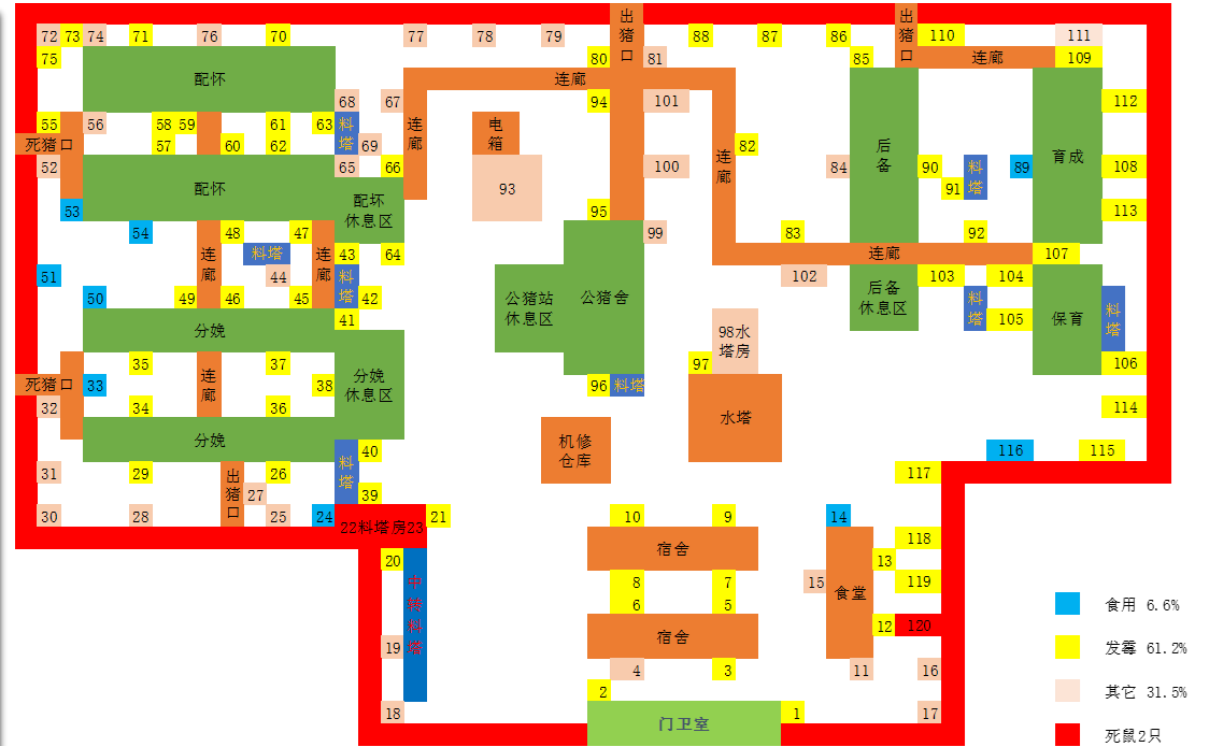


Carcass Disposal Truck Access Protocol





Rodent Control



- Consumed rodent bait: 6.6%
- Moldy rodent bait: 61.2%,
- Others: 31.5%.
- (Note: 2 dead rats were found).



Sustained Disease-free Status Despite Regional Outbreaks

NO ASF

F	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Time at risk	case
1																											20	0
2																											12	0
3																											26	0
4																											11	1
5																											9	0
6																											11	1
7																											7	0
8																											4	0
9																											4	1
10																											4	1
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23																											6	1
24																											26	0
25																											6	1
26																											4	1
27																											3	1
28																											4	1
29																											26	0
30																											26	0
Total																											292	20

Incidence rate = $20 \times 12 / 292 = 0.82$ case per farm-year.

