Regional Laboratory Capacity Assessment

Regional laboratory capacity for plant health?

Revisiting principles for assessing laboratory capacity

- Diagnostic technology targeted at regulated pests – quarantine and regulated non-quarantine pests
- Identification to appropriate taxonomic detail for valid phytosanitary measures, e.g. refusal of entry
- Laboratory diagnostic work should not cause unnecessary delays to processing the import of goods so that the testing requirement is not considered as a non-tariff barrier (Article 8/Annex C of SPS Agreement).
- Similarly, fees charged for testing should be based on cost-recovery.

Plant Health

Regional plant pest diagnostic lab(s) NOT recommended

- Regional phytosanitary laboratories are not proposed for the following reasons:
  - (a) experience in other regions has shown that funding for shared regional facilities based in a national institution is not sustainable;
  - (b) international exchange of infected plant material is difficult because of quarantine restrictions;
  - (c) international exchange of infected material samples is preferable but if countries can extract nucleic acid, they should be able to perform diagnosis.
- However, a laboratory that achieved a standard of excellence could serve as Reference Laboratory for validation of results and it could also serve as a Centre of Excellence for training and demonstration of state-of the-art diagnostic technology.

Animal Health

DIAGNOSTIC CAPACITIES OF REGIONAL VETERINARY LABORATORY NETWORK

Subjects

- General state of the regional veterinary laboratory network

- Steps to be made towards upgrading diagnostic capacities of the regional veterinary laboratory network

- First step
- Second step
- Third step
- Fourth step

General state of the regional veterinary laboratory network

In most countries of the CAREC region, limited funding led to deterioration of veterinary laboratory infrastructure and resulted to decline of diagnostic capacities, reliability of test results and unsafe (sometime even potentially dangerous) working conditions.

The situation is significantly better in laboratories, which have been refurbished and equipped with technical and financial support of international donors, but this can't be considered as an indicator of efficiency or effectiveness of the veterinary laboratory network.

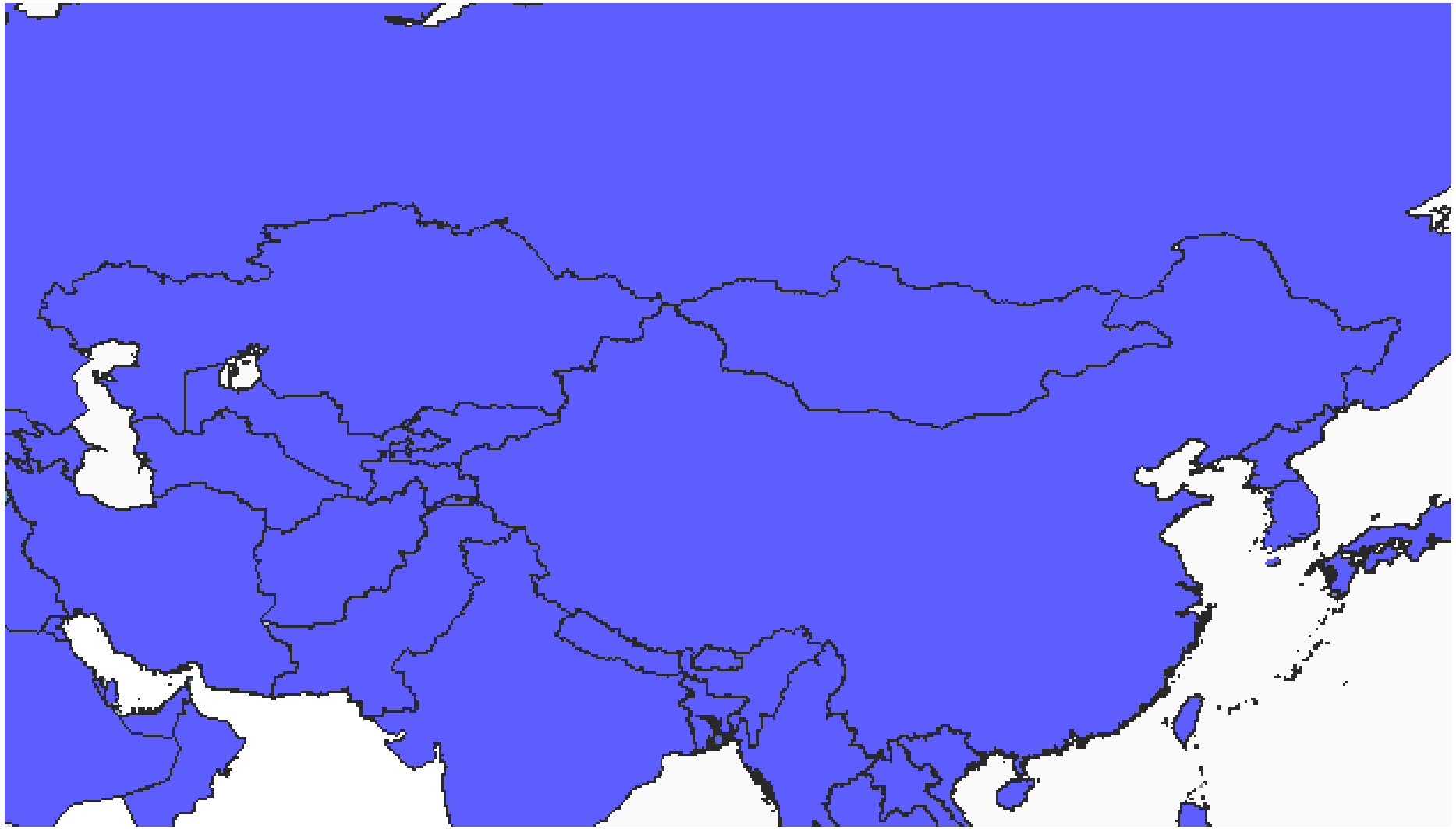
Intermediate remedial actions should be undertaken for upgrading diagnostic capacities of veterinary laboratories to the level that will enable national veterinary services in the CAREC region to launch and to operate disease early detection system.

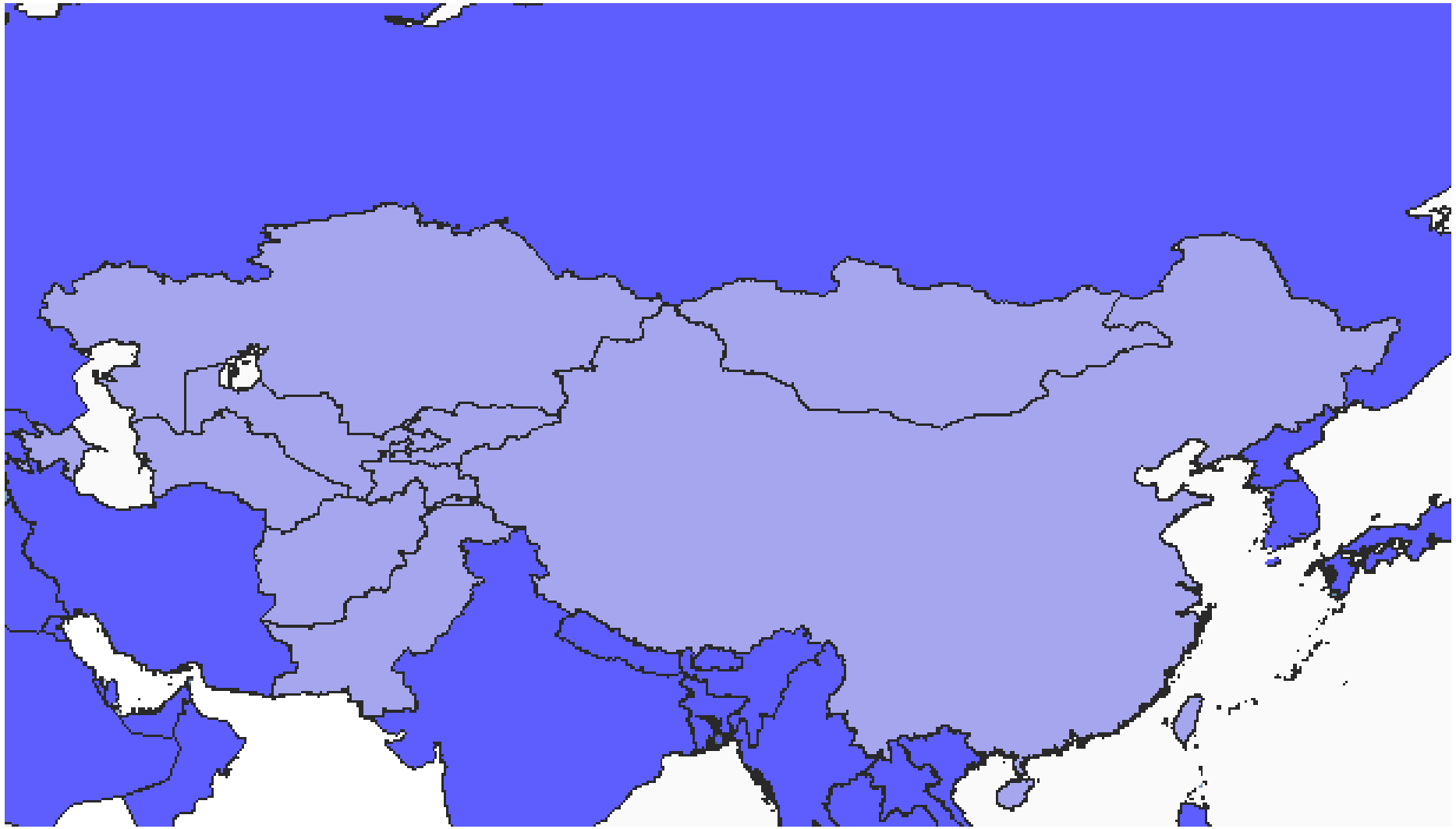
Basic infrastructures, equipment, utilities and human resources are currently available in all with developing and least developed laboratory networks, but along with this availability there is also a major gap, such as the absence of quality management system.

The veterinary laboratory network in almost all countries of the CAREC region is still at the stage of recovery and any intervention with the aim of speeding it up should be well considered and reflecting needs of this stage and to avoid unnecessary costs.

