Arboviral Surveillance and Response Capacity Survey 2021

Section I: Respondent details

1. Country

Lao People's Democratic Republic

2. Respondent/person to be contacted for clarification, if needed (last name, first name, e-mail address)

3. Professional title and affiliation

4. Date (dd/mm/yyyy)

17/6/2021

Section II: Arboviral disease surveillance system

5. Which arboviruses have circulated in your country at any time since the year 2000? This refers only to arboviruses with autochthonous i.e., local mosquito-borne transmission.

Chikungunya	Yes
Dengue	Yes
Yellow fever	Not selected
Zika	Yes

6. Do you have any written arbovirus surveillance and control plan(s) and/or guideline(s) for your country?

Yes, we have arbovirus-specific plans(s) or guidelines(s)

6b. For which of the following arboviruses do you have written surveillance and control plans for your country? Please choose all that apply.

Chikungunya	Not selected
Dengue	Yes
Yellow fever	Not selected
Zika	Yes

6c. Please upload surveillance and control plan(s) or protocol(s), or guideline(s)

1 file(s) submitted

7. Is there a specific national programme for arboviral diseases surveillance or is it integrated in another programme? Please select the appropriate answer:

Integrated in another programme

7b. Please specify the programme into which arboviral diseases is integrated

The National Centre for Laboratory and Epidemiology, Insitut Pasteur du Laos and Centre for Malariology, Parasitology and Entomology all support arboviral disease surveillance

8. For which level of the health structure are individual and aggregated data available? (Select all relevant levels)

	Individual level	Aggregated
Primary health care level	Yes	Yes
District level	Yes	Yes
Regional level	Yes	Yes
National level	Yes	Yes

9. What are the tools used for recording case data for surveillance purposes? Select all that apply

National	Mixed methods
State/provincial	Mixed methods
District	Mixed methods

10. Which training has been provided to the staff working on arboviral disease surveillance data?

One-time basic training on data capture and analysis (MS Excel, MS Access, EpiInfo) and/or geographic information systems (GIS)	Not selected
Repeated/continuing basic training on data capture, analysis, and/or GIS	Yes
One-time advanced training on statistical software for data analysis (e.g. STATA, R, SAS, Tableau, etc)) and GIS	Not selected
Repeated/continuing training on advance statistical software for data analysis (eg STATA, R, SAS, etc) and GIS	Not selected
No training	Not selected

11. Is reporting mandatory for any arboviral disease cases in your country?

Yes

11b. For which of the following arboviral disease cases is reporting mandatory in your country?

Chikungunya	Not reportable
Dengue	Mandatory reporting of all suspect cases
Yellow fever	Not reportable
Zika (non-congenital)	Not reportable
Zika (congenital)	Not reportable
Other	Not reportable

11c. For which other arboviral diseases is reporting mandatory?

11d. Please upload document(s) containing surveillance case definitions used for reporting of arboviral diseases

1 file(s) submitted

12. In the last 2 years, did your country conduct national epidemiological surveillance for human cases of arboviral disease?

Yes

12b. How frequently are surveillance data reported to the national level?

Weekly

12c. What type of national epidemiological surveillance was conducted?

Combination of active and passive

For reference, here are the relevant definitions:

Active surveillance is defined as having dedicated systems and staff that routinely and with effort survey for cases of disease or detection of vectors and associated pathogens by the public health department.

Passive surveillance is defined as having a reporting system where physicians, laboratories, mosquito control districts, academic institutions or others routinely report cases of disease or detection of vectors and associated pathogens to the public health department.

12d. If available, please upload the most recent report(s) on arboviral surveillance in humans

1 file(s) submitted

13. Does your country provide regular training sessions for healthcare workers on notification of *Aedes*-borne arboviral diseases?

Yes : Selected provincial level trainings are conducted.

14. What do the arboviral disease surveillance staff perceive as factors contributing to the a) success and b) barriers/challenges to arboviral disease surveillance in humans?

