

# Pacific-Europe Network For Science, Technology and Innovation

Sociedade Portuguesa de Inovação - SPI

## Policy Brief on Health, Demographic Change and Wellbeing: The Case of Zika Virus

### Status of Science, Technology and Innovation (STI) Cooperation between EU-Pacific

The EU has a long-standing development partnership in the Pacific, involving 15 independent countries and four Overseas Countries and Territories (French Polynesia, New Caledonia, Wallis and Futuna, and Pitcairn), as well as Australia and New Zealand, two like-minded strategic partners and donors.

In 2004, Pacific Leaders adopted a Vision encapsulating Pacific Islanders' aspirations. The Pacific Plan (2005) gives effect to the Pacific Leaders' Vision and to the goal of regional integration. The EU Strategy for the Pacific, adopted in 2006, was the initial EU response to the Plan, through increased development assistance and enhanced political dialogue, both with the Pacific Islands Forum (PIF) and with Australia and New Zealand<sup>1</sup>. Currently, the EU perceives the Health, demographic change and wellbeing of the Pacific territories to be a key element of the EU-Pacific partnership, mainly because in the Pacific region/ Asia<sup>2</sup>:

- Life expectancy is increasing.
- There are still many challenges concerning sanitation in rural areas.
- The health supply capacity is low.
- Asian economies spend just over 650 Euros per person per year on health, compared to 3,100 Euros in European countries.
- Share of public spending in total health spending in Asia is of 48.1%, compared to 72.7% in European countries.

### Zika Virus – challenges and EU-Pacific coordination

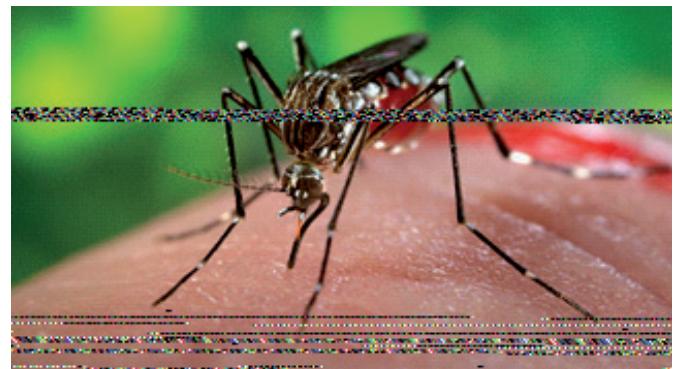


Figure 1: Mosquitoes, including Aedes aegypti, are responsible for the spread of Zika virus  
 Source: Science<sup>4</sup>

The Zika fever is a mosquito viral disease caused by the Zika virus that has spread through the South Pacific and in recent months through large parts of Latin America<sup>5</sup>. The symptoms last for 2–7 days and usually include mild fever, skin rash (exanthema) and conjunctivitis. Ever since the 1950s, it has been reported that it occurred in Africa and spread to Asia. In 2013–2014, the virus started to be transmitted across the Pacific Ocean and reached to the Americas and the Caribbean. So far, the illness cannot be prevented by medications or vaccines<sup>6</sup>, and it can spread from a pregnant woman to the baby, which may result in microcephaly and other severe brain problems<sup>7</sup>.

<sup>1</sup> <http://goo.gl/Y8iUK1>

<sup>2</sup> Health at a Glance: Asia/Pacific 2014, © OECD/WHO 2014

<sup>3</sup> <http://goo.gl/PYnHkE>

<sup>4</sup> <http://goo.gl/zcqIfK>

<sup>5</sup> <http://goo.gl/ULsfpl>

<sup>6</sup> Symptoms, Diagnosis, & Treatment". Zika virus. Atlanta: Centers for Disease Control and Prevention. 3 March 2016. Retrieved 4 March 2016.

