National and Kapodistrian
University of Athens
DEPARTMENT OF HYGIENE, EPIDEMIOLOGY
& MEDICAL STATISTICS

Mikras Asias 75 11527 Goudi Athens- Greece
Tel: +30 210 746 2059 - FAX: + 30 210 746 2058
email : alinos@med.uoa.gr

Director: Professor Athena Linos

Athens, 28/12/2017

Updated on 15/3/2018

The precautionary principle should be applied to the landfill under construction in Grammatico area, Greece

The precautionary principle, as detailed in Article 191 of the Treaty on the Functioning of the European Union, should be put into effect immediately with regards to the landfill under construction in the area Mavro Vouno in Grammatico, for four reasons:

A. The community of environmental health scientists has not reached a final conclusion on whether living in proximity to a landfill (1) increases the morbidity and mortality of residents and (2) poses a threat to children's nonspecific immunity and cognitive development (as assessed by performance on IQ tests).
B. Preventive measures are necessary and have not been put in place to minimize health risks of both regular workers and irregular recyclers. No such measures and methods of application have yet been described.
C. The recent concern raised by earth scientists regarding the existence of a stream and the aquatic permeability, posing a major threat on the aquatic environment of the area (including the South Evoikos bay), is not yet resolved.
D. Recycling is minimal in Greece and hazardous, as well as electronic waste that very often includes lead batteries along with other more serious pollutants, is rarely separated before disposal to municipal waste.

With regards to **reason (A)**, the most critical concern raised by environmental health scientists is that there may be a substantial threat to the health and life of people (including children) living in proximity to landfills. Therefore, the placement of the landfill in Mavro Vouno could pose a threat to all citizens of Marathon, given that many villages and towns are located very close to the landfill.

Recently, a whole area in Italy, including Napoli, with similar issues has been named as the "death triangle". Since 2014, at least 25 scientific studies in the English literature only have raised concerns around the safety of landfills.

While there is no consensus by the scientific community at the moment, it is noteworthy that scientists from both European member states and non-European countries express the same worries.

The diseases for which exposure to landfills is currently implicated, include cancers of lung, liver, bladder, breast and testis, non- Hodgkin lymphoma, asthma, other respiratory problems, cutaneous problems, congenital abnormalities, and anomalies of the neural tube, urogenital, connective and musculoskeletal systems, low birth weight and pre- term birth. In addition, a study performed in Chile and published in 2017 in an international journal, reports a significant negative effect on the cognitive performance of children exposed to a waste disposal site that among others contained heavy metals (Burgos et al., 2017).

With regards to **reason (B)**, another major uncertainty refers to the health risks of persons formally occupied in the landfill and of irregular recycling workers that could possibly become active in the Grammatico area, as they do in other already established landfills in Greece.

Because waste is still not separated at the household level, a large cohort of Roma people works in irregular recycling without occupational screening or any other form of protection. There is no evidence of plans to protect the formal, but mainly the informal workers at the landfill under construction, or as far as we know any other landfill in the Prefecture of Attica.

With regards to **reason (C)**, the debate regarding the existence or not of a stream that could pollute the entire South Evoikos and the permeability of the ground on which the landfill has been built is still going on. Leachate that could reach the South Evoikos gulf, recently declared as a "Natura" area, would be a major environmental tragedy. Furthermore, in the case of a natural disaster, such as earthquake, fire or flood, the detrimental effect will be maximized. All three types of disaster have repeatedly occurred in Attica.

With regards to **reason (D)**, recycling is still minimal in Greece. In addition, hazardous as well as electronic waste (including lead batteries among other even more dangerous electronic waste) is rarely separated before disposal to the landfills used for municipal waste. Indeed, industrial waste is often mixed with household waste, whereas electronic waste is rarely separated from household garbage and almost never appropriately disposed. This happens mainly due to lack of separate waste areas and appropriate facilities for treating industrial and electronic waste. It is possible that electronic waste and hazardous waste will be mixed with the household waste and transferred to the Grammatico landfill area. In such a case the whole activity may pose a huge threat to the Marathon citizens. The Prefecture of Attica has not yet developed and announced appropriate methodology for dealing with the issue.

Please note that even in February and March of 2018 relative studies continue being published, thus proving that the issue is not settled yet and therefore the precautionary principle must be put in effect immediately.

Given that the World Bank, the Scientific Committee on Health, Environmental and Emerging Risk of the European Commission and the Office of the US Executive Director, as well as many Universities and global organizations participating in The Lancet Commission on pollution and health (Landrigan et al., 2018) consider the environment as one of the main risk factors for human health and given that the landfills contribute significantly to all types of environmental pollution (air, land, water), the Greek Government and the Attica Prefecture should find immediately safer methodology for handling the municipal, as well as hazardous and electronic waste, as most other European member states have already done.

Athena Linos, MD, MPH, PhD, FACE
Professor of Medical School
National & Kapodistrian University of Athens
Director Department of Hygiene
Epidemiology and Medical Statistics

T.C. Constantinidis, M.D.
Professor of Hygiene
Director of Laboratory of Hygiene &
Environmental Protection
Medical School of Democritus
University of Thrace, Greece