1. Leadership at all levels understand the importance of dengue, provide support and closely guide .
2. Pro-active preparedness and readiness in preventing and controlling disease is a key factor.
3. Involvement of all levels and other sectors
4. Educating on how to prevent and control dengue before raining season is very important to reduce the infection and mortality
5. There is an emergency budget that could be use in preventing and controlling diseases outbreak

Challenge Encoding patient and mosquito larvae data in to province map to investigate the source of outbreak and measurement for stopping transmission

Section III: Arbovirus laboratory capacity

15. Is arbovirus diagnostic laboratory testing performed for confirmation of suspected cases in your country? (Please select the applicable option during outbreak periods and during non-outbreak periods, respectively)

Outbreak periods	All suspect cases tested
Non-outbreak periods	All suspect cases tested

15b. On average, for what percentage of suspected arboviral disease cases your country is laboratory confirmatory testing performed? Please indicate for outbreak and non-outbreak periods, respectively

Non-outbreak (routine) percentage in a year	80
During outbreaks percentage per identifed cluster	10

16. In the last two years, were the positive cases of arboviruses confirmed by a national reference laboratory?

Yes, for all arboviral infections. Please specify them:

NCLE test using ELISA and IPL test by RT-PCR

16b. If your country does not have capacity to type and serotype arboviruses, do you send samples for typing to other countries?

No

17. Overall, what arboviral testing capacity(ies) is(are) available in your country? Please check all applicable boxes

	Antigen testing	IgM antibody testing	IgG antibody testing	Neutralizing antibody testing	Virus isolation	RT-PCR or other nucleic acid amplification test	Viral gene/genome Sequencing
Chikungunya						Yes	
Dengue	Yes	Yes	Yes		Yes	Yes	
Yellow fever						Yes	
Zika		Yes		Yes		Yes	
Other							

18. Which additional resources are most needed for your country to perform adequate testing for arboviral diseases? Please describe what would be needed for each checked resource in the adjacent comment field

Additional personnel: Yes

Estimate of number of full-time staff: NA

Additional laboratory equipment, reagents, etc.: Availability of laboratory supplies are dependent on project periods

19. Do you perform virological surveillance on humans, ie, tracking of prevailing genotypes/serotypes? Please select all that apply

Yes, using RT-PCR: NA

Yes, using serological testing. Please specify: ELISA and RDT

19b. Which samples do you use for virological surveillance?

Samples from suspected arboviral diseases routinely notified	Yes
Samples routinely collected from patients with fever of unknown origin	Yes

19c. For which viruses do you perform virological surveillance? (check all that apply)

Chikungunya virus	Not selected
Dengue viruses	Yes
Yellow fever virus	Not selected
Zika virus	Not selected

19d. Does your country provide regular training sessions for healthcare workers on arboviruses virological surveillance?

Yes

20. What do the arboviral diagnostic laboratory staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to laboratory testing for arboviral infections?

Successes 1. Leadership among different sectors including health 2. Routine supply of laboratory supplies including reagents and other consumables

Challenges 1. Sustainability–> surveillance supported by projects 2. Overwhelmed laboratory during outbreaks due to increase in testing needs 3. Stock-outs and shortages in laboratory supplies

Section IV: Management of arboviral disease cases

21. Does your country have clinical guidelines for healthcare workers on diagnosis and clinical management of cases and severe cases of *Aedes*-borne arboviral diseases?

Yes

21b. Please upload the clinical guideline(s) for arboviral disease management

1 file(s) submitted

22. Are severe cases of arboviral diseases managed in a special area (part of the hospital, isolation beds)?

Yes

23. How many hospital beds are available per 100,000 population?

134

24. Does your country provide regular training sessions for healthcare workers on clinical diagnosis and management of *Aedes*-borne arboviral diseases?

Yes, specific training is provided. If so, please specify:

Provide regular training sessions for healthcare providers

25. What do the arboviral disease surveillance/clinical staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to case management?

success: available guidelines/ providers are trained and available facilities/necessary equipment;

Challenges: sometimes patients seek treatment from drug store/self-medication, visit private clinic instead of come to hospital. Compliance of treatment guideline among providers/patients sometimes still room to improve.

Section V: Routine vector surveillance and control

26. Is there a disease programme, agency, or service in charge of arbovirus vector surveillance in your country?

Yes. If so, please specify in the comment field.