<sup>7</sup> Rasmussen, Sonja A.; Jamieson, Denise J.; Honein, Margaret A.; Petersen, Lyle R. 2016. Zika Virus and Birth Defects — Reviewing the Evidence for Causality. *New England Journal of Medicine*

The Ministers of Health for the Pacific Island Countries are committed to meeting in a biennial basis to discuss health promotion and health protection topics between the Pacific Islands. The last meeting, hosted by the Government of Fiji, was convened in April 2015. During the meeting, some relevant actions were agreed: to accelerate the progress to face current health challenges; to focus on health information systems to provide the data and evidence needed for monitoring and decision-making in the countries; and to advocate multisector actions to help solve current health challenges in the Pacific<sup>3</sup>.

# ZIKA Virus

## DISEASE SPREAD AND PREVENTION



Figure 2: Symptoms and prevention of the Zika virus disease.

Source: Lifesystems<sup>8</sup>

Outbreaks were reported for the first time from the Pacific in 2007 and 2013 in Yap Island (Federated States of Micronesia) and French Polynesia, respectively. There was subsequent spread of the virus to other Pacific islands<sup>9</sup>. Autochthonous cases of Zika virus infection have been reported from Samoa and Solomon Islands, New Caledonia and Fiji in 2015<sup>10</sup>. An outbreak has been ongoing in the Solomon Islands, with 302 cases reported from February to May, 2015. 82 confirmed cases of Zika disease were reported in New Caledonia from January to May, 2015, with 10 imported cases. In the same year, an unspecified number of confirmed cases of Zika were reported for the first time in Vanuatu.<sup>11,12</sup>

As the Zika virus disease continues spreading in the world, especially in the American region, the risk of imported Zika virus with infected tourist entering Europe is increasing. Imported cases of Zika virus infection have been reported in several European countries. However, so far the virus has only been found in travelers returning from countries affected by the virus in Europe<sup>13</sup>. Meanwhile, many European oversea countries and territories are near/in the infected areas, which have higher risk in disease out-breaking, i.e. Anguilla, Aruba, Bermuda, Bonaire, British Virgin Islands, Cayman Islands, Montserrat, Curacao, Saba, Sint Eustatius, Sint Maarten, and Turks and Caicos Islands in the Caribbean region as well as French Polynesia, New Caledonia, and Wallis and Futuna in the Pacific region.

Regarding the expectation of outbreak in Europe, the risk of a Zika virus disease outbreak in the European Region is moderate to low because Aedes mosquito is not widely present in Europe. However, the risk in the European Region should not be underestimated. The WHO guidance is based on the likelihood of virus spread. In other words, to prevent Zika virus transmission, countries at higher risk should closely follow WHO guidance. For other regions to prepare for and respond to health risks, three levels of the Organization have been considered by WHO, which are global, regional and country. The preparation was conducted by regional meetings, country missions and capacity assessments<sup>14</sup>.

### Fact Figures from WHO

As of 29 June 2016, 61 countries and territories report continuing mosquito-borne transmission of which:

- 47 countries are experiencing a first outbreak of Zika virus since 2015
- 14 countries reported evidence of Zika virus transmission between 2007 and 2014
- Four countries or territories have reported evidence of Zika virus transmission between 2007 and 2014, without ongoing transmission: Cook Islands, French Polynesia, Isla de Pascua – Chile and YAP (Federated States of Micronesia)

Figure 3: Fact Figures on the Zika virus, as of 29 June 2016

Source: WHO<sup>15</sup>

On February 2016, the WHO declared a Public Health Emergency of International Concern (PHEIC) regarding clusters of microcephaly cases and neurological disorders in some areas affected by the Zika virus, requiring coordinated action to improve detection and accelerate work on a vaccine and better diagnostics for the disease. Although most infections are mild and cause few or no symptoms, there is a suspected causal link between Zika and clusters of microcephaly in babies born in Northeastern parts of Brazil. Similarly, in French Polynesia, central nervous system malformations cases have been reported between 2014 and 2015 following the Zika virus infection. As a result, the WHO issued warnings for pregnant