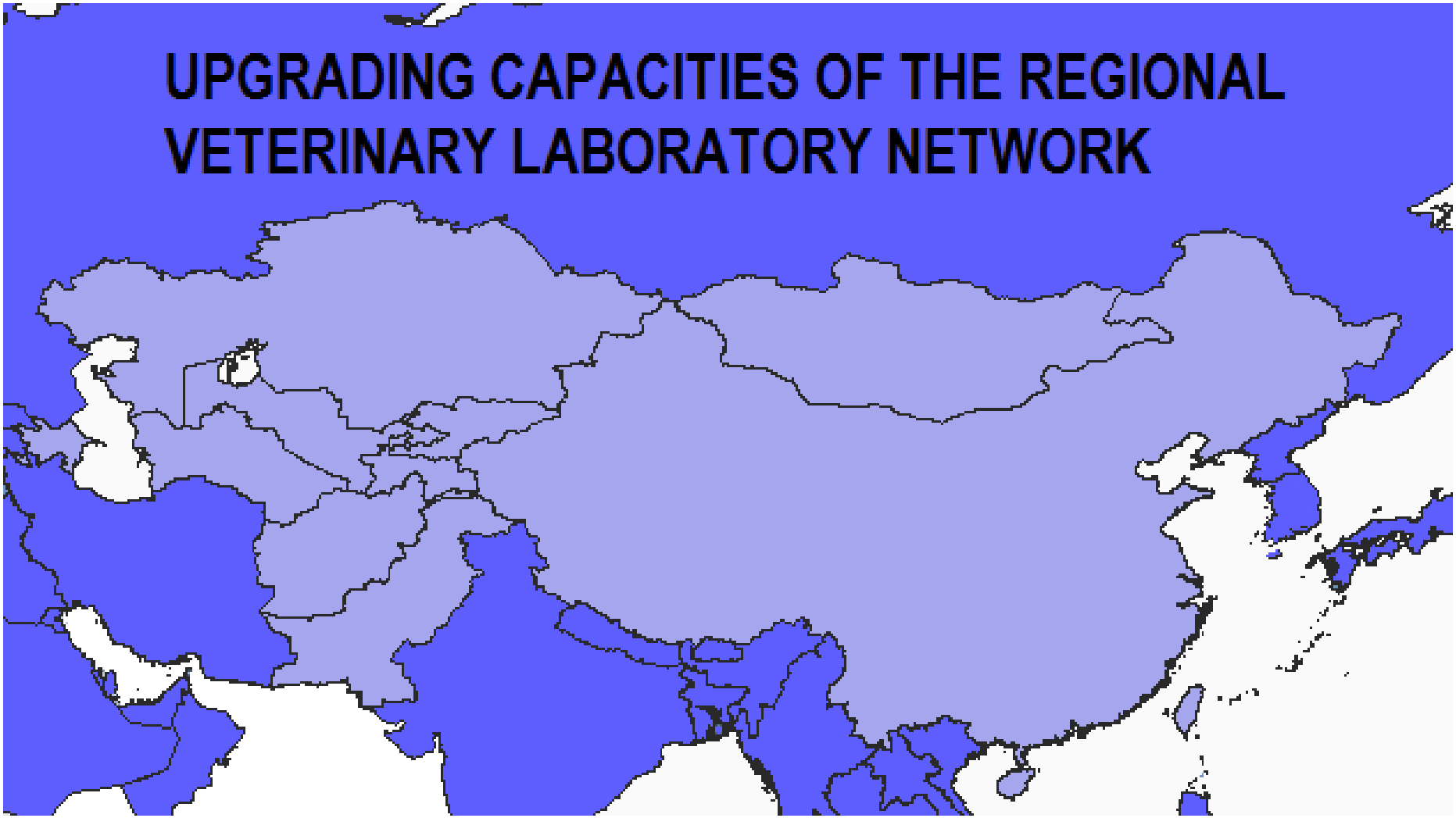
Considering results of the assessment it is recommended that the following intermediate remedial actions to be undertaken for upgrading capacities of regional veterinary laboratory network:

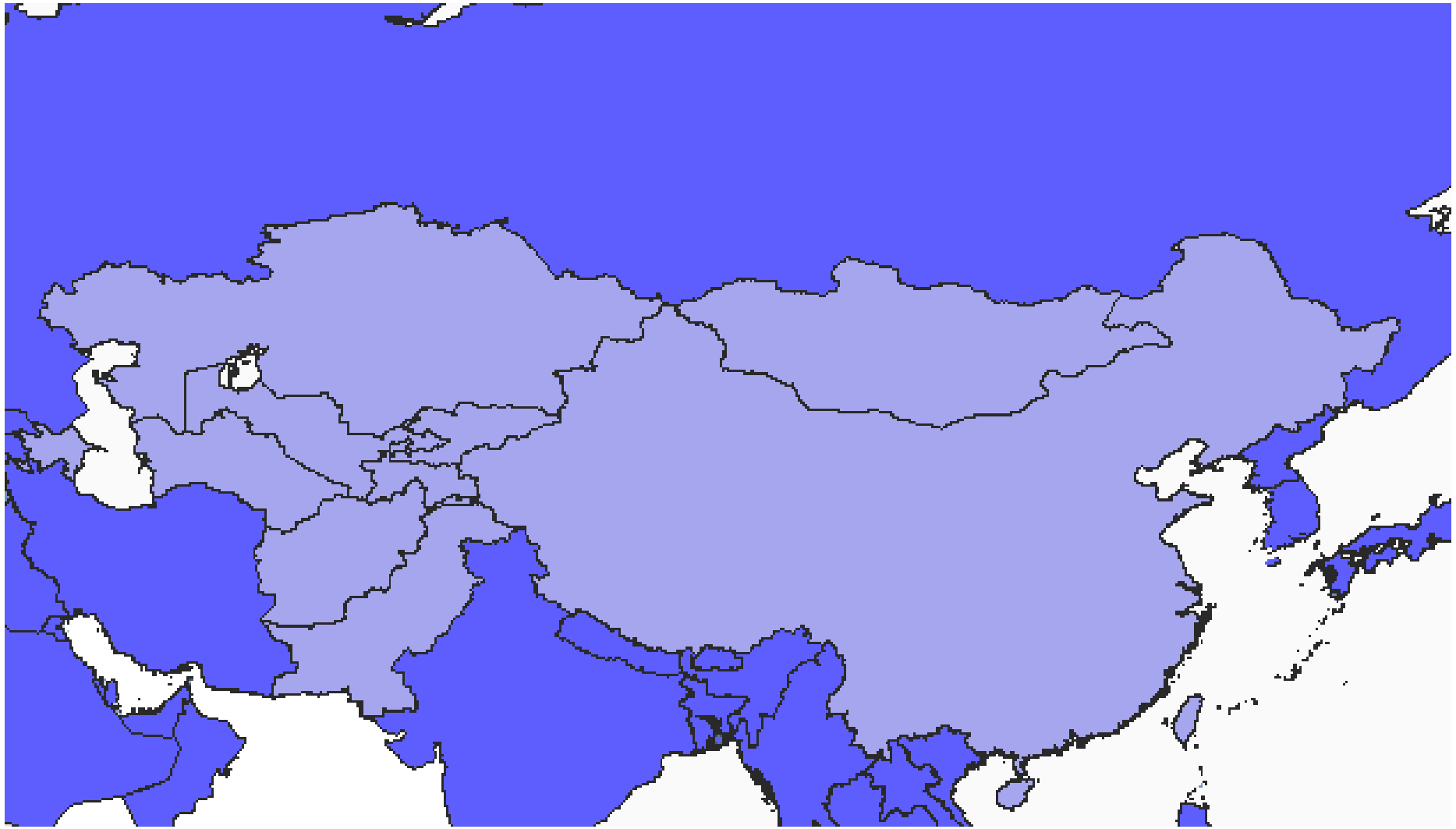
Steps to be made towards upgrading diagnostic capacities of the regional veterinary laboratory network





