



# **SOUTH & SOUTHEAST ASIA**

# **PATHOGEN GENOMICS PRIORITIZATION**

# **& IMPLEMENTATION WORKSHOP**

September 9-13, 2024  
Bangkok, Thailand

## WORKSHOP PARTNERS



Sydney Infectious Diseases Institute  
Centre for Infectious Diseases & Microbiology  
WHO Southeast Asia Regional Office (SEARO)  
WHO Western Pacific Regional Office (WPRO)  
WHO International Pathogen Surveillance Network (IPSN)



# National Planning for Pathogen Genomics

Setting the Stage



# National Planning for Pathogen Genomics



**Background &  
Resources**



**Table  
Discussions &  
Mentimeter  
Exercise**



**Country Partners Panel**



# National Planning for Pathogen Genomics

## Setting expectations

### What this is:

- ☐ Reviewing general resources and tools
- ☐ Brainstorming key strategy components
- ☐ Collaborative discussions on drafting and development

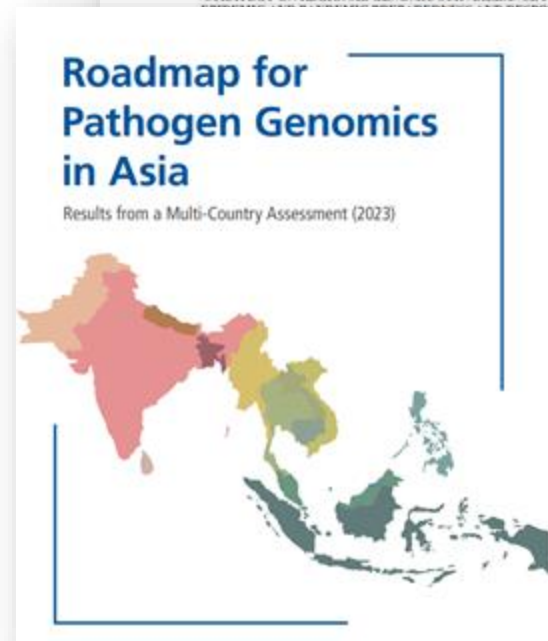
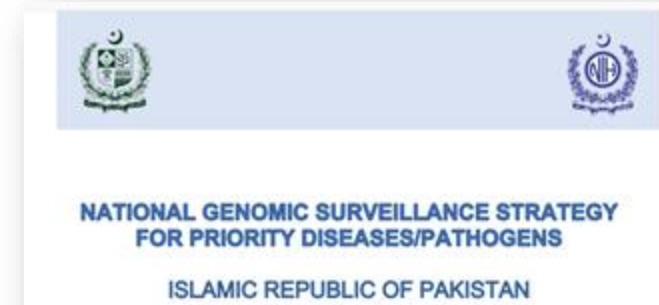
### What this is not:

- ☐ Comprehensive guide on all components needed for a strategy
- ☐ Exact steps for strategy development



# Pathogen Genomics National Planning

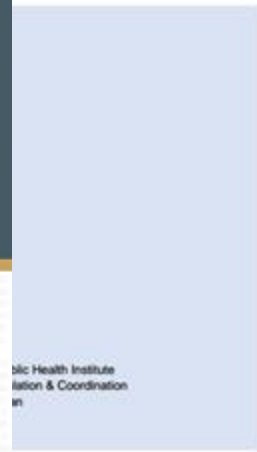
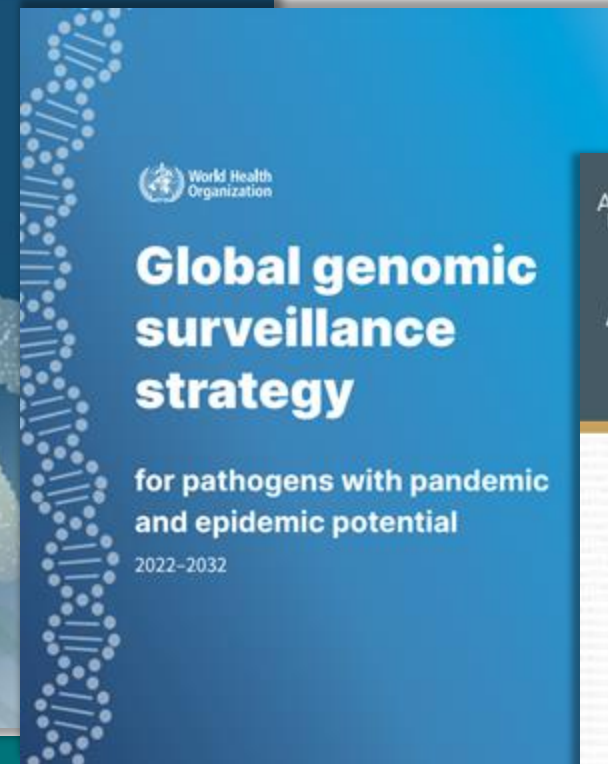
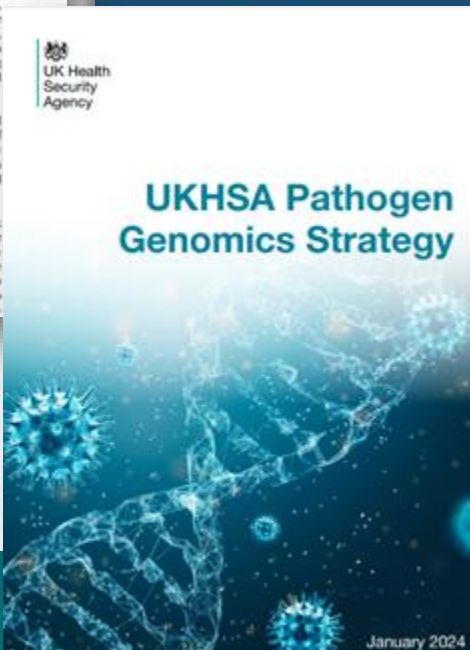
## Emergence of global, regional, and national strategies