<sup>8</sup> <https://goo.gl/CKvPTu>

<sup>9</sup> <http://goo.gl/fAWyTx>

<sup>10</sup> Zika virus disease epidemic, first update – 21 January 2016

<sup>11</sup> Zika virus infection outbreak, Brazil and the Pacific region – 25 May 2015

<sup>12</sup> <http://goo.gl/1XbNLF>

<sup>13</sup> [http://ec.Europa.eu/health/Zika/index\\_en.htm](http://ec.Europa.eu/health/Zika/index_en.htm)

<sup>14</sup> <http://goo.gl/EHbP7>

<sup>15</sup> <http://goo.gl/Pvv0G>

women travelling to affected regions but said curbs on travel or trade were not necessary<sup>16</sup>.

The WHO has analysed the current distribution of the Zika Virus between 2013 and 2016. As shown in the figure 3, the Zika Virus is currently spreading heavily in Latin America and with higher incidence in the Pacific Region<sup>18</sup>. According to Dr. Salanieta Saketa, the acting deputy director for public health for the Pacific Community, the lack of clinical resources for the disease diagnosis and the poor awareness of the precautionary measures advised by the WHO are the key factors causing the incidence increase of Zika virus in the Pacific Region<sup>19</sup>.

## Western Pacific Regional Office

As a result of the increasing incidence of Zika disease, the Western Pacific Regional Office (WPRO) had a partially activated Incident Management System and Emergency Operations Centre already running prior to declaration of the Public Health Emergency of International Concern. This was then fully activated and adapted to the WHO headquarters IMS structure on 1 February 2016 to coordinate the response and share guidance documents and key information with Member States. WPRO initially requested 3.4 million Euros and have received just under 530,000 Euros, leaving a gap of 2.8 million Euros. WPRO has provided technical assistance to eight countries and areas through the deployment of 11 experts in epidemiology, entomology and risk communications. Laboratory testing equipment and vector control supplies have been provided to six countries and areas within the region<sup>20</sup>.

European Commission

The opportunities for European and Pacific researchers to collaborate are diverse. EU policy and scientific strategies aim at reinforcing these collaboration opportunities, notably through Horizon 2020, the European framework programme dedicated to Research and Innovation.

## H2020 & Other Relevant Programmes

The Social Sciences and Humanities (SSH) dimension on Health, Demographic Change and Wellbeing is one of the Societal Challenges of the European Commission (EC) Programme for Research and Innovation (R&I) Horizon 2020. During the first four years of the programme (Work Programmes for 2014/15 and 2016/2017), the EC has been investing more than 2 billion Euros in this Challenge<sup>21</sup>.

The main aim of the EC is to promote the development of new models and tools for health, support the ageing European population, increase monitoring techniques for health and prevention of diseases, as well as to provide a higher understanding of the causes and mechanisms underlying health, healthy ageing and disease <sup>dtt</sup>.