Center for Malariology, Parasitology and Entomology

27. Which institution/department is in charge of reporting entomologic surveillance data to the national ministry of health/health department? (Check all that apply)

State/provincial health agencies	Yes
Other national agency	Not selected
City/country health departments	Not selected
Local mosquito control districts or similar organisations	Yes
Universities or academic institutions	Not selected
Private companies	Not selected
Other	Centre for Malariology, Parasitology and Entomology and Department of Communicable Diseases Control

28. For the last 2 years, did your country conduct entomologic surveillance for arboviral infections in mosquito vectors?

Yes

28b. Please upload the most recent national vector surveillance report

3 file(s) submitted

28c. Did the entomologic surveillance entail country wide programmes or was it restricted to specific locations?

Restricted to specific locations . Please specify where:

Vientiane Capital (Pilot project)

28d. How many sentinel surveillance sites do you have?

58

28e. How often was the surveillance conducted? Please choose one of the following:

Other: For 51 sentinel sites where had reported many Dengue cases was conducted once per month. For 7 sentinel sites were conducted twice per year

29. Do you conduct adult mosquito surveillance?

No

30. Do you conduct larval/pupal mosquito surveillance?

Yes

31. Are trapped mosquitoes identified to species?

Yes

32. Does your country either calculate minimum infection rates (MIR) for any *Aedes*-borne arboviruses with your mosquito data or receive such data from other agencies? Please choose only one of the following:

No

33. Which laboratories performed testing for arboviruses on mosquito pools collected in your country in the last two years? (check all that apply)

National public health laboratory	Not selected
State/provincial/regional public health laboratory	Not selected
Local health department laboratory	Not selected
University or academic institution	Not selected
Local MCD (if different from county health dep't)	Not selected
Mosquito surveillance done, but no testing done on mosquito pools	Not selected
Not applicable (no mosquito surveillance done)	Yes

34. Is there a record of *Aedes aegypti* or *Aedes albopictus* being found in your country in the past 5 years? Please choose only one of the following

Yes, both *Aedes aegypti* and *Aedes albopictus*

34b. Please describe the potential public health threat from *Aedes aegypti* in your country

Aedes aegypti populations are spreading and pose a significant public health threat

34c. Please describe the potential public health threat from *Aedes albopictus* in your country

Aedes albopictus populations are spreading and pose a significant public health threat

35. Over the past two years, did your country use any of the following vector control methods in local jurisdictions (either using government staff and resources, or subcontracting to a different entity to do so)? Please select all that apply

Adulticiding (insecticide application against adult mosquitoes)	Yes
Larviciding	Yes
Insect growth regulators (eg , pyriproxyfen)	Not selected
Wolbachia method	Not selected
Sterile insect release	Not selected
None	Not selected

35b. Would your country have conducted or financially supported adulticiding/larviciding or source reduction activities in the last two years if sufficient funding were available?

35c. Which adulticides and/or larvicides (brand and product name) were used?

Deltamethrin and Themephos (Abate)

36. Does your country provide regular training sessions for staff in charge of vector control and vector surveillance?

Yes, for both

37. For the last two years, did your country have a plan for mosquito-borne disease control that includes a threshold (eg, level of vector mosquito abundance or minimum infection rate) that would result in a recommendation for mosquito adulticiding/other mosquito reduction measures?)

Yes, have a threshold that does not require concurrent human cases

37b. Which indicator(s) is(are) used as threshold(s)?

Concurrent human cases	Not selected
Minimum infection rate	Not selected
Vector density	Not selected
Breteau Index	Yes
House Index	Yes
Container Index	Yes

38. Overall, are data on any of the following arboviral outbreak risk factors routinely collected and analysed? (Select all that apply)

House Index	Yes
Breteau Index	Yes
Container Index	Yes
Temperatures	Not selected
Rainfall	Not selected
Migration of a non-immune population	Not selected
None	Not selected

39. Is there a surveillance system in place for monitoring *Aedes* resistance to the insecticide(s) used?

Yes

40. What do the vector surveillance staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to vector surveillance and control in the country?