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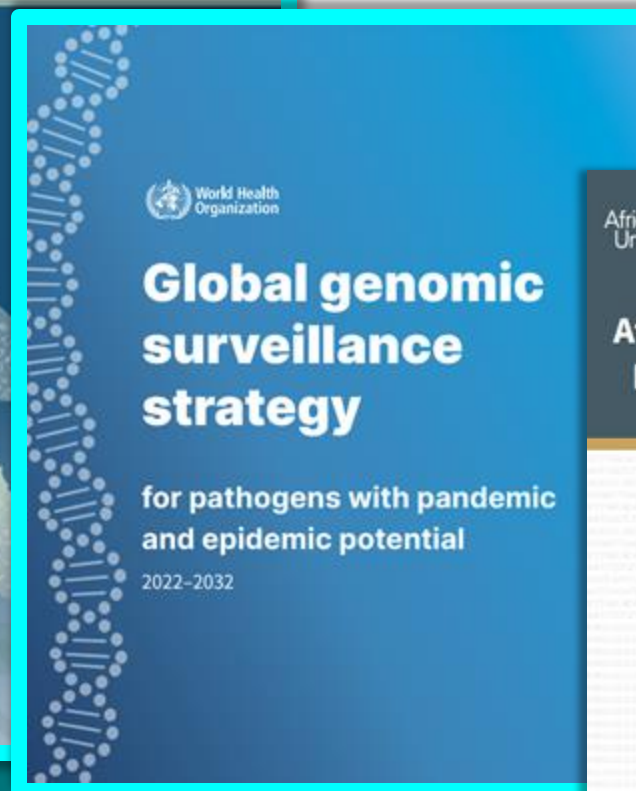
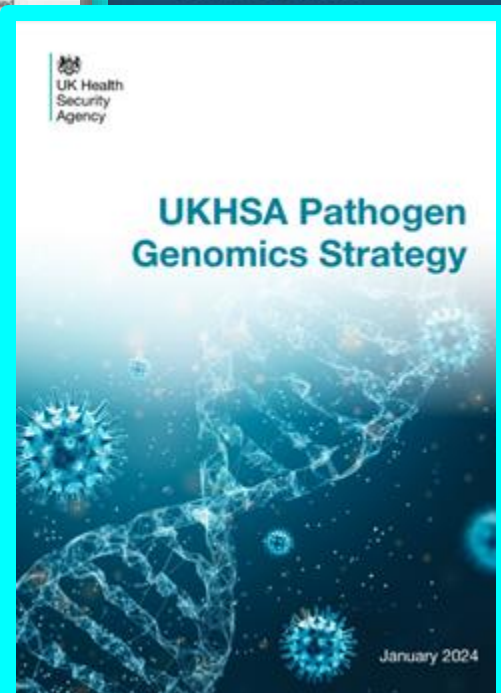
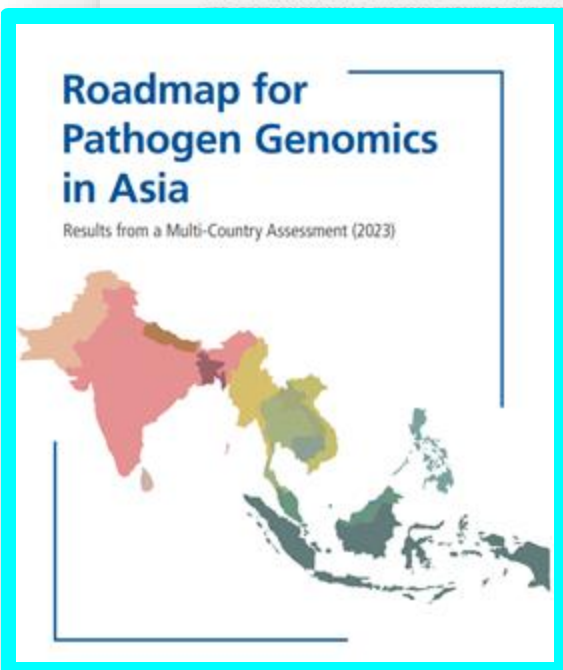
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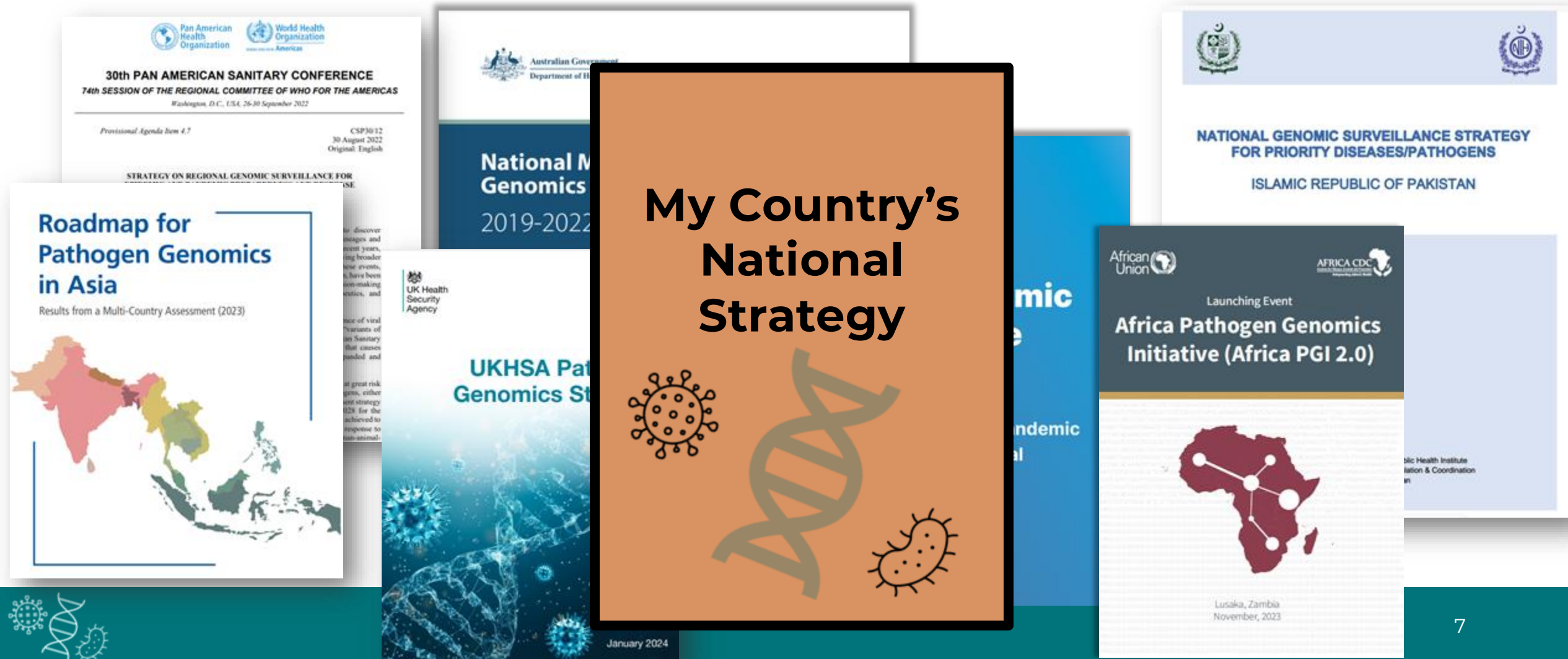
# Pathogen Genomics National Planning