<sup>16</sup> <http://goo.gl/EQ2Wis>

<sup>17</sup> <http://goo.gl/kTF6k4>

<sup>18</sup> <http://goo.gl/AJf4Rf>

<sup>19</sup> <http://goo.gl/tmssHk>

20 <http://goo.gl/ROG10K>

21 <https://goo.gl/0R3mgK>

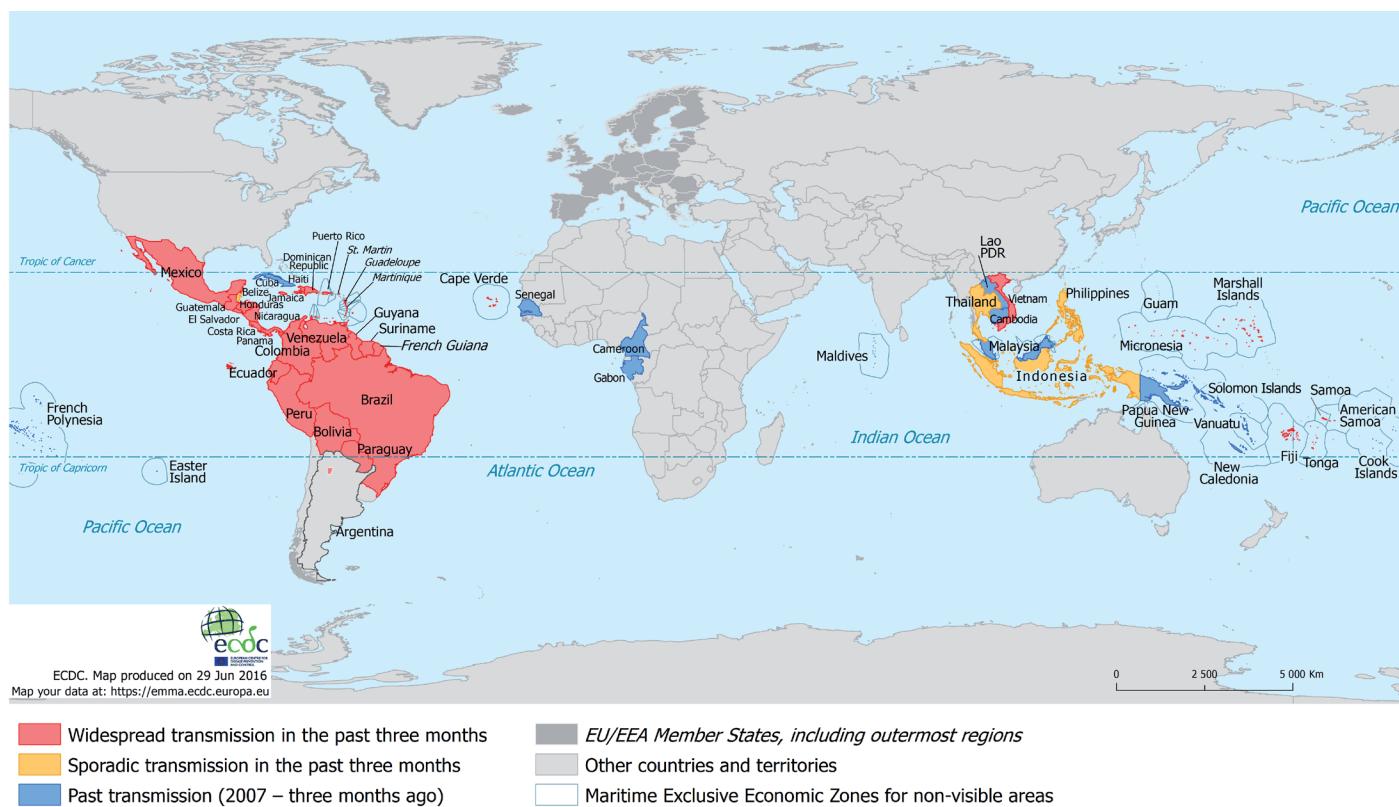


Figure 4: Countries and territories with reported confirmed autochthonous vector-borne transmission of Zika virus infection in the past three months, as of 29 Jun 2016  
 Source: WHO<sup>17</sup>

In response to the recent Zika outbreaks, there are also several funding opportunities under the EC Work Programme for 2016 and 2017:

### Horizon 2020 Programmes

#### SC1-PM-22-2016: Addressing the urgent research gaps against the Zika virus and other emerging threats in Latin America

A 10 million Euro project for research on the Zika virus, in response to the upsurge in cases of severe congenital brain malformations across Latin America, and their suspected link to Zika virus infections. If the link is proven, this fund could be used to combat the Zika virus, for example, by developing diagnostics and testing potential treatments or vaccines<sup>22</sup>.

**Opening date: 15 March 2016;**

**Deadline: 28 April 2016**

#### SC1-PM-06-2016: Vaccine development for malaria and/or neglected infectious diseases

A 40 million Euro call for research on vaccine development for malaria and neglected infectious diseases, which includes the Zika virus<sup>23</sup>.