UPGRADING CAPACITIES OF THE REGIONAL VETERINARY LABORATORY NETWORK



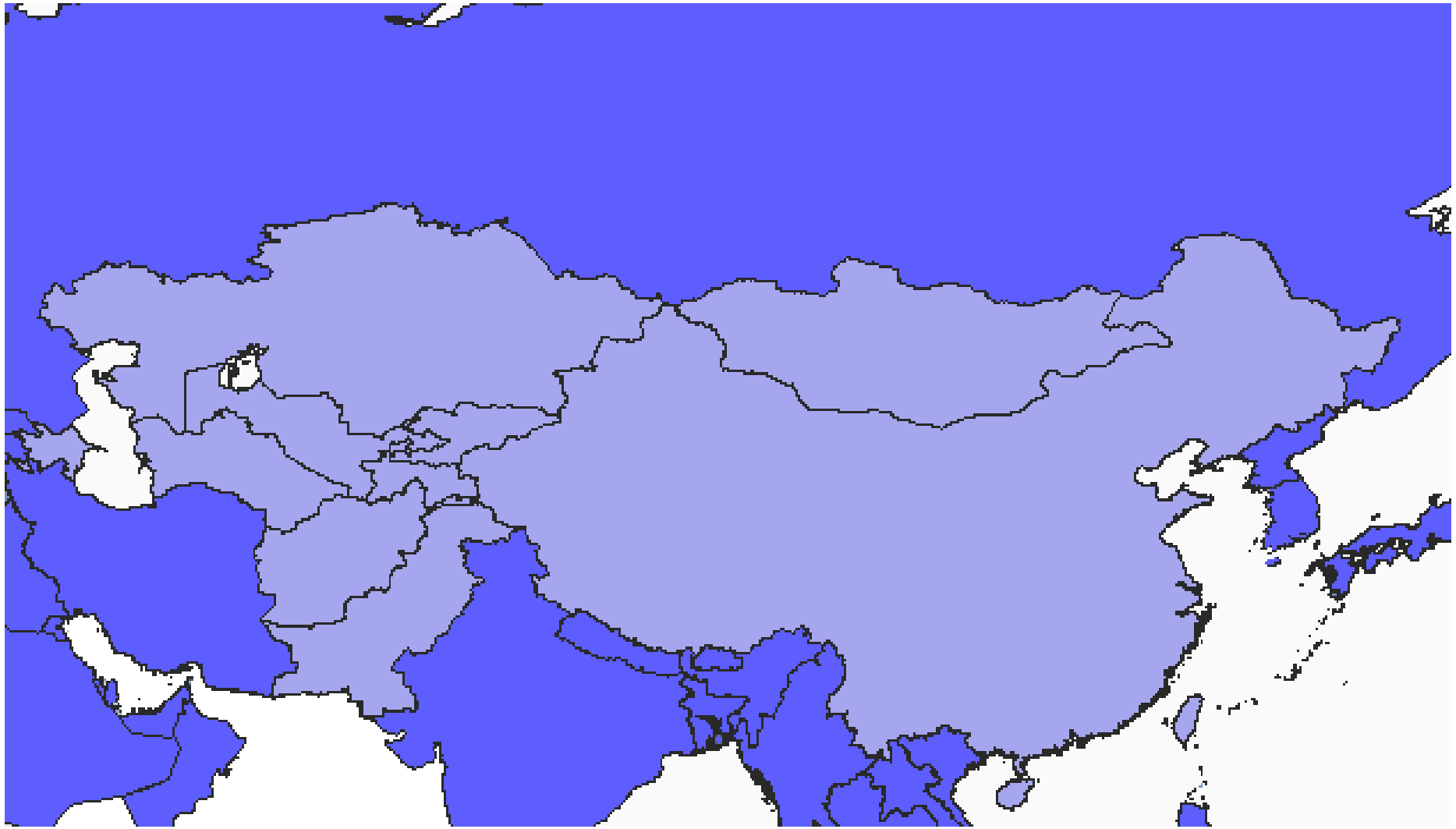



FIRST STEP


FIRST STEP

As a first step it is recommended that national veterinary authorities engage international development partners to support:

- **an inventory of diagnostic capacities in units of the veterinary laboratory network of the country at all levels;**
- **assessment of feasibility for application of OIE-listed prescribed tests with capacities existing at the central level;**
- **assessment of feasibility for application of OIE-listed alternative tests with capacities at the regional level;**
- **categorization of units of the network in accordance with their capabilities to diagnose endemic diseases at the regional level.**

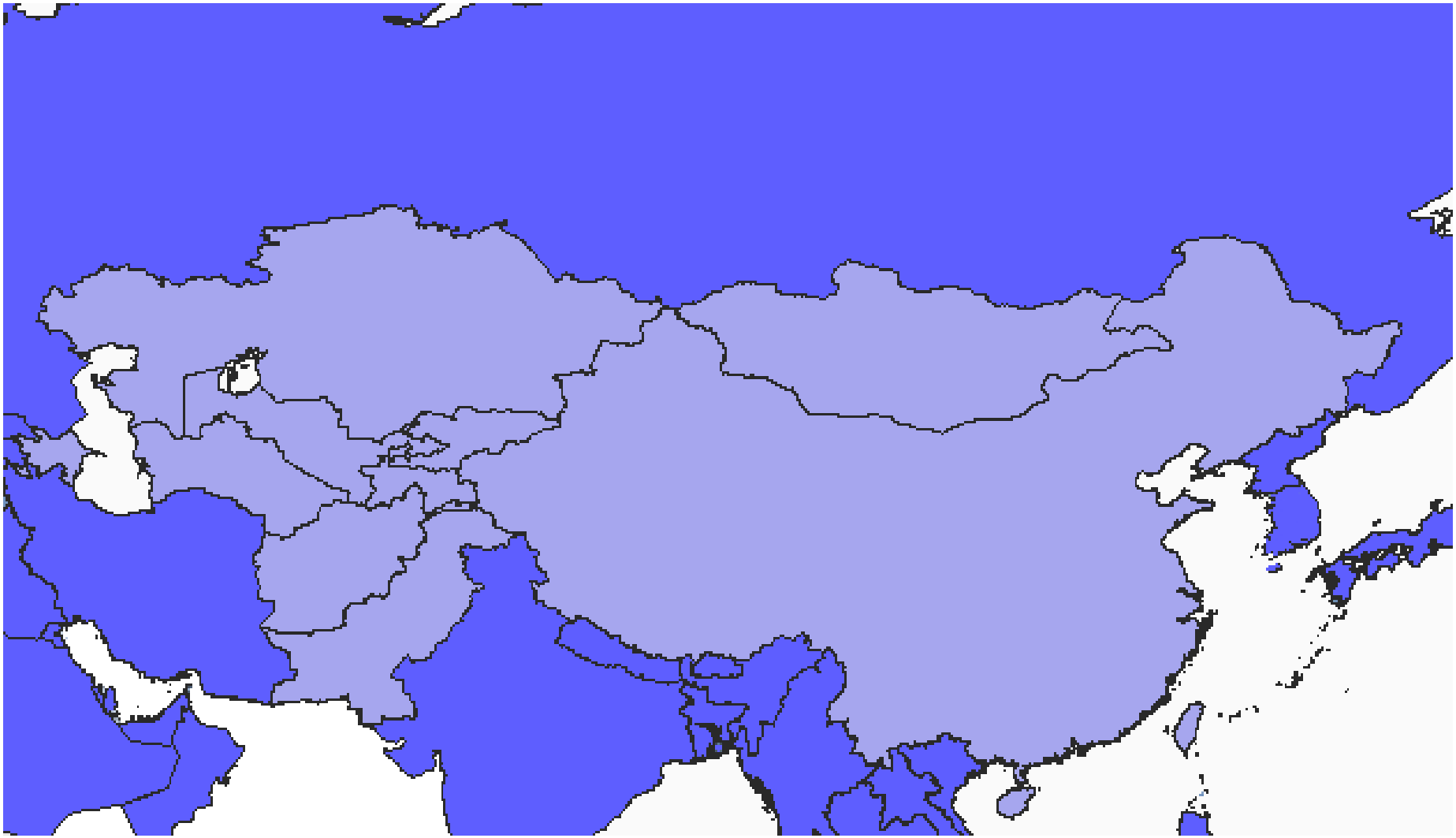


26-27 January 2015
Bishkek, Kyrgyz Republic

26-27 January 2015
Bishkek, Kyrgyz Republic

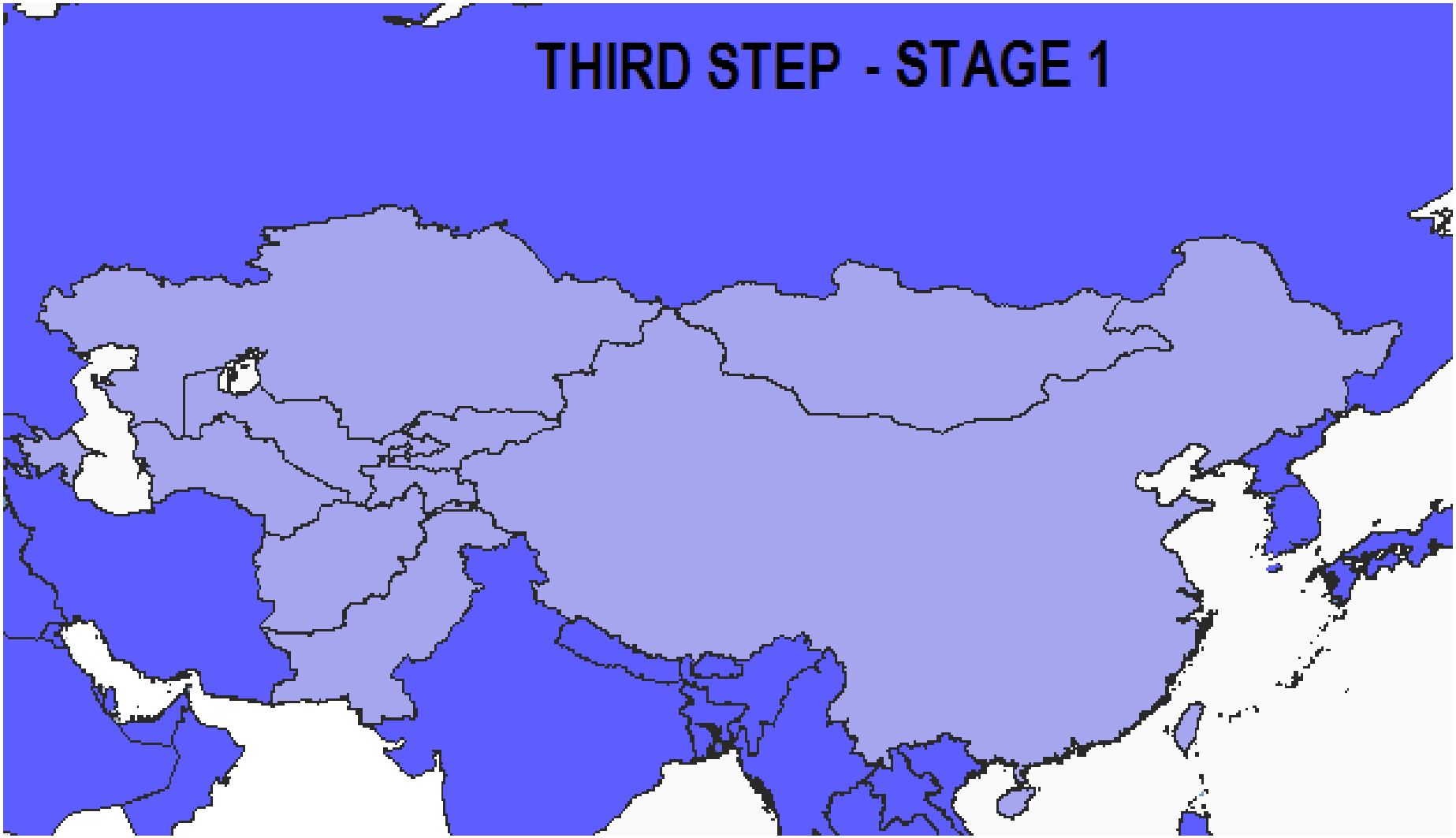
As a second step it is recommended that national veterinary authorities engage international development partners to support:

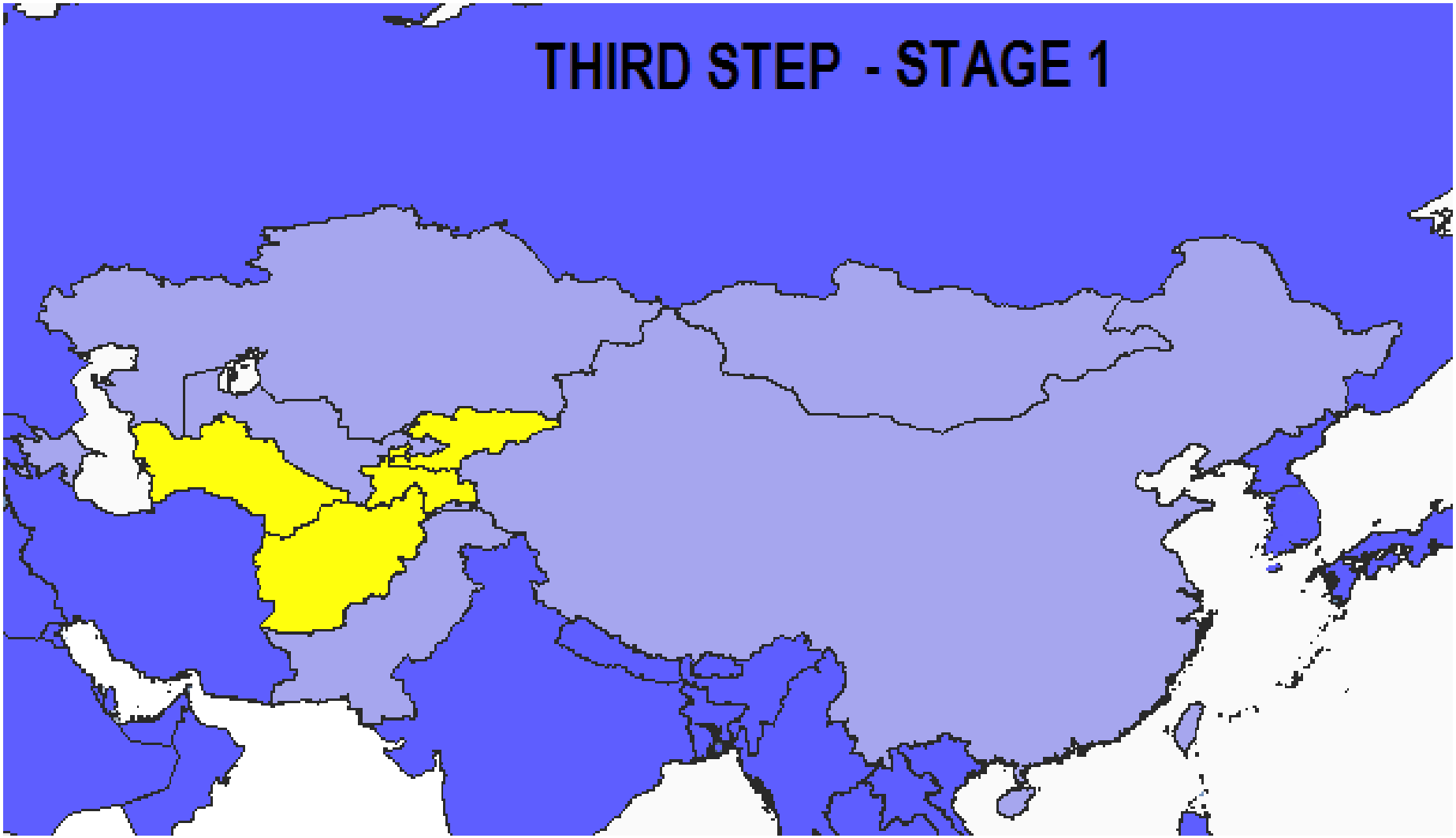
- **design and establishment of quality management system in the central veterinary laboratory and in the veterinary laboratory of at least one regional center of the country;**
- **preparation of central laboratory for accreditation in accordance with ISO 17025:2005 standard;**
- **participation laboratory personnel from the central level in international training courses on application of standards prescribed by chapters 1.1.1.-1.1.3 and 1.1.3a of the OIE Terrestrial Code (and corresponding standards of Aquatic Code).**