## Emergence of global, regional, and national strategies

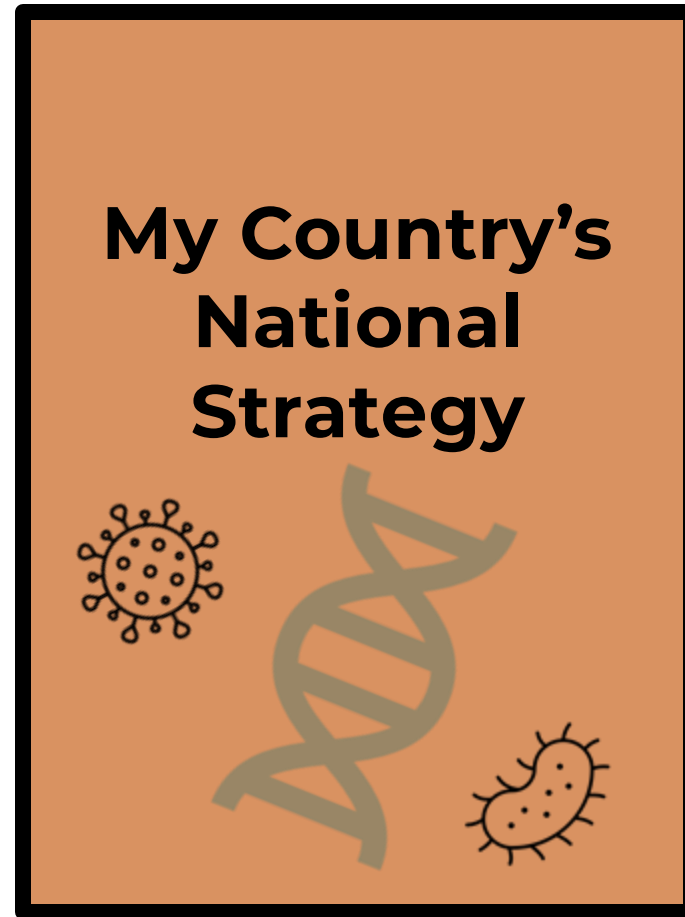


# Pathogen Genomics National Planning

## Emergence of global, regional, and national strategies



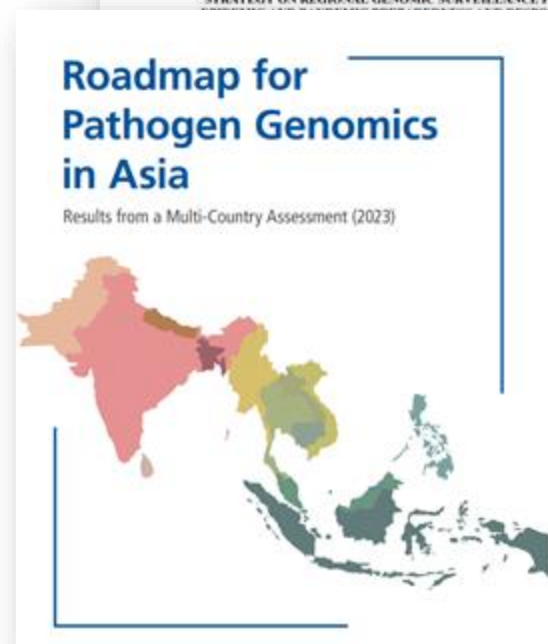
# How do I start?





# Pathogen Genomics National Planning

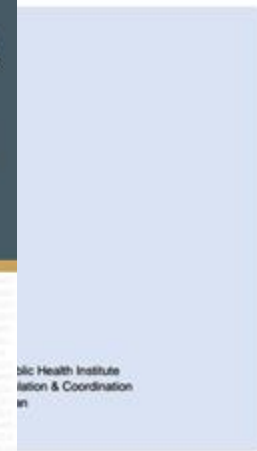
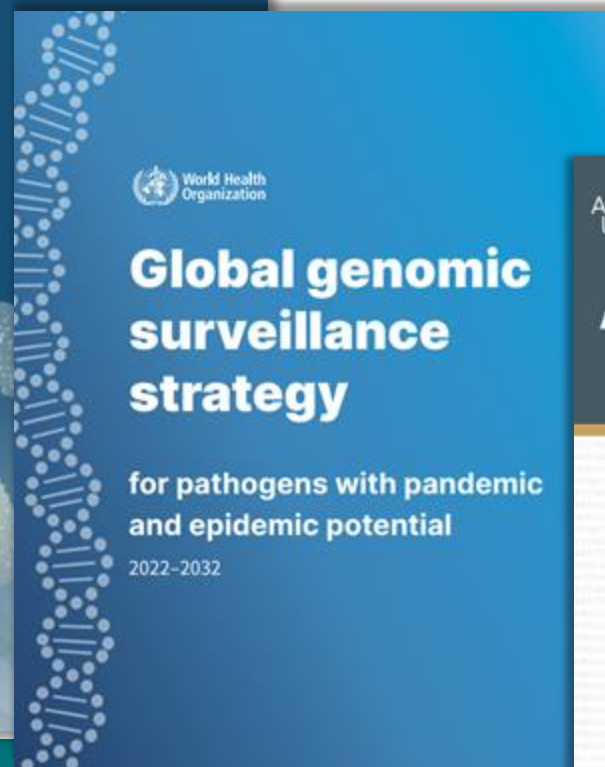
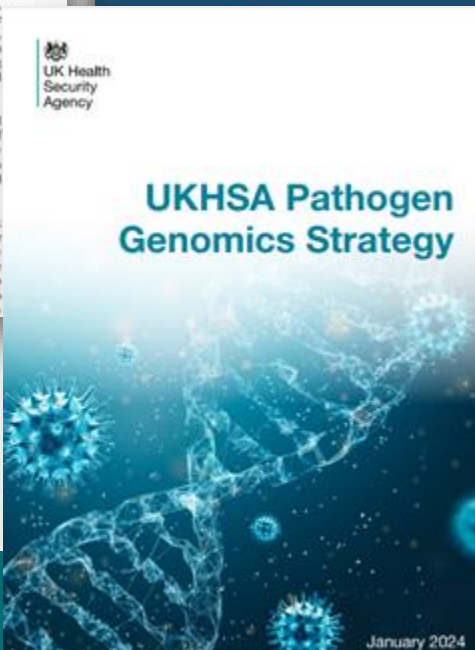
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# Why have a **national pathogen genomics strategy**?