• Dengue vector surveillance and control guideline for central, provincial, district and village level were developed and distributed to all levels; • Sentinel sites for larvae surveillance were set up; • Provided training to vector surveillance staff; • Started to conduct larvae surveillance and report data to central level in some selected sentinel sites •
Challenges • Limited fund to conduct larvae survey and control at some selected sentinel site; • Lack of equipment for Larvae survey and identification at district level; • Low capacity of vector surveillance staff to conduct larvae identification at district level; • Lack of staff and larvae survey activity are not implemented routinely due to COVID 19 situation; • Monitoring of larvicides/mosquito adult resistance is not implemented regularly base on research project.

Section VI: Animal surveillance

41. During the last 2 years, did your country conduct national epidemiological surveillance for arboviral disease in animals (eg, epizootic surveillance for yellow fever in endemic areas)?

No

41b. How often was the animal surveillance conducted?

41c. What type of surveillance was conducted in animals?

41d. Please upload a report on the animal surveillance

42. Does your country (or local jurisdictions within the country) perform sentinel animal surveillance or epizootic surveillance, eg, for yellow fever in nonhuman primates in endemic regions?

No

42b. For which viruses is sentinel surveillance conducted and in which animal species?

42c. Please upload the most recent report(s) on sentinel animal surveillance

Section VII: Community sensitization and participation

43. Does your country have a community outreach program that also covers arboviral diseases?

Yes

43b. What entity(ies) is(are) in charge of the outreach program in your country?

The community outreach is done by provincial and district health department health staff together with the local governor office. Community clean up activities are organized by local authorities during rainy season (monsoon months) where cases tend to rise.

43c. What is the geographical coverage of the outreach program in your country?

Countrywide

43d. Is the community outreach/social mobilization program sufficiently funded to cover staff time, prevention and outreach activities as needed?

Don't know

43e. Which resources would help ensure adequate capacity?

Educational materials for the public	Yes
Educational and reference materials for providers	Yes
Educational and reference materials for local health departments	Yes
Additional staff	Yes
Staff training	Yes
Other	Fund for implementing risk communication activities.

44. Did your national arboviral disease program issue notifications to the public about local transmission risk and/or possible vector-control activities (eg larviciding, adulticiding, community mobilization and participation, etc) as a prevention message for arboviral diseases within last 2 years? (Check all that apply)

	During outbreaks	During non-outbreak periods
Issued by national public health agency	Yes	Yes
Issued by state/local health agencies	Yes	Yes
No risk in the past two years	Not selected	Not selected
No notifications even though risk was present	Not selected	Not selected

44b. Which means does your program use for community sensitization, mobilisation and acceptance of interventions in your country? (Check all that apply)

Press releases to electronic and printed media	Yes
Public service announcements on television or radio	Yes
Passive distribution of informational brochures	Not selected
Active distribution of informational brochures	Yes
Town, community, or neighborhood meetings	Yes
Posting information on the home page of your agency's website	Yes
Social media outlets (Facebook, Twitter, etc)	Yes
Door-to-door outreach in selected locations	Yes
Participation in community clean-ups	Yes
Modification of messages for all local languages	Yes
Other	Schools and temples lead and participate for clean up activities.

45. Does your country provide regular training sessions for staff in charge of community sensitization, mobilisation and acceptance of interventions dedicated to control arboviral diseases?

Yes. If yes, please describe in comments field:

Every year in selected areas.

46. What do the community outreach staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to community participation

Success is • when the high-level officials like governor are involved and other agencies/ministries and mass organization, private sectors also support the activities. • Communication report system is set from each level every month • The local authorities will use the village loudspeakers and get community to do clean up.

Barriers and challenges is when there is no outbreak, hard to get people to do regular clean up at homes or surrounding areas.

Section VIII: Preparedness for arboviral outbreaks/epidemics

47. Is there either a surveillance and outbreak response committee in your country, or a steering committee for that purpose?

Yes

48. Does your country have a contingency plan to organize healthcare services during an outbreak (including outbreaks of arboviral diseases)?

I don't know

48b. Please upload the contingency plan

49. Are there defined or established criteria for declaring an outbreak of arboviral disease outbreak in your country?

Yes. If so, in the comments field, please briefly describe the criteria or reference the document in which those are sta

There is data from notifiable diseases to see at the provincial and national level if dengue has surpassed an epidemic threshold. Risk assessments also are used to assess risk of outbreak.

50. Do you have established collaborations with national/regional research institutions / international agencies that are planned to be activated in case of arboviral outbreak?