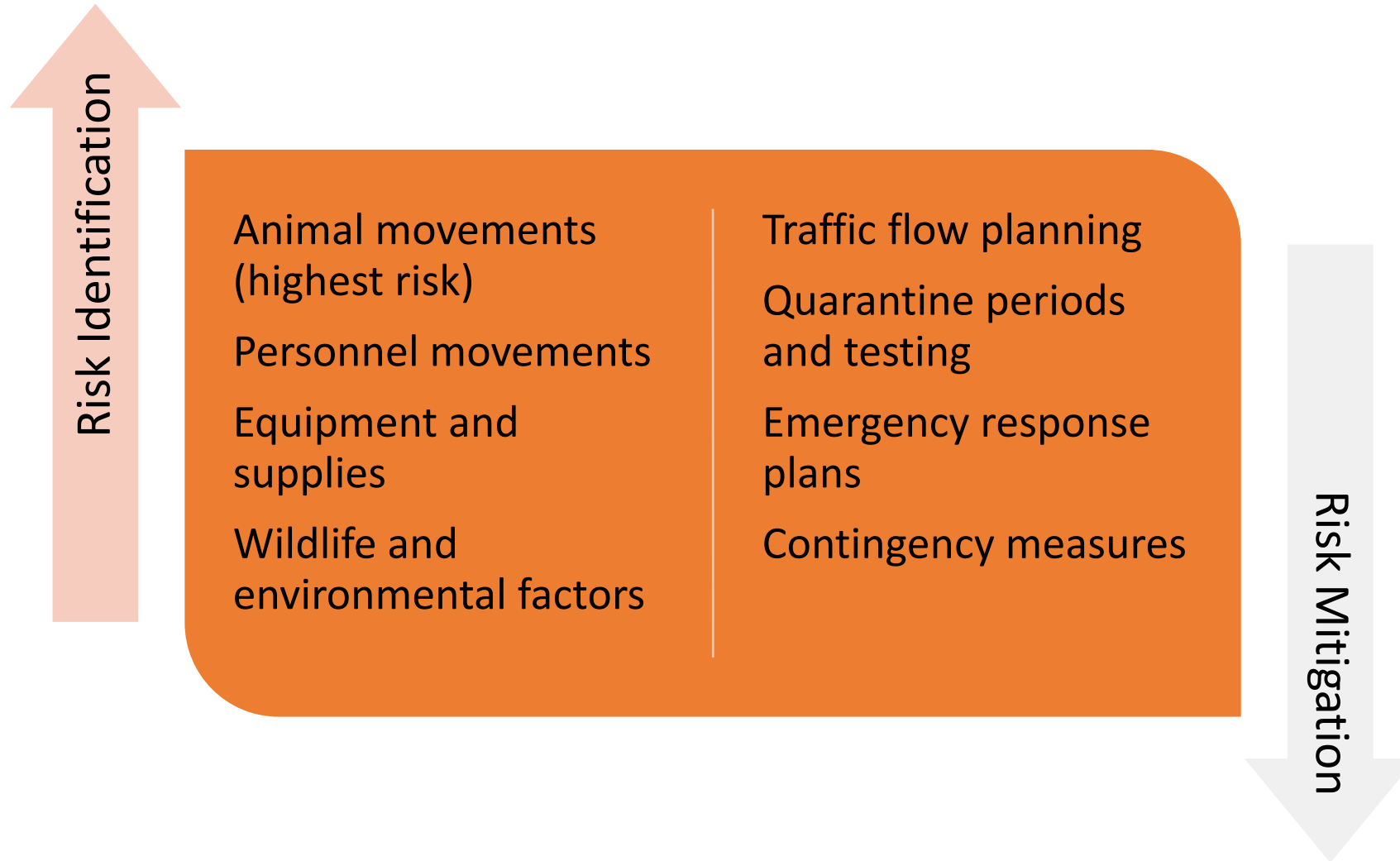


PRRS Positive stable; PRV negative, CSFV negative, PEDV negative

[illegible]



Risk Assessment and Mitigation Strategies

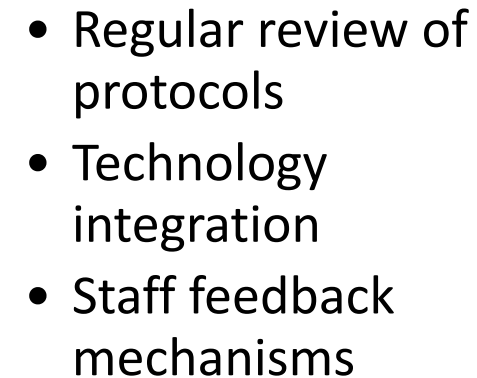




- ## Audit Systems:

[illegible]

- ## Continuous Improvement:





Challenges and Solutions from Field Experience



Common Challenges:

Cost implications of high-level biosecurity

Compliance fatigue among staff

Integration with existing farming practices

Supply chain complexities

Practical Solutions:

Phased implementation approach

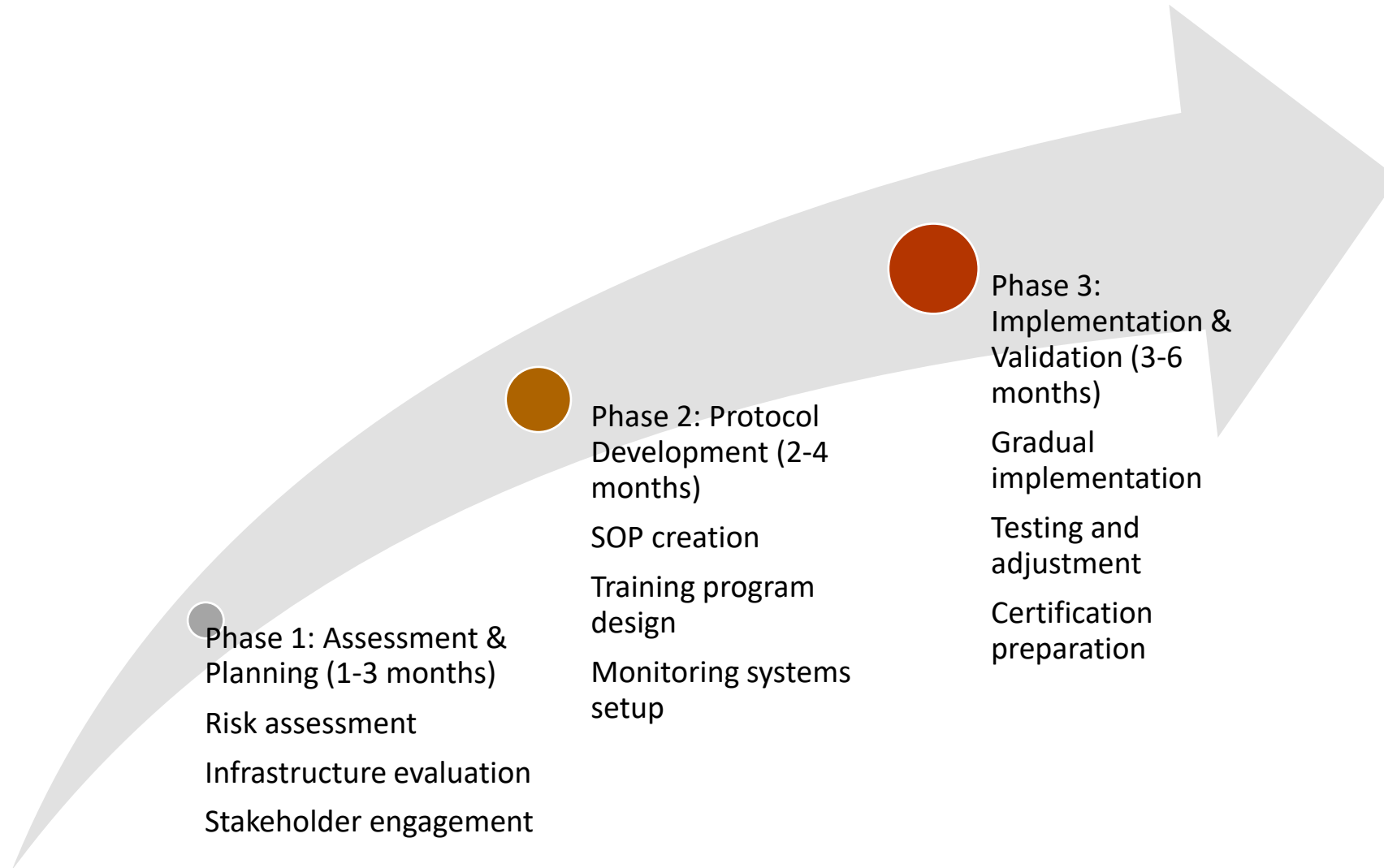
Incentive-based compliance systems

Tailor to local conditions

Solid cooperative suppliers



Implementation Roadmap for Southeast Asia





Summary and Key Takeaways

- Systematic biosecurity is the foundation of successful zoning/compartmentalisation
- Management systems must be comprehensive, documented, and regularly audited to maintain the high-level biosecurity
- Practical experience shows SPF biosecurity systems can be successfully implemented in the field to maintain high health status
- Continuous improvement is essential for long-term sustainability



Thank you

Acknowledgements

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(WOAH)

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