Strategic  
**resource  
allocation** &  
clear objectives



Improved  
**coordination,  
accountability, &  
decision-making**



Public health  
**preparedness**  
& global health  
**security**



**Political  
will, policy,  
& advocacy**



National,  
regional, &  
global  
**collaboration**



# Translating Resources and Tools for National Planning



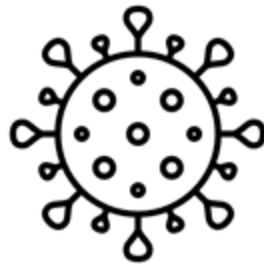
## Multi-Pathogen Genomics Implementation and Strategy Toolkit



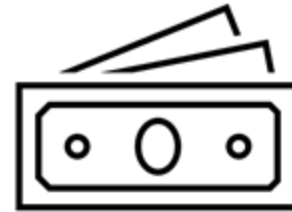
Pathogen  
Genomics Case  
Studies



Pathogen  
Prioritization  
Tool



Sampling  
Strategies



Genomics  
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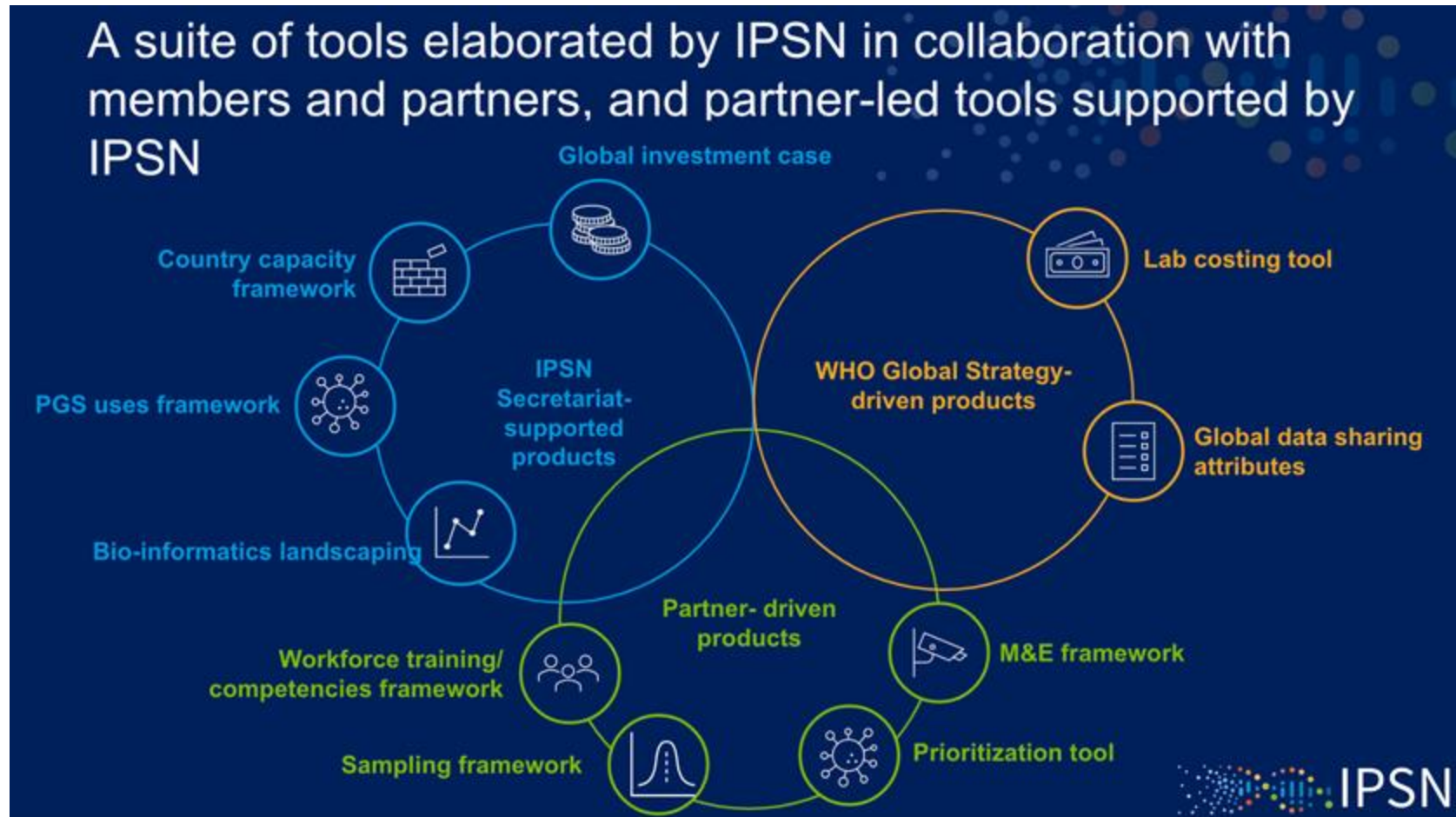
Monitoring  
and Evaluation