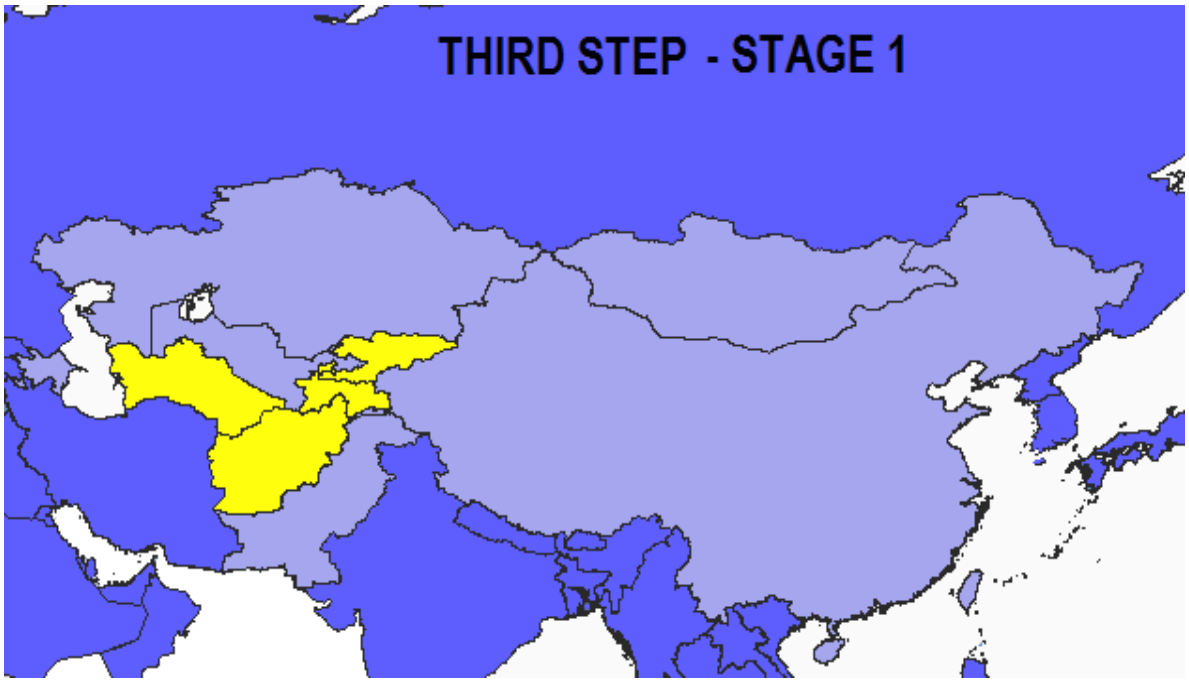

THIRD STEP


THIRD STEP
CONSISTS OF 4 CONSECUTIVE STAGES

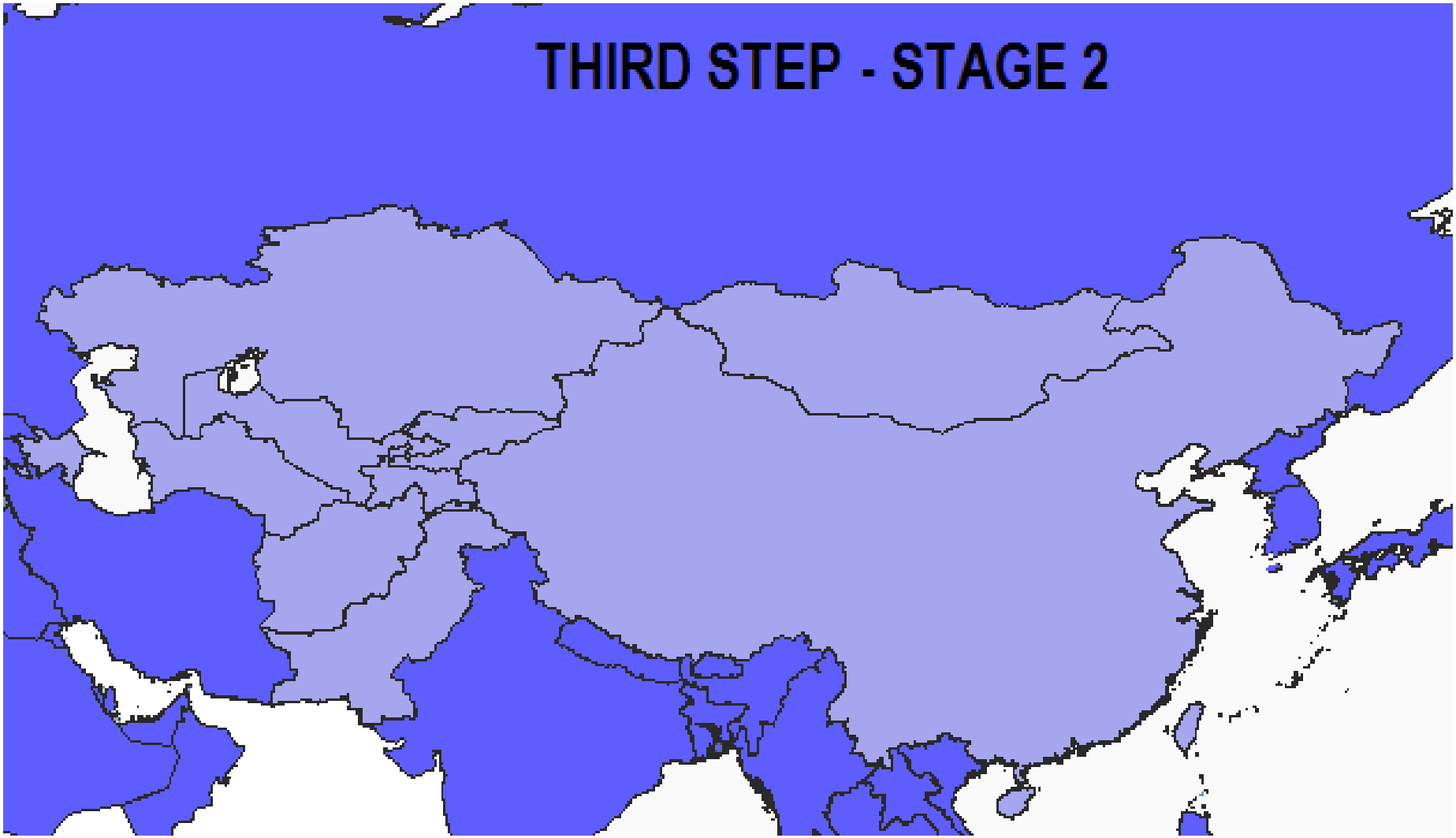

THIRD STEP - STAGE 1

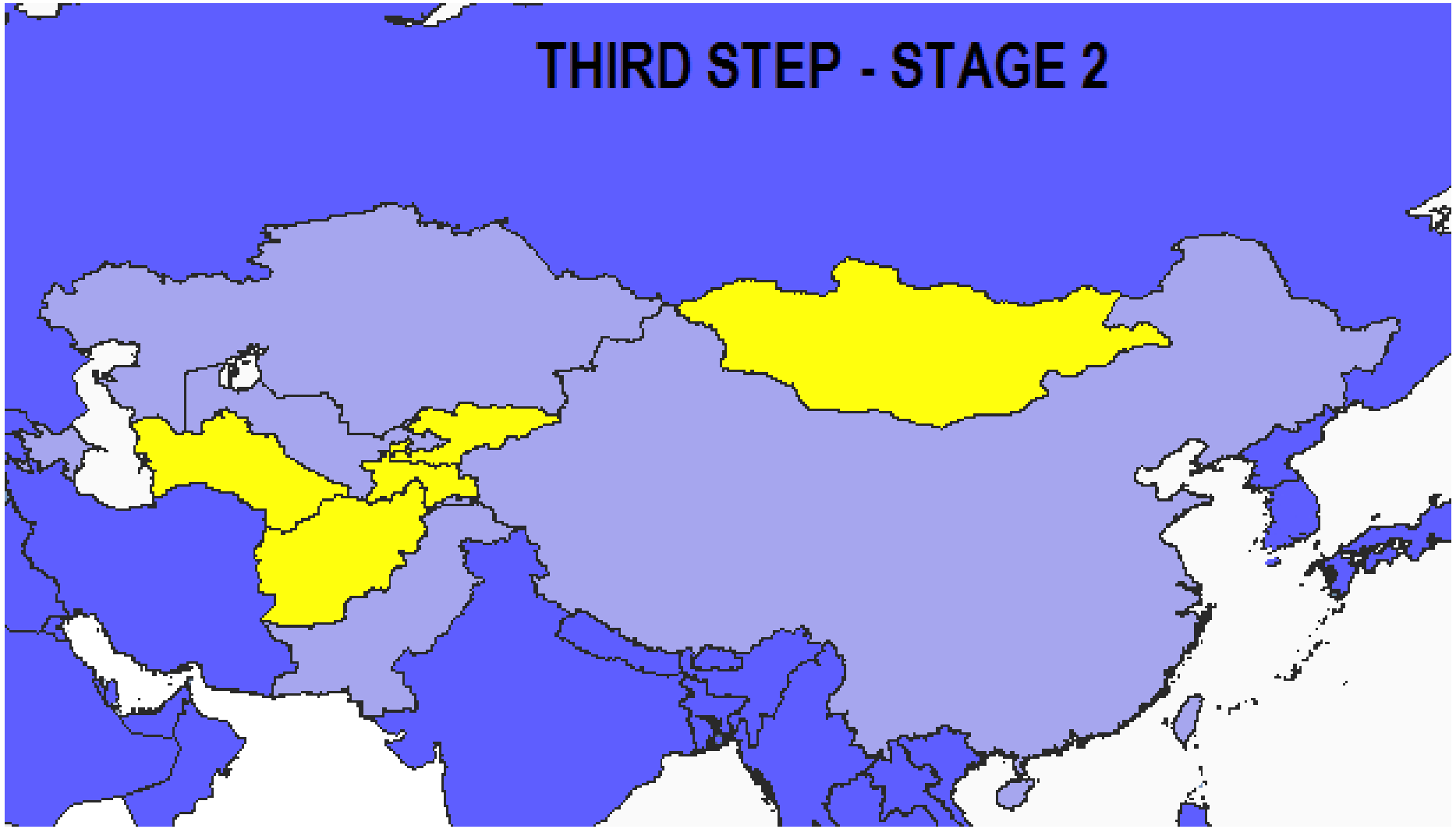

THIRD STEP - STAGE 1

At the first stage it is recommended that national veterinary authorities engage international development partners to support renovation of facilities and provision of equipment (PCR) for at least 2 provincial veterinary diagnostic laboratories;