**Opening date: 20 October 2015;**

**Deadline: 13 April 2016;**

#### INFRAIA-01-2016-2017: Integrating Activities for Advanced Communities

Under this call, 10 million Euros were attributed for research infrastructures for vector control, including the mosquitos that spread Zika. This project aims at integrating specialised facilities in Europe for the study of insect-transmitted disease with the objective to validate and roll out new control measures targeting insect vectors that pose the greatest threats to human health and animal industries<sup>24</sup>.

**Opening date: 10 November 2015;**

**Deadline: 30 March 2016**

### Other Programmes/ initiatives

#### ERA-NET programme under 7th Framework Programme for Research and Technology Development (FP7)



ERANet-LAC is a FP7 project that supports the implementation of the Joint Initiative for Research and Innovation (JIRI) between the EU Member States and Associated Countries and the Community of Latin American and Caribbean States (CELAC). To strengthen the bi-regional partnership in Science, Technology and Innovation, the project focused on planning and implementing concrete joint activities and establishing an innovative and sustainable framework for future bi-regional joint activities. It includes a call entitled "Research in prevention of infectious diseases and promotion of well-being" aiming to promote the prevention of infectious diseases, including the Zika disease, in Latin America and the Caribbean<sup>25</sup>.

The duration of the project: 2013-10-01 to 2017-03-31.

#### PREPARE: Platform for European Preparedness Against (Re-) emerging Epidemics



Apart from the new funding for Zika research, EC contacted a number of ongoing research projects on dengue fever and other diseases related to Zika, covering projects on preparedness research. The network prepared by PREPARE intends to collect crucial clinical data in case autochthonously-transmitted Zika arrives in Europe.

The duration of the project: 2014-02-01 to 2019-01-31.

- The PREPARE ARBO virus study has been modified in the Balkans. Therefore, adult Zika cases may be identified with heavily presenting and GBS. The project study is to expand to Italy, France, Spain, Slovenia and Montenegro, areas. These areas are where Aedes albopictus mosquito is present, depending on how the Zika epidemic evolves.
- PREPARE has cooperated with ISARIC to establish Zika research tools in public to collect clinical standardised neonate and maternal clinical and laboratory data
- Based on the ECDC Zika questionnaire, the information regarding European laboratory preparedness to detect Zika infection has been collected from PREPARE and COMBACTE LAB-Net laboratory contacts and is currently being analysed<sup>26</sup>.

#### GloPID-R: Global Research Collaboration for Infectious Disease Preparedness



The EC has established the GloPID-R with funding organisations from other countries. The infectious diseases constitute a cross-border public health threat and can spread rapidly. GloPID-R works on improving global collaboration of funders. The goal is to create a rapid and effective research response to any rapidly spreading infectious disease epidemic within 48 hours of an outbreak. GloPID-R has mobilized against Zika since early December 2015 that aimed to coordinate the research response of its members to the outbreak, to facilitate synergies and to prevent duplications in funded research<sup>27</sup>.

The duration of the project: 2015-01-01 to 2019-12-31.

<sup>22</sup> <http://goo.gl/NiWP94>

<sup>23</sup> <http://goo.gl/289IIW>

<sup>24</sup> <http://goo.gl/Tf96yT>

<sup>25</sup> <http://goo.gl/EknnWk>

<sup>26</sup> <http://goo.gl/G6Bnaa>

Despite the several EU-funded initiatives to combat the emerging Zika outbreaks in Europe and Latin America, there are still no initiatives for the EU to cooperate with the Pacific countries in order to fight the recent increase in the disease incidence in those countries. In this sense, an opportunity and need for further cooperation on this topic is identified.