Yes. If so, please specify institutions/agencies in the comments field:

Insitut Pasteur du Laos

51. What vector control interventions are deployed in case of an emergency?

RRT

52. For the last 2 years, which of the following government levels had an emergency fund or a specified emergency funding mechanism for arbovirus outbreak response?

National level	Yes
State/local level	Yes
None	Not selected

53. Does your country provide regular training sessions for staff/committee in charge of preparedness for arboviral outbreaks/epidemics?

Yes

54. What do the arboviral disease surveillance staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to preparedness of arboviral diseases epidemics in your country?

Section IX: Arboviral disease surveillance data

55. Please provide total number of cases and deaths for the following arboviral diseases from 2015 to 2020 (if available).

	Dengue	Chikungunya	Yellow fever	Zika
2015 Cases	1952	NA	NA	NA
2015 Deaths	0	NA	NA	NA
2016 Cases	5658	NA	NA	NA
2016 Deaths	10	NA	NA	NA
2017 Cases	10067	NA	NA	NA
2017 Deaths	14	NA	NA	NA
2018 Cases	6446	NA	NA	NA
2018 Deaths	19	NA	NA	NA
2019 Cases	39091	NA	NA	NA
2019 Deaths	76	NA	NA	NA
2020 Cases	8271	NA	NA	NA
2020 Deaths	13	NA	NA	NA

(NA = Not Available)

55b. Were cases of other mosquito-borne arboviruses, not listed in the previous question, reported in your country from 2015-2020?

No

55c. Please select any of the following other mosquito-borne viruses that have been reported in your country from 2015-2020

55d. Please provide total number of cases and deaths due to each of the following other arboviruses that you selected from 2015-2020

56. Please provide the number of cases of locally acquired, mosquito-borne *Aedes*-borne arbovirus infections by case classification for 2020 and, if not available, for 2019

57. Do arbovirus surveillance staff have any perceived reasons for increasing trends in arboviral disease incidence? Check all answers that apply.

Climate change (as evidenced by changes in meteorological data)	Not selected
Construction activities	Yes
Population migration (within the country or between countries)	Yes
Increased availability of peri-domestic water-bearing containers suitable for mosquito egg deposition	Yes

Section X: Surveillance staffing

58. During 2019 (prior to the Covid-19 pandemic), indicate below the number of arbovirus surveillance staff at the national level.

	Number of personnel
Epidemiologists	11

59. Indicate below how many total staff persons are needed at the national level in your country to achieve full epidemiology and laboratory capacity* to conduct arbovirus surveillance.

	Number of personnel
Epidemiologists	11
Laboratorians	5

60. Optional comments to explain responses to questions 58 and 59 above

There are 94 Lao Field Epidemiology Training Programme Graduates to support and strengthen arboviral disease surveillance nationwide.

61. The national health authority/ministry of health has access to expertise in clinical management of arboviruses (Check all that apply)

Within the ministry of health (eg, public health medical officers, clinicians in state hospitals)	Yes
Through other national agency with regulatory authority	Not selected
Through academic institution(s)	Yes
Private hospitals	Not selected
Does not have access	Not selected
Other	WHO

62. The national health authority/ministry of health has access to expertise in arbovirus epidemiology (Check all that apply)

Within the ministry of health	Yes
Through other national agency with regulatory authority	Yes
Through academic institution(s)	Yes
Does not have access	Not selected
Other	WHO

63. The national health authority/ministry of health has access to expertise in arbovirus laboratory diagnosis (Check all that apply)

Within the ministry of health (e.g., public health laboratory scientists)	Yes
Through other national agency with regulatory authority	Yes
Through academic institution(s)	Yes
Does not have access	Not selected
Other	WHO

64. The national health authority/ministry of health has access to expertise in entomology (Check all that apply)

Within the ministry of health	Yes
Through other national agency with regulatory authority	Yes
Through academic institution(s)	Yes
Does not have access	Not selected
Other	WHO

65. Optional comments to explain responses to any of Questions 61-64

Section XI: Survey conclusion

66. If you have any further comments to add regarding arbovirus surveillance and control in your country, including whether arboviruses other than *Aedes*-borne arboviruses are of higher priority, please do so in the text field below