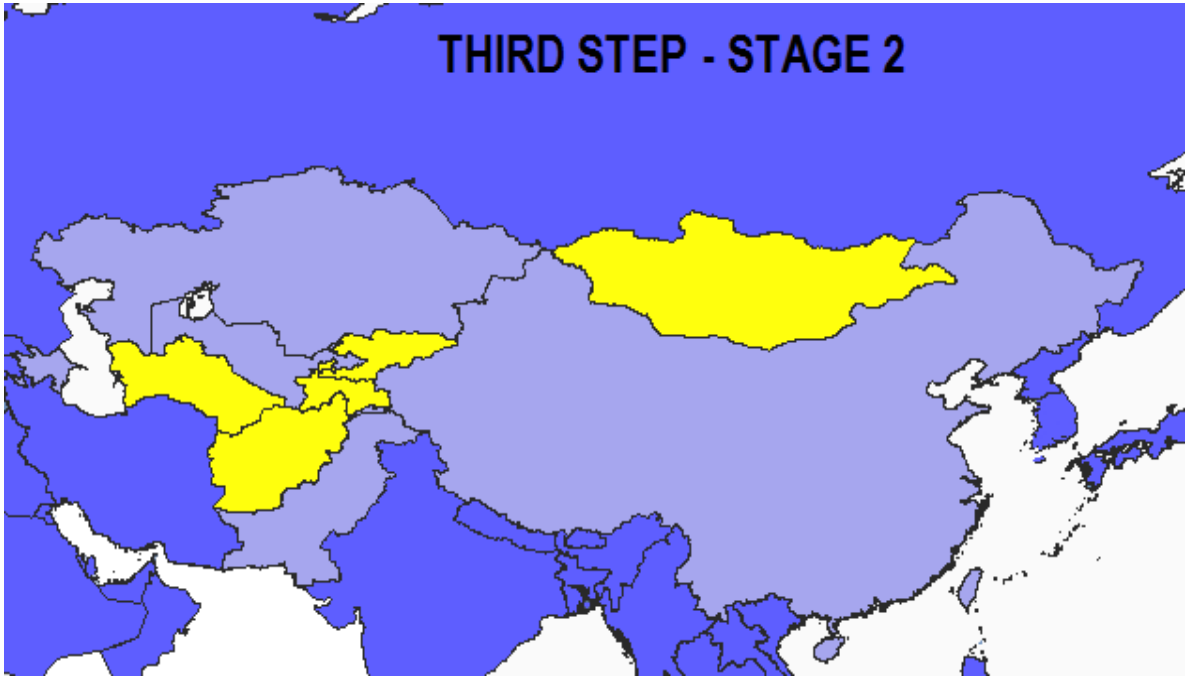



THIRD STEP

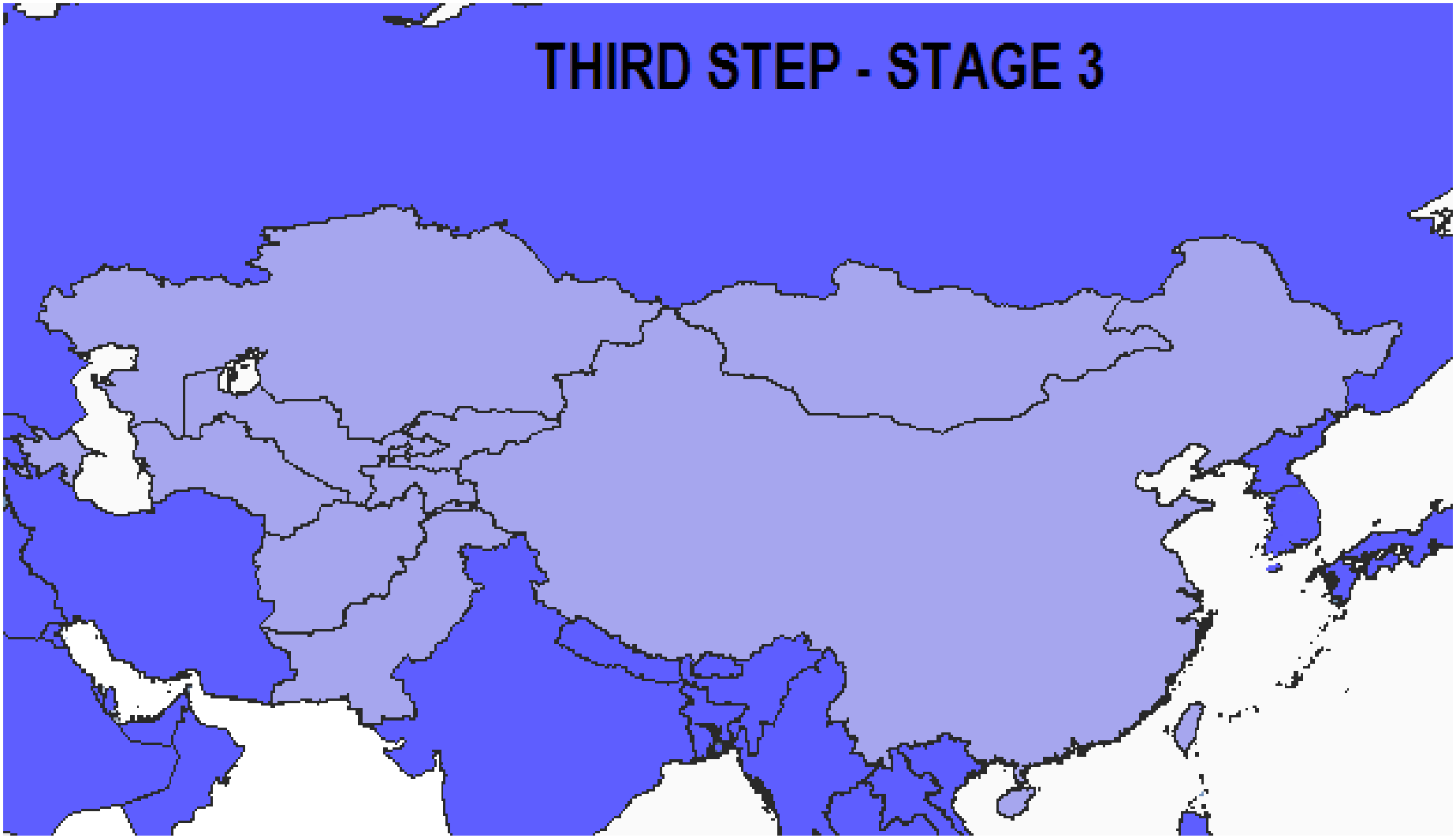

THIRD STEP - STAGE 2

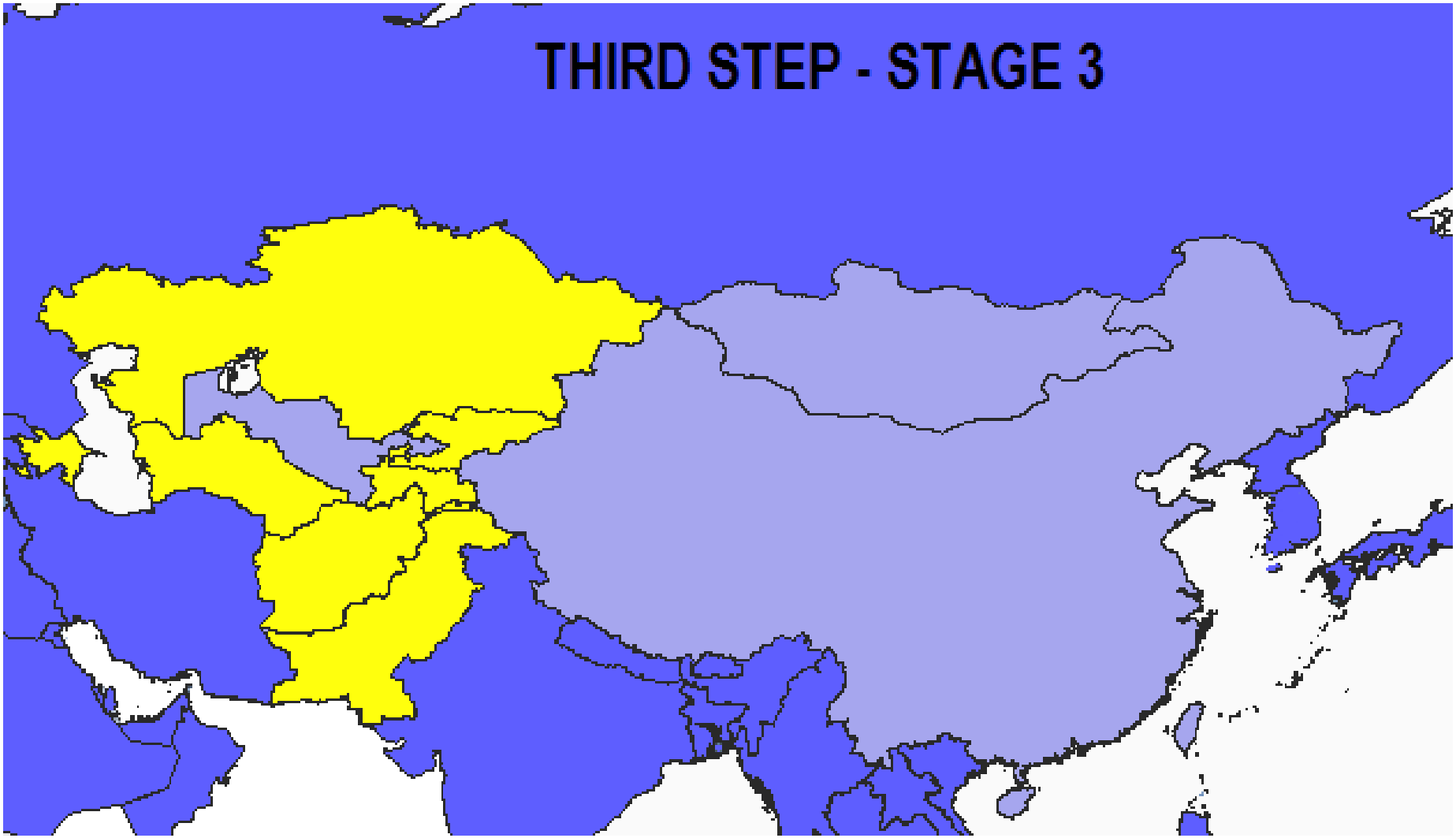

THIRD STEP - STAGE 2

At the second stage it is recommended that national veterinary authorities engage international development partners to support renovation of facilities and provision of equipment (sample processing) for at least 8 diagnostic laboratories at district level;