Multi-Pathogen  
Planning and  
Investment Case



# Translating Resources and Tools for National Planning



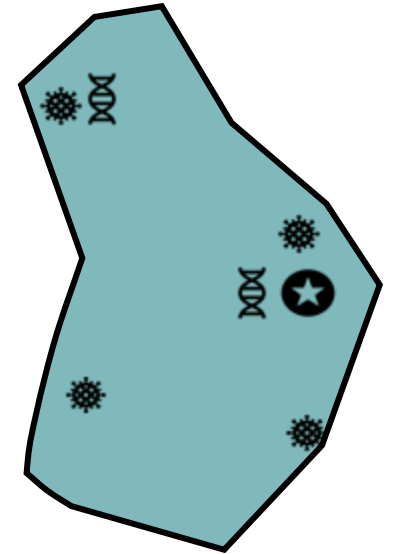
# Pathogen Genomics Strategies



Global



Regional



National





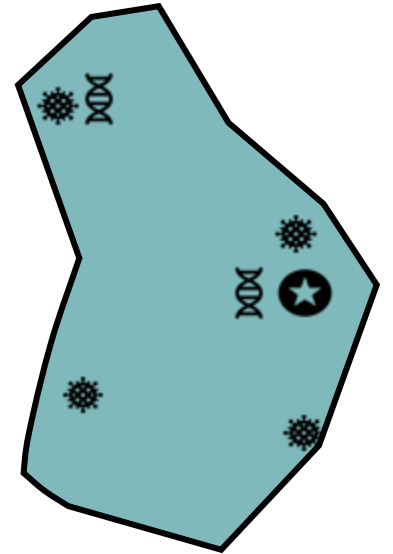
# Pathogen Genomics Strategies



Global



Regional

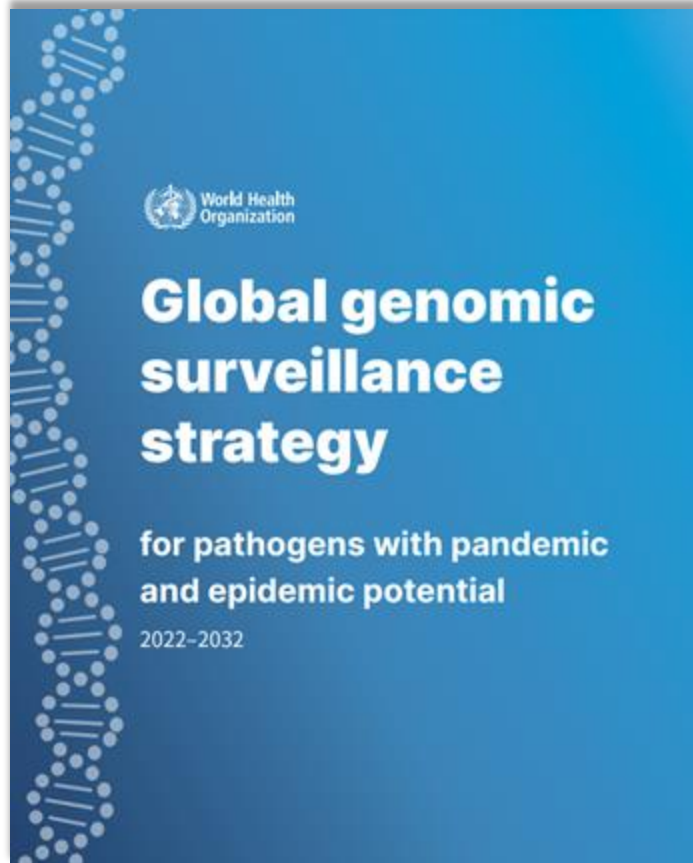


National

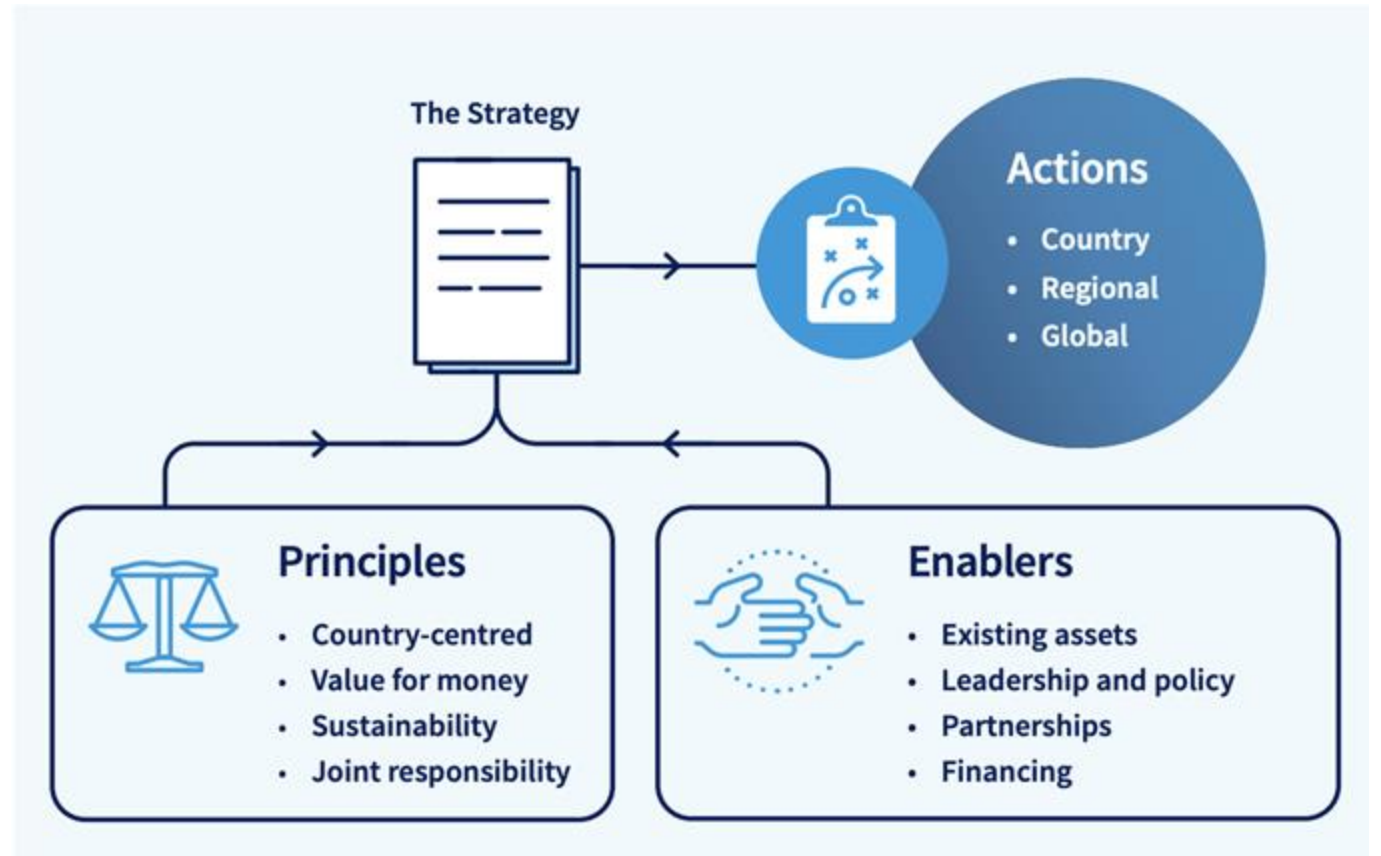


# Resources for National Planning

## WHO Global genomic surveillance strategy 2022-2032



<https://www.who.int/publications/i/item/9789240046979>



# Strategy Objectives Examples



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# Strategy Objectives Examples