## Recommendations for Enhancing EU-Pacific Cooperation on the Zika Virus

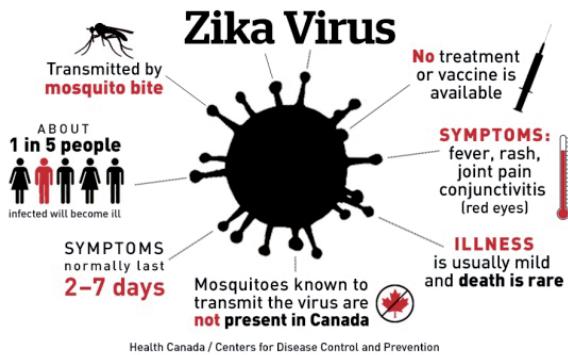


Figure 5: Health Canada / Centers for Disease Control and Prevention

Source: CBC<sup>32</sup>

### General

- Support actions for raising awareness: dissemination of material on Zika, its risks and potentially effects for key target-groups such as women of reproductive age, pregnant women, health workers, clinicians, and travel and transport sector stakeholders.
- Engage communities to communicate the risks associated with Zika virus disease and promote protective behaviors, reduce anxiety, address stigma, dispel rumors and cultural misperceptions<sup>28</sup>.
- Provide guidance and mitigate the potential impact on women of childbearing age and those who are pregnant, as well as families with children affected by Zika virus<sup>29</sup>.
- Encourage community participation to reduce mosquito breeding sites and to protect individuals, particularly those at highest risk, from mosquito bites<sup>30</sup>.
- Fast-track the research and development of new products (e.g. diagnostics, vaccines, therapeutics)<sup>31</sup>.
- Expand efforts to educate health workers in the EU member states, especially obstetricians, pediatricians and neurologists, about the disease<sup>32</sup>.
- Facilitate shipment of samples to WHO reference laboratories or delivering diagnostic tools for local testing<sup>33</sup>.
- Support the national planning of the health service available to the Zika Virus in the region.

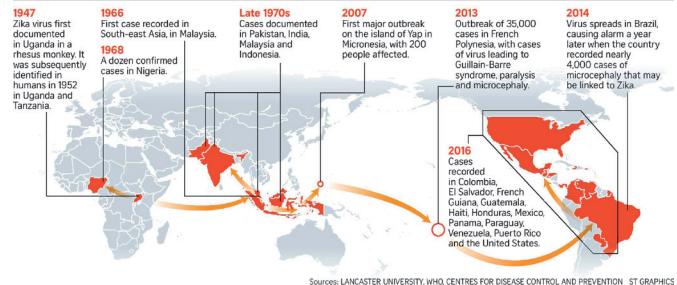
- Strengthen vector control plans to avoid introduction of mosquitoes, detect mosquitoes at points of entry, prevent their spread and reduce their density<sup>34</sup>.
- Assess the equipment needs and provide the requested supplies to prepare healthcare facilities and conditions specialized for complications associated with the Zika virus<sup>35</sup>.
- Strengthen clinical and disease surveillance to detect early transmission of Zika virus disease (including early warning systems for clusters of fever and rash)<sup>36</sup>.

### Specific

- Support the capacity and needs of the health system in the Pacific, providing technical and expert support on health service delivery.
- Provide training on clinical management, diagnosis and vector control in the Pacific, including through a number of WHO Collaborating Centres<sup>31</sup>.
- Encourage countries of the Pacific region to develop and maintain the capacity to detect and confirm cases, manage patients, and implement social communication strategies to reduce the presence of the mosquito vectors<sup>37</sup>.
- Investigate the reported increase in incidence of microcephaly and neurological syndromes including their possible association with Zika virus infection<sup>38</sup>.

### How Zika virus spread

The mosquito-borne virus was first found in a monkey in Uganda in 1947, and very few cases of human infection were reported before 2007.



Sources: LANCASTER UNIVERSITY, WHO, CENTRES FOR DISEASE CONTROL AND PREVENTION ST GRAPHICS

Figure 6: How Zika Virus spread

Source: WHO<sup>33</sup>

27 <http://goo.gl/nOyDVe>

28 <http://goo.gl/cgGUeG>

29 <http://goo.gl/kkX5CV>

30 <http://goo.gl/REu913>

31 <http://goo.gl/08rm8F>

32 <http://goo.gl/nTv4oK>

33 <http://goo.gl/QhB32V>



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