**TEMPLATE 1: SUMMARY**

**Company Name: Cirrolytix Research Services - Project AEDES**

**Country of Registration: Philippines**

# Part 1: Project Summary

Please complete all your responses within the fields provided.

1. What is the core problem you want to solve? *(1,000 characters limit)*

In 2019, the Philippine government declared a national epidemic as it struggled to contain its worst dengue outbreak since 2012. Total cases reached 420,453 and deaths at 1,565, 78% increase in infections and 33% in deaths from 2018. 42% of deaths are children between 5 and 9 years old (Relief Web, 2019) and 2 more kids die of dengue fever in Zambales (Inquirer, 2021).

With manual reporting, release of data is delayed which hampers the health sector’s ability to effectively deal with the threat. Prioritizing prevention is essential.

There is a risk that the dengue epidemic continues to take lives undetected. According to a study by Seposo, a decrease could be from reporting hesitancy due to fear of contracting COVID-19 in a health facility. COVID-19 may recede after mass vaccinations, however, dengue will continue to kill.

1. How does your solution solve this core problem? *(1,000 characters limit)*

Project AEDES is an automated information portal that correlates dengue cases and deaths with real-time data from climate, google searches, and satellite maps, giving an advanced indicator of when dengue will emerge and potential dengue hotspot locations.

The service relies on 4 data sets:

1) Satellite Data: Satellite imaging data from Sentinel Online Copernicus

2) Local Weather Data: Climate data from DOST-PAGASA

3) Google Data: Search trends for 'dengue' and related terms

4) Disease Surveillance Data: Regional cases and deaths data from the Department of Health

To populate the information portal, we propose 3 models:

- Predict dengue cases from climate and search data

- Predict dengue deaths from dengue cases

- Determine likely dengue hotspots by detecting stagnant water areas from satellite data

1. Describe the results of your user testing / prototyping (include who your main users are and the quantitative and qualitative results of the testing to date) *(1,000 characters limit)*

We currently nowcast dengue cases using a multivariate model combining Google Search Trends and Climate Readings. Our baseline model for the Philippines is able to show dengue trends but has room to improve (R .75, R2 .56). Location specific models show better performance.

NCR: 0.84 R and 0.7 R2

Eastern Visayas: 0.75 R and 0.57 R2

Western Visayas: 0.9 R and 0.81 R2

ARMM: 0.87 R and 0.76 R2

Features that predict dengue cases well include:

* Dengue Medicine and Dengue Fever were strong indicators for PH Aggregated;
* for NCR, these were average rainfall and temperature;
* for Eastern Visayas, Average Temperature and Dengue explain the model;
* for Western Visayas, these were Dengue, Dengue Fever, Dengue Symptoms, and Average Rainfall; and
* for ARMM, indicators were Dengue, Dengue Symptoms, Average Temperature, and Average Rainfall.

1. Describe the value that you deliver to the users of your technology *(1,000 characters limit)*

This portal is accessible publicly but is targeted towards public health and local government agencies to give them advanced notice of dengue outbreaks and help prioritize resources, understand dengue spread in their communities, locate at-risk areas for outbreaks and probable habitats of mosquitoes, and implement interventions.

By doing this we are addressing 2 key challenges for public health and local government officials:

- Get ahead of the lagged delay of dengue reporting by using real-time information (e.g. climate, searches) to infer if dengue cases and deaths are about to spike.

- Precisely anticipate areas that may be affected by dengue to prioritize health aid, supplies, and proactive fumigation to prevent the outbreaks.

1. Main objectives and milestones for the 12-month project: *(1000 characters limit each) \*Please be sure to be consistent with the milestones outlined in Annex C – Template 3.*
   1. *Product development:*

Milestone 1: Team Formation and Kickoff

Milestone 2: Automate data gathering

Milestone 3: Enhance nowcasting models

Milestone 4: Enhance mosquito hotspot detection model

Milestone 5: Web / mobile portal development and enhancement

Milestone 6: Implement INFORM Risk Framework

* 1. *Piloting and user testing:*

Milestone 7: Recruit consumers

* 1. *User acquisition/growth:*

Milestone 8: Publication and dissemination

1. Expected outcomes/results of the 12-month project: *(1,000 characters limit)*

1. Data Collection and Processing - Database Management and Automated Data Ingest for Search Trends, Climate, Satellite, and Health Data which entails continuous research on alternate global open data sources.

2. Data Analysis - Incorporate Socio-Economic indicators using Dengue RISK INFORM in the predictive modeling and deploy to all regions (Poljanšek et al, 2018). Enhancement of Dengue Case and Deaths Nowcasting.

3. Product Development - Redesign AEDES interface and functionalities which include information portals, publicly-accessible APIs, and near-real-time daily updates. This will entail Dengue Trends Overview, Outbreak/Epidemic Monitoring (time-series projections, dengue hotspot map visualizations), At-Risk Community Assessment (risk ranking of regions and provinces, risk maps), and Actions and Recommendations.

1. Please list the three main risks you anticipate for the success of your project. Outline the steps you will take to mitigate them *(500 characters limit per field)*

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk (description)** | **Level of risk (high, low)** | **Probability (high, low)** | **Action planned to mitigate** |
| Data (Timeliness, Accuracy) | High | Low | Reliance on credible 3rd parties (NASA, Landsat, ESA) |
| LHU Buy-in | Medium | Medium | Lobbying local government partnerships through UN system (UNDP, WHO, UNICEF) |
| Dedicated staffing due to reliance on volunteers | Medium | Low | Dedicated staffing costs to hire full time dedicated staff as part of the project (50% of funding) |

# Part 2: Product Pitch

Please prepare and provide a short video to pitch your technology and introduce your project team. The video must follow the specifications below:

* Maximum of 2 minutes
* The video must show and demonstrate:
  + a functioning prototype (e.g. walk-through of the solution, screen shots of interfaces)
  + team members and their roles
  + main three revenue streams and why it’s going to work

The video must be uploaded onto *youtube* and cannot be edited after the submission deadline.

Link to video:    <https://www.youtube.com/watch?v=rRx5jP2mHzg>

Password to view (if applicable):

If you provided a pitch video at the first stage of the submission process (in your Expression of

Interest) **and this video respects the specifications above** you can provide a link to the same video here. You do not need to create a new one.