Equity & access

Workforce

Data

Value-add

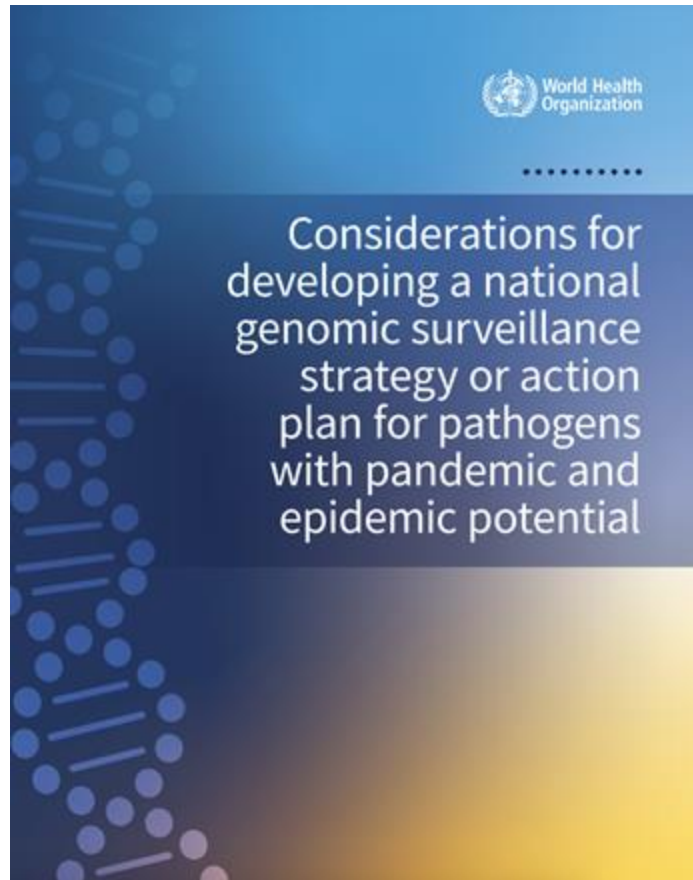
Readiness

<https://www.who.int/publications/i/item/9789240046979>



# Resources for National Planning

## WHO strategy development guidance document



<https://www.who.int/initiatives/genomic-surveillance-strategy>



### Proposed actions:

- Define the scope of the strategy;
- Analyse the global strategy in the national context based on the situation analysis and defined scope;
- Identify the national goal and objectives;
- Determine strategic actions for each objective.



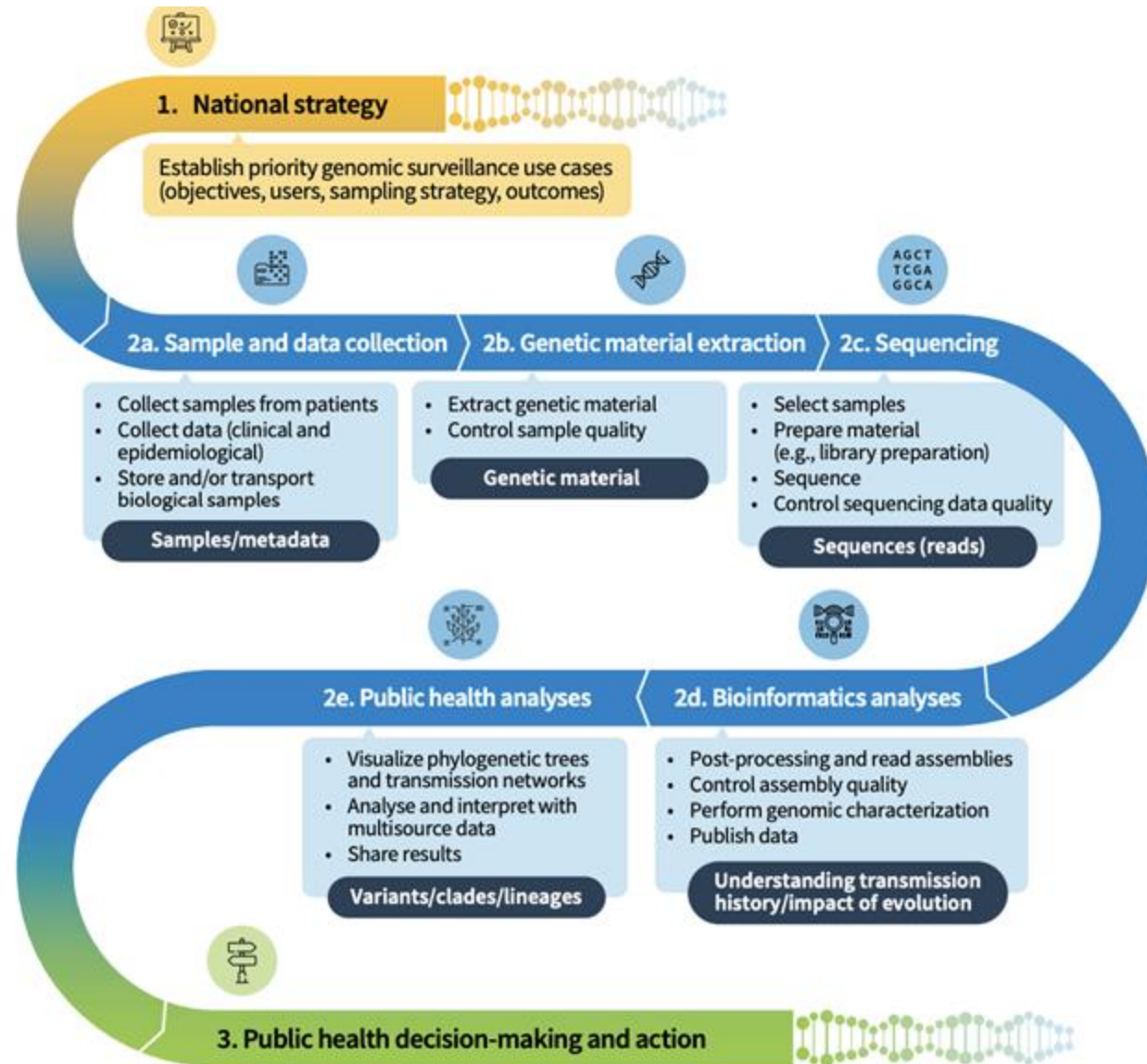
### Proposed actions:

- Raise awareness among national authorities and relevant partners on the value of genomic surveillance using a One Health approach
- Map and consult relevant stakeholders
- Establish terms of reference for the coordinating structure, identify its members and their roles and responsibilities
- Obtain approval of national authorities as needed to ensure leadership
- Organize a briefing workshop for members of the coordination/working group.