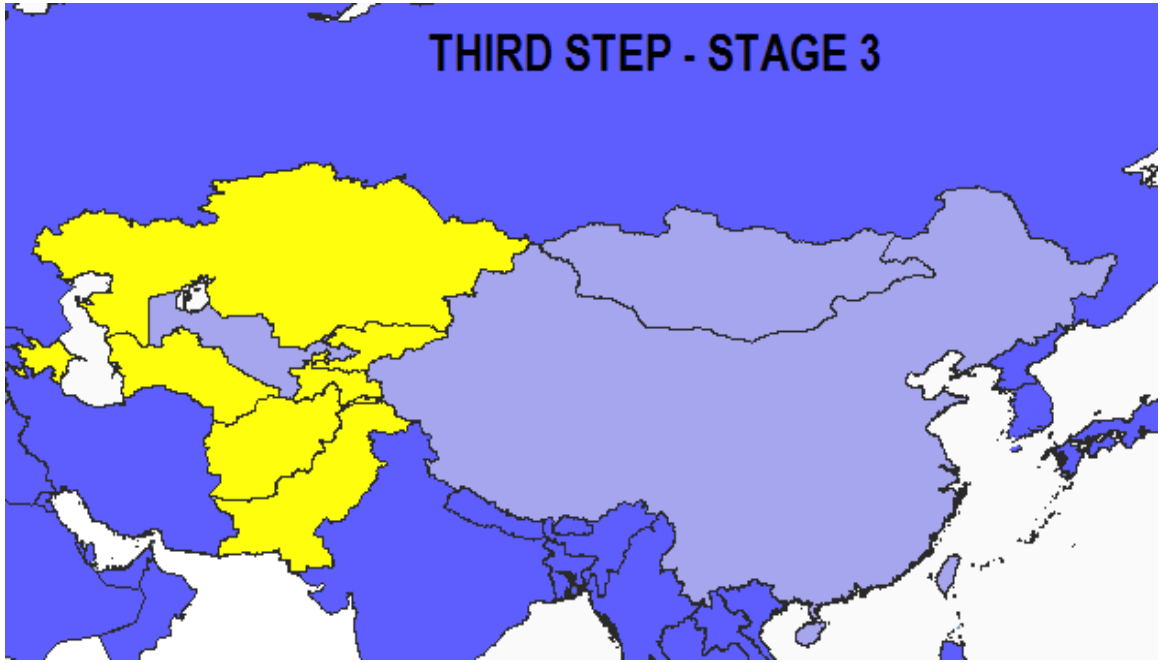



THIRD STEP

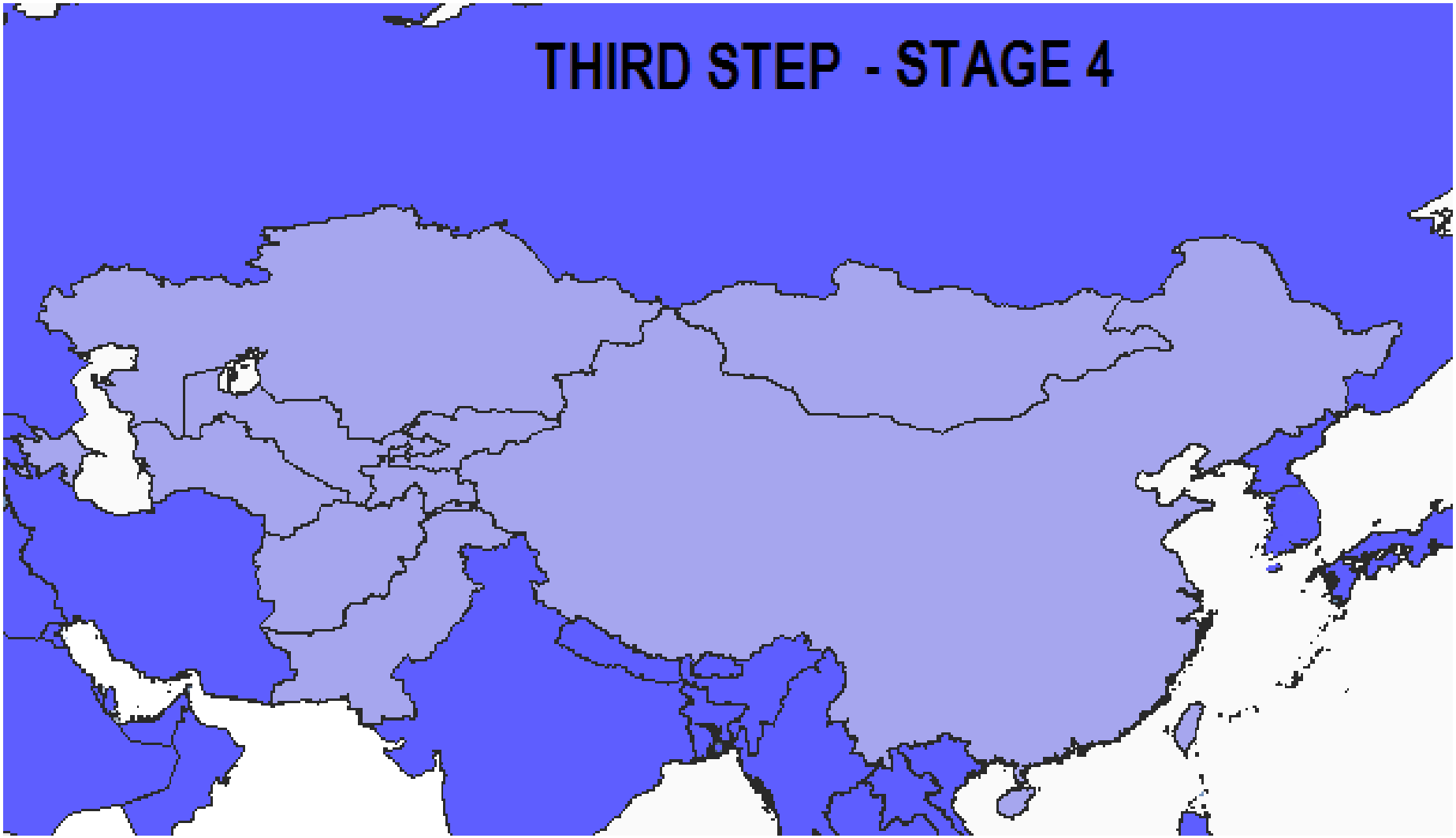

THIRD STEP - STAGE 3

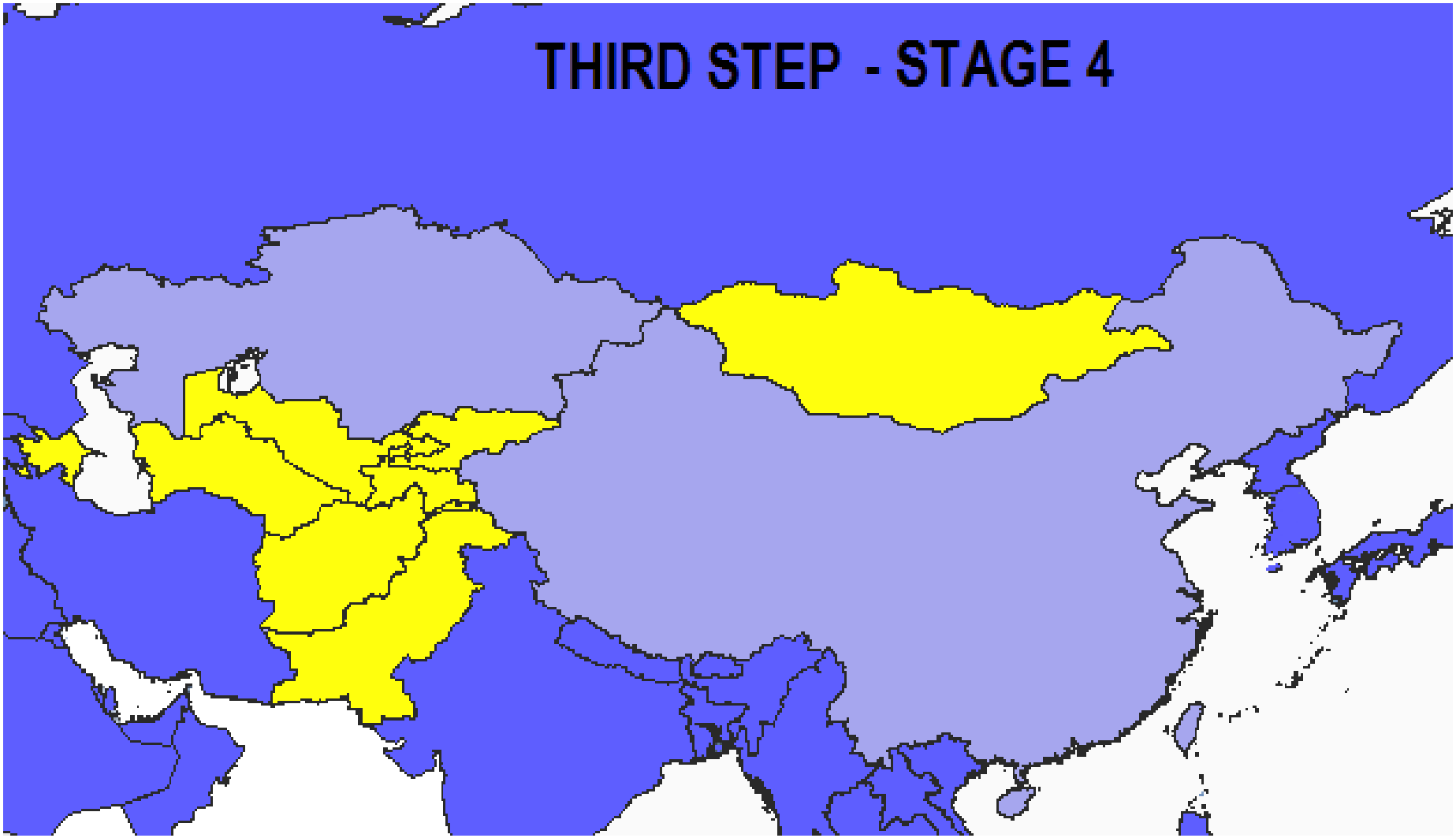

THIRD STEP - STAGE 3

At the third stage it is recommended that national veterinary authorities engage international development partners to support renovation of facilities and provision of equipment for at least 10 veterinary hygiene laboratories at all levels;

