

## ANNOUNCEMENT

# Development & demonstration of management plans against -the climate change enhanced- invasive mosquitoes in Southern Europe



<http://www.conops.gr>

A new collaborative Greek-Italian project called “*Development & demonstration of management plans against -the climate change enhanced- invasive mosquitoes in Southern Europe*” has been selected for the financial support of the EU Commission in the frame of the LIFE+ Environment Policy and Governance program (LIFE CONOPS- LIFE12 ENV/GR/000466).

CONOPS (Greek, κώνωψ = mosquito).

The starting date was the July 1<sup>st</sup>, 2013, the ending date December 31<sup>st</sup>, 2017.

The total project budget is 2,989,314 €, while the amount of the EU financial contribution is 1,480,656 €.

The role of project coordinator is covered by the Benaki Phytopathological Institute (Athens), having as partners the Agricultural University of Athens, the Azienda Sanitaria Locale Cesena, the Azienda Unità Sanitaria Locale Ravenna, the Centro Agricoltura Ambiente “G.Nicoli” S.R.L., the NCSR Demokritos, the ONEX, the Public Health Service Regione Emilia-Romagna, the Terra Nova Environmental Engineering Consultancy Ltd, the Panteion University.

The basic project’ idea is to implement in both countries the newly released European Centre for Diseases Prevention and Control (ECDC) “Guidelines for the surveillance of invasive mosquitoes in Europe” in order to improve the States capacity of active detection of invasive mosquito species (IMS) and then to include these activities in the structural permanent activity of Public Health Services.

The problem of IMS, such as *Aedes albopictus*, *Aedes aegypti*, *Aedes atropalpus*, *Aedes koreicus*, *Aedes japonicus*, *Aedes triseriatus*, is becoming of primary importance on the EU scenario as evidenced by the increasing number of detection in different EU countries and be-

cause of the public health risk related to the vector capacity of some of these mosquitoes.

These invasive mosquito species may become a considerable threat to both human and animal health because vector of diseases. An outbreak of chikungunya virus, a member of the Togaviridae family efficiently transmitted by *Ae. albopictus*, took place in Northern Italy in the summer 2007 involving about 250 people; endemic infection caused by the same arbovirus have been detected in Southern France in the 2010 and autochthonous Dengue cases were registered in Croatia in 2010. In September 2012 the Hellenic Centre of Disease Control notified a case in an 84-year-old patient who died. Concern is now rising as both vectors and pathogens are reappearing in Europe after a long absence. For example, after decades of absence, *Ae. aegypti* is recorded again in some European areas (Southern Russia, Abkhazia and Georgia), and it has been the vector of the recent Dengue type 1 epidemic in Madeira (Portugal) with about 2,000 cases. This species is an extremely efficient vector of Dengue, being responsible for the most serious documented dengue virus epidemic in Europe in 1927-1928, when about 90% of the population of Athens where infected and more than 1,000 persons died.

Current models estimate some risks for dengue transmission in the Mediterranean basin and increasing risk related to climate change impact. Countries of the Mediterranean basin are particularly exposed to mosquito borne diseases (MBD) due to the high mosquito population densities and the extended seasonal period of mosquito activity.

The LIFE CONOPS is based on preparatory actions including the analysis of current state of the problem, the analysis of climatic and environmental parameters influencing the invasive mosquitoes introduction and establishment and the socio-economic impacts of the problem targeted. In the analysis of the problem preliminary data on distribution and population abundance for IMS in Greece and Italy will be acquired, contacts with key stakeholders established (such as ports and airports authorities, used tires and ornamental plant trade companies, highways authorities), the efficacy of the commercially available larvicidal products will be tested against IMS to check their sensitivity, the risk assessment for Dengue and Chikungunya virus transmission performed.

The LIFE CONOPS intends to build and implement in Greece and Italy the capacity of early detection of possible new IMS, therefore allowing for their immediate elimination from the area (before IMS establishes on large area as it was the case with *Ae. albopictus*) following the adoption of specific IMS integrated management plans.

In order to increase the efficiency of IMS surveillance a prototype mosquito trap system will be developed combining the advantages of the most effective mosquito attractants and trapping methods. This prototype system will be of reasonable-cost, self-sufficient and energy-autonomous powered by a small solar panel and a backup batteries unit. The surveillance device will also incorporate an embedded processing unit (controller) for a distant monitoring and management, useful to reduce management costs.

New biodegradable substances such as plant derived Essential Oils (EOs) will be developed and tested for their efficacy in controlling IMS without harming the ecosystems. Their possible role in the frame of integrated management plan will be evaluated and defined.

An estimation of the socio-economic costs caused by the IMS introduction and establishment will be also conducted. IMS can affect the economy and society services in various ways, through their impact on human and animal health, inducing changes in the life style, requiring control operations and educational programs. Economic impacts can be direct or indirect. Direct economic impacts occur when invasive species cause damage that result in increasing costs of various types. These types of economic impacts are those most often described and can be easily expressed in monetary values. Pest management costs contribute largely to the direct economic impact. Indirect socio-economic effects associated with IMS include, among others, effects on public health, costs associated with research and confrontation services (for both public and private sectors of economy), societal effects, effects on tourism, etc. Nevertheless, indirect effects are often difficult to evaluate because many of them cannot

easily be expressed in monetary terms.

The results of the surveillance activities as well as of the integrated management plan for the control of IMS will be regularly delivered to the competent authorities in each country in order to guarantee the immediate awareness and best possible synergies.

At the end of the projects the key actions will become permanently included in the duties of public health bodies and mosquito control agencies, to guarantee the:

- continuation of the surveillance activity in risky point of entry, with the use of the prototype devices;
- continuation of the dissemination activities through articles publications and interviews;
- distribution of the projects' informative leaflet and Layman's report to all interested parties;
- maintenance update of the CONOPS website (<http://www.conops.gr>) for at least 5 years after the completion of the project as a tool to support public health authorities in Greece and Italy and as a dissemination platform for the IMS in both countries, in order to enable data transferring between the beneficiaries.

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