# Overview of the genomic surveillance value chain with corresponding activities and outputs



# Resources for National Planning

## WHO strategy development steps

### 1 Prepare



Engage policymakers and partners in the genomic surveillance investment case, identify stakeholders, create a multisectoral strategy working group for coordination

### 2 Analyse situation



Describe the national context and identify priority risks, collect baseline information, identify use cases for genomic surveillance

### 3 Set scope of strategy



Define scope (multipathogens, interoperability, multisource data approach, specific time frame); identify goals, objectives and strategic actions

### 4 Outline activities for implementation



Identify and prioritize activities, choose implementation approach, develop a data management protocol

### 5 Design a monitoring and evaluation framework



Identify the process and output/outcome measures for monitoring the successful implementation of the national strategy

### 6 Cost activities



Elaborate costs and human resource needs, verify their consistency in the national budgetary context and time frame, validate with subnational/national authorities and stakeholders

### 7 Mobilize resources

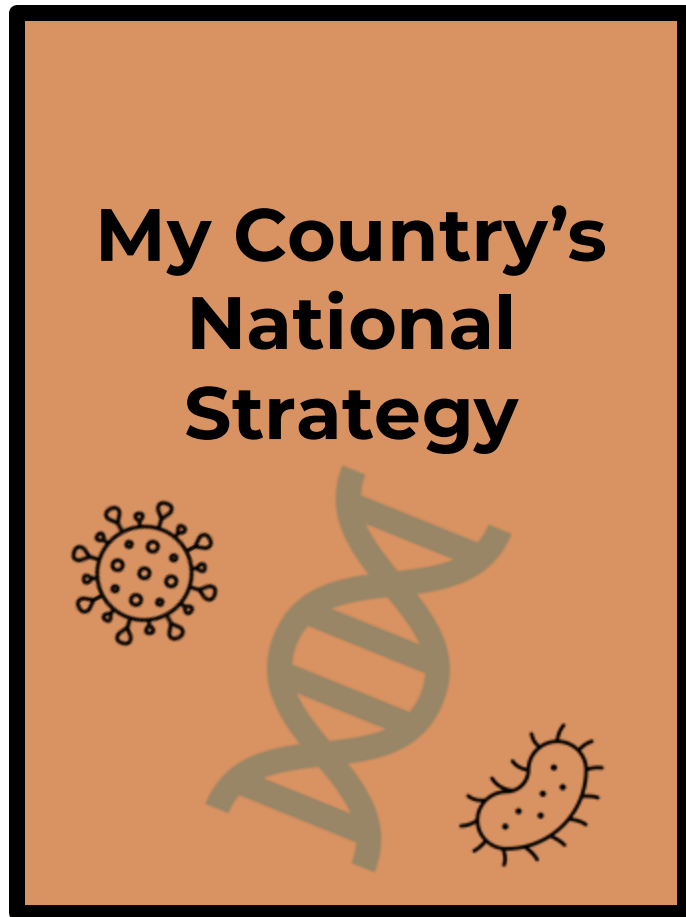


Map existing funding sources, funding gaps and potential funders; advocate to secure national long-term commitments from national authorities

SEE SECTION 3 FOR THE **STEPWISE APPROACH** TO DEVELOP A STRATEGY



We don't want our strategies to just sit on the shelf...



...National Strategies need to be **actionable, dynamic, and measurable.**



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**actionable, dynamic, and measurable.**

↓

Strategy incorporates **priorities**; outlines how pathogen genomics will improve readiness and response to infectious disease threats; **value-add**

↓

Sequencing technologies and emerging pathogens are dynamic; strategies need to be **dynamic too; flexibility to be updated**

↓

Objectives and goals that are **measurable for monitoring and evaluation**; supports implementation



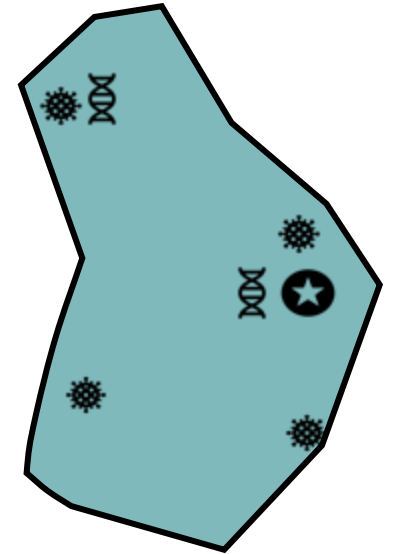
# Pathogen Genomics Strategies



Global



Regional



National





# Regional strategies & roadmaps

Thematic areas	Asia PGI roadmap + investment case (2023/24)	Africa CDC Policy Framework (2023)	Europe CDC Roadmap (2017/19)
<b>Pathogen focus</b>	Details a pathogen prioritization approach and a multi-pathogen surveillance planning	Not specific to pathogens. Emphasis on One Health approach for 'cross-species' outbreak monitoring and control.	Focus on sequencing specific pathogens based on objectives (outbreak, continuous surveillance, strategy oriented – sentinel, surveys). Provides step wise transition to WGS for outbreak investigation and surveillance.
<b>Integration with existing health systems/ policies</b>	Advocates leveraging existing disease surveillance systems and laboratory medicine capacity.	Calls for review of national health policies to integrate genomics	Highlights integration with established EU health regulations and frameworks
<b>Supply chain management</b>	Detailed analysis of procurement barriers, long lead time, and regional manufacturing solutions	Emphasis on establishing reliable supply chains, but no specific strategies	Less emphasis on supply chain issues, focus on standardizing methodologies and pooling resources at ECDC and Member State level
<b>Laboratory operations and quality control</b>	Advocates for national accreditation standards and to establish low-cost regional EQA.	Specifies establishing hierarchical national networks with defined roles and responsibilities. Strong QMS component that advocates for international accreditation per ISO requirement.	Focuses on network coordination at EU level with integrated data systems. Highlights WGS quality control initiatives at pathogen level
<b>Data sharing and governance</b>	Advocates for cross-country data sharing	Advocates for cross-country data sharing using the Pan-African data sharing platform developed by Africa CDC	Details cross-border data sharing models and standardized data formats
<b>Sustainability</b>	Details an investment case approach, advocates for cost reduction through pooled procurement	Advocates for health system revenue generation and sustainable domestic funding models, including commercialization of research findings	No specific mention of funding but mentions longitudinal studies to evaluate cost effectiveness