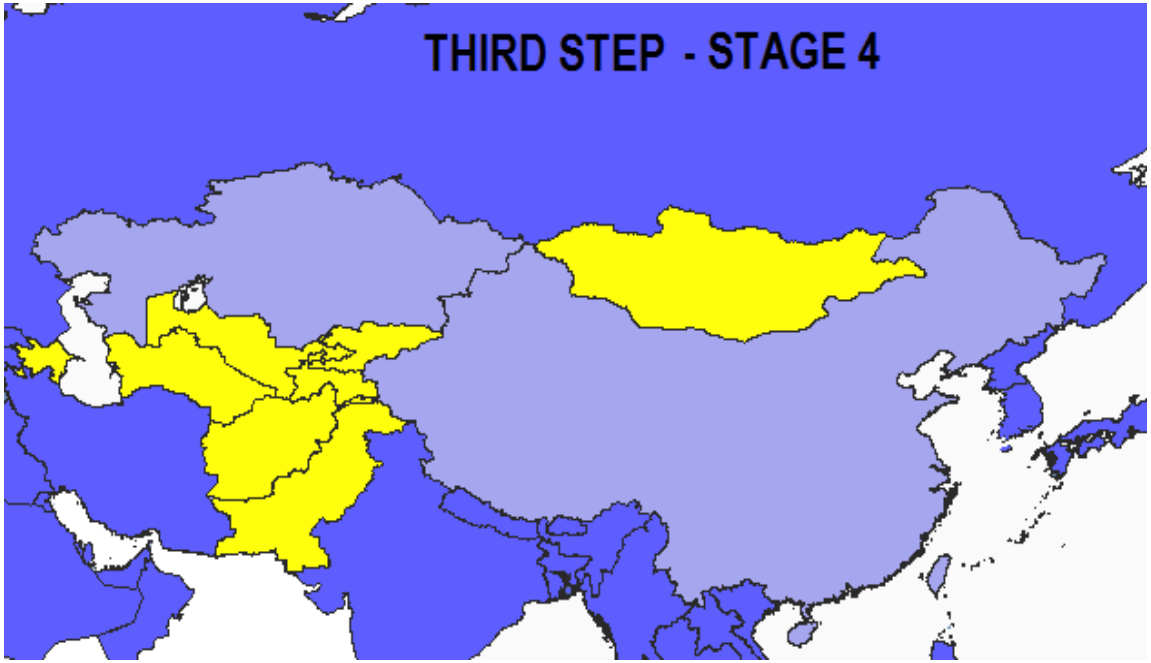


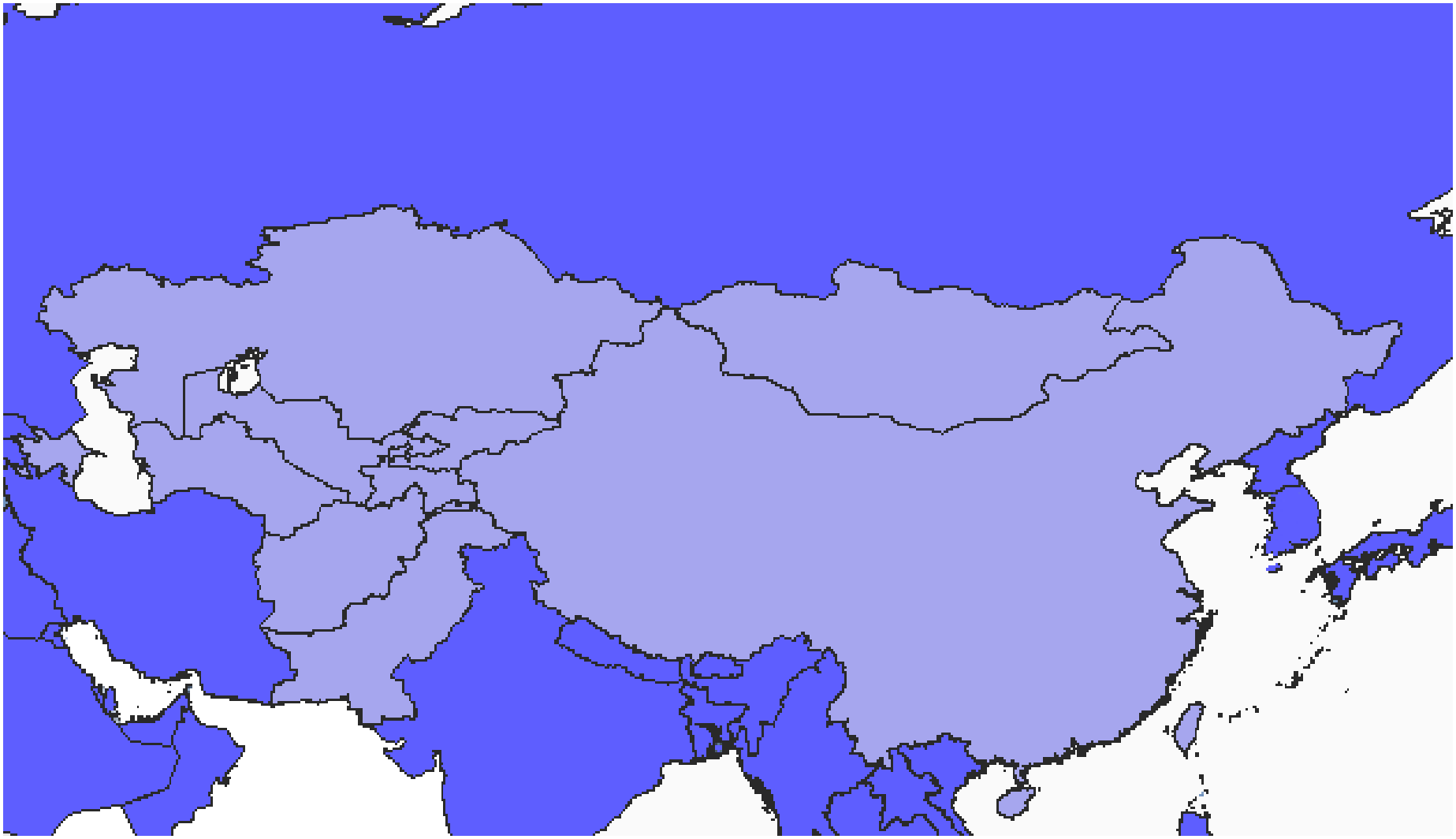

THIRD STEP


THIRD STEP - STAGE 4

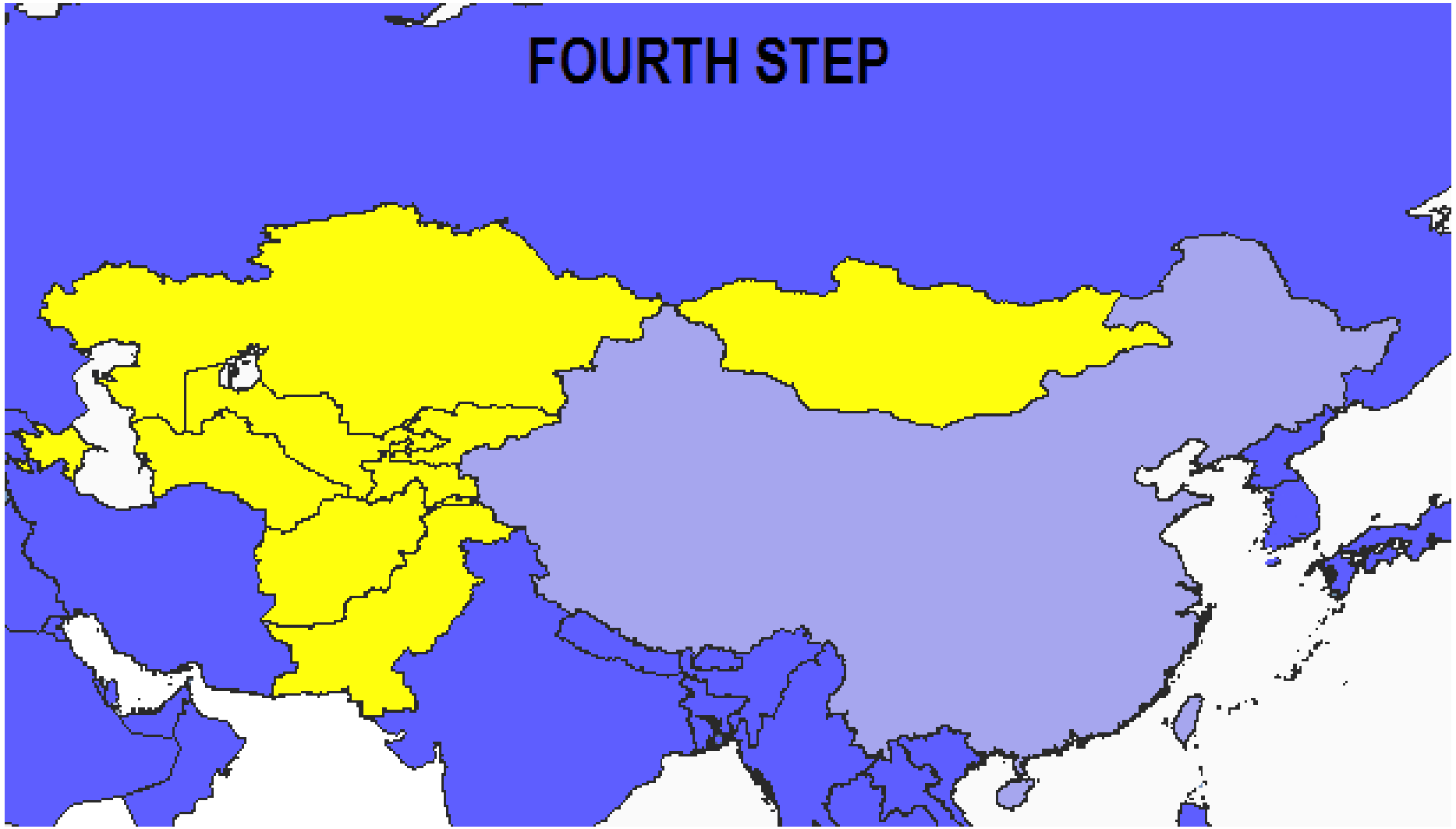

THIRD STEP - STAGE 4

And at the fourth stage it is recommended that national veterinary authorities engage international development partners to support renovation of laboratory facilities and provision of laboratory equipment for at least 2 border inspection posts;






FOURTH STEP


FOURTH STEP

And at the fourth step it is recommended that national veterinary authorities engage international development partners to support provision of on-the-spot trainings on sampling handling, packaging and transportation of samples for:

(A) at least 50 laboratory personnel at district level;

(B) at least 30 laboratory personnel at provincial level;

(C) at least 15 veterinary officers at border inspection posts;

And at the fourth step it is recommended that national veterinary authorities engage international development partners to support provision of on-the-spot trainings on:

(A) sampling handling, packaging and transportation of samples for

- **at least 50 laboratory personnel at district level;**
- **at least 30 laboratory personnel at provincial level;**
- **at least 15 veterinary officers at border inspection posts;**

And at the fourth step it is recommended that national veterinary authorities engage international development partners to support provision of on-the-spot trainings on:

(A) sampling handling, packaging and transportation of samples for

- **at least 50 laboratory personnel at district level;**
- **at least 30 laboratory personnel at provincial level;**
- **at least 15 veterinary officers at border inspection posts;**

(B) diagnosis of selected endemic diseases for

- **at least 15 laboratory personnel at provincial level;**
- **at least 5 laboratory personnel at central level;**

And at the fourth step it is recommended that national veterinary authorities engage international development partners to support provision of on-the-spot trainings on:

(A) sampling handling, packaging and transportation of samples for

- **at least 50 laboratory personnel at district level;**
- **at least 30 laboratory personnel at provincial level;**
- **at least 15 veterinary officers at border inspection posts;**

(B) diagnosis of selected endemic diseases for

- **at least 15 laboratory personnel at provincial level;**
- **at least 5 laboratory personnel at central level;**

(C) proficiency testing and validation of tests for diagnosis of selected endemic diseases for at least 10 laboratory personnel at central level

Food Safety

Status of ISO 17025-2005 Accreditation

CAREC Countries	**ISO 17025-2005 Internationally accredited laboratories.**	
	Chemical Analysis	Food Micro-biology
Afghanistan	No info	No info
Azerbaijan	No	No
China	Yes	Yes
Kazakhstan	Yes	Yes
Kyrgyzstan	No	No
Mongolia	No	No
Pakistan	No info	No info
Tajikistan	No	No
Turkmenistan	No	No
Uzbekistan	No	No

ISO 17025-2005 internationally laboratory accreditation

Findings

- Only two countries with ISO 17025-2005 internationally accredited laboratories
- RVDC in Bishkek able to produce good results
- No strategy to determine the parameters to be accredited

Main issue

- Laboratory accreditation is very expensive

ISO 17025-2005 internationally laboratory accreditation.

Recommendations

1. RVDC of Kyrgyzstan and Kazakhstan because of its central location in the region to be supported to become regional laboratories for selected analysis.
2. For RVDC this would mean mycotoxins and antibiotics.
3. Countries must have a strategy and based on defined indicators such as
   - Regionally traded products
   - Potential Risk
   - National public health situation.
   - Cost and maintenance of accreditation

Regional assessment of food safety parameters

Findings

- ***Three*** countries have documented food safety parameters in horizontal legislation.

- Detailed analyses of some country food safety parameters (Kyrgyz Republic and Mongolia) confirm the differences in the food safety parameters in terms of categories, types, MRLs and moment of sampling between the countries

- Food safety parameters (Limits, moments of sampling, categories and types of contaminants) are not harmonised with international standards

Regional assessment of food safety parameters

Findings (2)

- One country (Mongolia) has introduced Food safety parameters and hygiene criteria based on EC Directive 2073/2005

- Coliforms are analysed as (hygiene) indicator organisms together with limited analyses of Enterobacteriaceae. Enterobacteriaceae is more common to apply as hygiene indicator, rather than Coliforms. Enterobacteriaceae include a wider spectrum of pathogenic bacteria.

- One of the countries applies total count, mould, yeast and Coliforms as a food safety parameter. These are quality parameters that may create barriers to trade.

- No reference is made to Codex guidelines for sampling

Recommendations for regional food safety laboratory capacity

1. **Microbiology**

- **Regional capacity building programmes**
- To **train** selected participants of the CAREC countries about Food microbiology in general and water activity (Aw), pathogenic strains of *E coli* and *Salmonella* in particular.

- To **Train** on modern application techniques to analyse pathogenic bacteria, quick tests such as ATP and the documents CAC/GL 61 – 2007 (*Listeria*) and EC 2073/2005 on food microbiology and its amendment with emphasis on **food safety and process hygiene parameters** and

- To **Train** on the **Codex guidelines on sampling techniques**.

Recommendations for regional food safety laboratory capacity

2. Chemical contaminants

- **Regional capacity building programmes**;
- to **train** selected participants of the CAREC countries on **emerging** chemical contaminants such as PAH, 3 – MCPD, PCB's and Dioxins.

- To **train** participants an **ALL** chemical contaminants; categories and type of contaminants, MRL's and moment of sampling based on Codex standards2.

Recommendations for regional food safety laboratory capacity

3. Recommendations on a regional level

- Actual **harmonisation** of all the chemical and microbiological food safety parameters on a regional level.
- Introduce the concept of **Food safety and hygiene indicators.**
- Finally, but importantly, the countries need to be trained on the **Codex guidelines on sampling techniques.**