ZIKA RESPONSE MULTI-PARTNER TRUST FUND

CONCEPT NOTE

Programme Title: Developing an intra-urban surveillance system identifying vulnerable zika populations and associated risk factors

Objective(s) of Programme	• Developing and testing a surveillance system for Zika in urban areas based on a combination of risk factors including urbanism, housing and urban infrastructure design, access to basic water supply, sanitation and solid waste management. • Enabling targeted interventions and supporting existing environmental control methods; • Identifying the effective institutional application of the tool; • Develop a roll-out strategy for wider application of the tool in other locations.
Geographic Area	The surveillance system will be developed and tested in the northern (State of Pará) and southeastern (State of Rio de Janeiro) regions of Brazil. Located in the Amazon region which encompasses the largest remaining tropical rainforest in the world, Pará is the most populous state of the country's northern region, with a population of over 7.5 million and the second-largest of Brazil in terms of area. Rio de Janeiro is the smallest state in the southeastern macro region, but the third most populous Brazilian state, with a population of over 16 million (being the most densely populated state in the country). More specifically, the programme will take place in the cities of Belém and Rio de Janeiro, both capital cities of their respective states.

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Implementing Entities	UN-Habitat WHO
Timeframe	2016-2018
Epidemiological context	In April 2015, the public health authorities of Brazil confirmed autochthonous transmission of Zika virus in the northeastern part of the country. In October, 2015, cases of Zika virus spread and had been detected in 14 states: Alagoas, Bahia, Ceará, Maranhão, Mato Grosso, Pará, Paraná, Paraíba, Pernambuco, Piauí, Rio de Janeiro, Rio Grande do Norte, Roraima, and São Paulo. In 2016, 165.932 cases of probable fever related to the Zika virus were registred; 66.180 of which have been confirmed. Among those, 5.925 are pregnant women. This year, Rio de Janeiro is part of the most impacted areas. Additionally, according to the Brazilian Ministry of Health, since the beginning of the outbreak, four casualties related to the Zika virus were reported; Rio de Janeiro and Pará both registered one case respectively.
SRP Objective	The project will contribute towards the Stategic Objective on Detection: "Develop, strengthen and implement integrated surveillance systems at all levels for Zika disease, its complications, other arborival diseases and their vectors, in order to provide up-to-date and accurate epidemiological and entomological information, to guide the response."
Beneficiaries	Estimated direct beneficiaries include local population of Belém (estimated population of 1,439,561 people) and local population of Rio de Janeiro (more than 6,000,000). Indirect beneficiaries include other municipalities in Brazil, and in the world, that can benefit from the use of the intra-urban surveillance system for Zika disease developed.
Government	Government of the State of Pará, Government of the State of Rio

counterparts	de Janeiro, Municipality of Belém, Municipality of Rio de Janeiro, Federal Ministry of Health.

Description of Programme Components and Key Output(s)

The Zika outbreak and spike in microcephaly cases have been concentrated in the poor and underdeveloped urban neighborhoods and communities, which are most vulnerable to infection through high infestations of the vector *Aedes aegypti,* crowding and poor urban orhousing conditions (e.g. lack of window screens). *Aedes aegypti* is extremely well adapted to the human habitat, living in and around houses, and feeding almost exclusively on humans, surreptitiously, almost painlessly and unnoticed, in the morning and afternoon hours. Mosquito control methods for malaria vectors, such as treated mosquito nets or indoor residual spraying have little impact on *Aedes.* The numbers and types of *Aedes* larval habitats has exploded along with informal urbanization and the proliferation of both 'essential' domestic water storage containers, and "non-essential", tires, tin cans, other solid waste that can collect rainwater and provide a larval habitat. Therefore, a lack of reliable running water, inadequate water storage, poor waste management, in conjunction with urban crowding and poor quality urban housing and planning, has provided opportunities for the mosquito larval habitats to proliferate transmission of the Zika, as well as dengue and chikungunya virus. There is also a need to understand more fully the pattern of the disease in low-income areas and to track the spatial aspects and understand the inter-urban differentials. To this end, systems that enable low-income settlements to be efficiently mapped are of critical importance.

Components:

- Developing an intra-urban surveillance system for Zika disease identifying high risk areas in urban settings based on a combination of neighborhoods and housing design, access to basic water supply, volume of potential *Aedes* larval habitats, sanitation and solid waste management.

- Spatially mapping data from local health care facilities on health status and other environmental diseases, and comparing this to identified urban risk factors to verify and strengthen the surveillance model.

- The surveillance model will support the existing environmental control methods for mosquito control focusing on larval source management. The tool would be aimed at community health workers, planners and those responsible for vector control, and would be used primarily to predict where outbreaks are most likely to occur, enabling

targeted interventions.

- The project will rely on UN-Habitat's expertise on urban systems and typologies and its collaboration on urban health and integrated vector management with WHO. Collection of local health data from ministries of health and local authority records and WHO offices.

Programme outputs:

- **Development of an intra-urban surveillance system identifying vulnerable zika neighborhoods and populations and associated urban risk factors**. UN-Habitat have assessed spatial addressing systems for slum and low-income population to give physical addresses to residents. This information combined with simple sanitary inspections and entomological characteristics of the vector will be used to attempt to quantify the domestic and peri-domestic urban risk factors for Zika, based on expert knowledge of WHO and local partners. The resulting model coupled with some external factors, for example climate related factors. The assessments are best carried out using known community actors and must be designed as such.

- **Data on health status and other environmental diseases spatially mapped to verify and strengthen the surveillance model. Existing h**ealth information from local clinics and health care facilities will be obtained and the information overlayed on the mapped risk factors using simple geographical information systems. This will enable comparison of urban risk factors with actual prevalence and incidence of Zika. The tool will be developed in a user-friendly way that enables local actors to make rapid decisions on control strategies.

- **Development of a multi-sectoral response approach at the local level**. Key to the success of the project will be the institutional application of the results of the model. The local response will need inputs from both medical and non-medical actors. Some decisions will have to be made concerning which control methods are prioritised based on available resources. The project will establish such local teams and examine the effectiveness of application. It may be possible that existing initiatives on WASH and drainage for example may need modification to optimise Zika eradication.

- **Documentation of the tool and its application**. Assuming there is a demonstrated success, the tool will be developed into a user friendly package that can readily be

adapted to local institutional structures.

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Project budget by UN categories

ZIKA RESPONSE MPTF - PROJECT BUDGET			
CATEGORIES	**UN-Habitat**	**WHO**	**TOTAL**
1. Staff and other personnel (include titles of staff, unit cost, quantity)	420,000	280,000	700,000
2. Equipment	30,000	20,000	50,000
3. Contractual services (include details)	420,000	280,000	700,000
4. Surveys, GIS, health data collection, community workshops & meetings (including 1 big international/regional meeting)	48,000	32,000	80,000
5.Travel (include details)	30,000	20,000	50,000
6. Consultancy	174,000	116,000	290,000
Sub-Total Project Costs	1,122,000	748,000	1,870,000
8. Indirect Support Costs*	78,000	52,000	130,000
TOTAL	1,200,000	800,000	2,000,000

***** *The rate shall not exceed 7% of the total of categories 1-7, as specified in the Ebola Response MOU and should follow the rules and guidelines of each recipient organization. Note that Agency-incurred direct project implementation costs should be charged to the relevant budget line, according to the Agency's regulations, rules and procedures.*