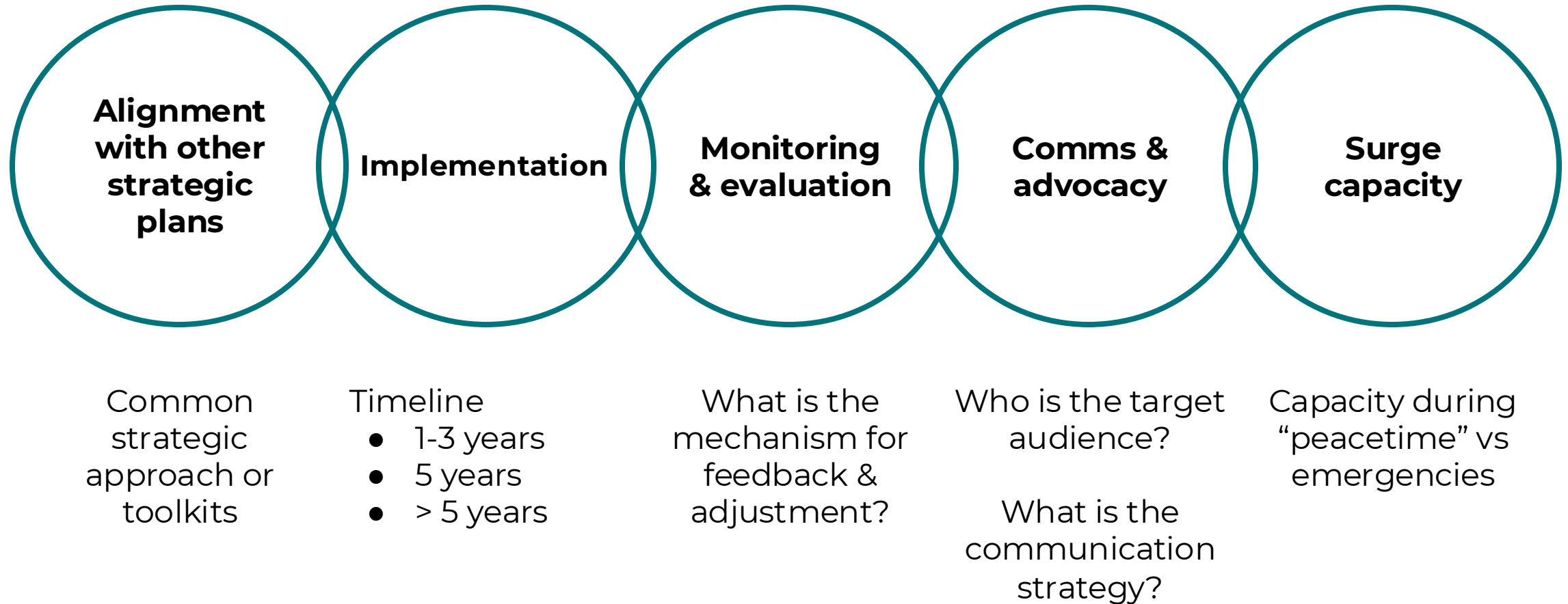
# Components of a National Strategic Plan

Category	Content
<b>Stakeholders</b>	Government ministries/agencies
	Research/academic institutions
	Private sector
	NGOs, multilaterals
<b>Governance &amp; Finance</b>	Policies and legislation
	Financing
	Monitoring and evaluation
<b>Surveillance Systems</b>	Centralised vs decentralised
	Routine vs outbreak response
	Integration into existing systems (other disease programmes)
	One Health approach
<b>Human Resources</b>	Workforce assessment
	Workforce planning and retention
	Education and training

Category	Content
<b>Pathogen Prioritization</b>	Pathogen list
	Genomic utility assessment
	Sampling methodology
	Volume forecasting
<b>Laboratory Systems</b>	Capacity assessment
	Type of equipment
	Quality Management System (QMS)
<b>Information Systems</b>	Bioinformatics
	Lab information system
	Data storage and sharing
	Computing infrastructure
<b>Supply Chain</b>	NGS related equipment forecasting
	Customs, regulatory processes, tax exemptions
	Pooled procurement mechanisms



# Other considerations



## After Lunch...

# National Planning Exercise & Panel



**Table & Mentimeter Exercise**



**Country Partners Panel**





# National Planning for Pathogen Genomics

**Exercise & Discussion**





# Components of a National Strategic Plan

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# Table Discussion

1. What is missing from the table of components?
2. What are the immediate 3 practical action points you think can be done for each component?
3. How can organisations like WHO, US CDC, Asia PGI, CPG, Uni Sydney, etc can support with your national strategic plans?



# Translating Resources and Tools for National Planning



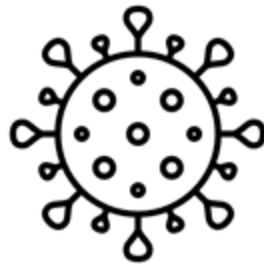
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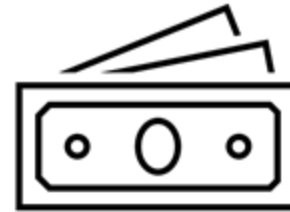
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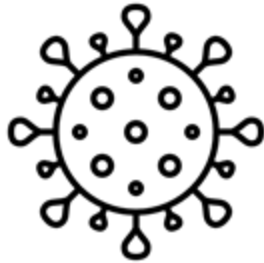
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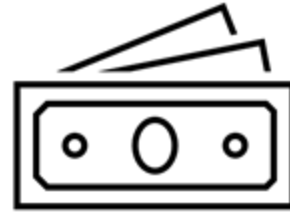
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**Table Discussion:** What tools for national planning may be **missing**? What else would be **helpful**?



# National Strategy ‘Tips and Tricks’

Advice from workshop country participants and facilitators

- “Make investment case clear”
- “Integrate Finance Minister early”
- “Be patient...approvals may take many months”
- “Engage all the right stakeholders”
- “Get Minister and High-Level staff buy-in early”
- “One Health coordination”
- “Include lessons-learned from COVID-19 pandemic”
- “Think about capacity”
- “Include achievable goals”

**Table Discussion:** What are important **lessons-learned and tips** for national planning?



# Mentimeter Discussion







# National Planning for Pathogen Genomics

**Panel**

