3. BACKGROUND

'We are increasingly concerned about the effects on children's health of unsafe and unhealthy environments. We understand that developing organisms, especially during embryonic and foetal periods and early years of life, are often particularly susceptible and may be more exposed than adults to many environmental factors' *CEHAPE Para.4*

Proper environmental management is the key to reducing a considerable number of preventable illnesses that are directly caused by environmental factors. The environment influences our health in many ways through exposures to physical, chemical and biological risk factors and through related changes in our behaviour in response to these factors[2].

Many environmental risks to public health, such as indoor and outdoor air pollution are well established; other public health 'modern' risks, however, are highly uncertain and may be quite complex. These risks are related to, for example, exposure to dangerous chemicals, hazardous wastes, non-ionising radiation and industrial pollutants through food, air and everyday products. This may result in effects that appear long after exposure, hindering the establishment of causal links. Such effects may be irreversible and costly to health and the environment. Other diseases related to obesity and a sedentary lifestyle such as cardiovascular diseases, which accounted for 42% of all deaths in Malta and Gozo in 2007[3], result from 'obesogenic' living and working environments, which lead to unhealthy behaviour and lifestyle.

Lead levels in the environment are linked to increased blood lead levels, which is associated with behavioural and developmental problems. Public health action over the past decades was successful in drastically reducing population mean blood lead levels between 1983 and 2005[4].

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2 http://www.who.int/phe/en/(accessed 12th August 2008)

3 NSO Malta in Figures, 2008

4 Sammut M, Variation on blood lead levels in Maltese population , 1981-2005

A high Body Mass Index (BMI) during childhood and adolescence is associated with an increased risk of adult obesity and premature mortality. BMI is associated with direct measures of fatness, cardiovascular risk factors, social and psychological problems and general health–related quality of life[5]. The alarmingly high incidence of obesity in Maltese children, almost the highest in the world, is an area of great concern[6].

Indoor and outdoor air quality is known to contribute to acute and chronic respiratory disease including asthma especially in children. Results from the International Study on Asthma and Allergies in Children (ISAAC) study show a dramatic increase in the prevalence of childhood asthma in 5-8 year old Maltese children from 7.5% in 1994 to 14.8% in 2001. Although further research is necessary to establish the causes of allergies, be they genetic, environmental, dietary, drug or lifestyle related, it is well known that outdoor air pollution, in particular, chronic exposure to dusts, gases and fumes, aggravates respiratory allergies and may also cause them. The indoor environment also plays an important role, where implicated triggers for asthma and allergies include soft furnishings, carpeting, dampness and moulds, animal dander and dust mites, as well as environmental tobacco smoke.

Although the number of annual fatal traffic accidents and related injuries is comparatively low when compared to European data, a large number of these occur in young persons over the weekends and are considered to be largely preventable. The number of road casualties per 1000 inhabitants remained constant at 2.9 per 1000 inhabitants for each year reported between 2005 and 2007, slightly lower that the 3.2 per 1000 inhabitants reported in 2004.[7]

Standardised data collection systems on home and leisure-related and other injuries are still being implemented. The underlying data required to assess the environment burden of disease still needs to be developed in most areas.

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[5] http://www.euro.who.int/Document/E91416.pdf

[6] 1992 International Obesity Task Force (IOTF) ; Galea G et al; 2005-6 WHO International Health Behaviour in School Children Survey (HBSC); Grech V and Farrugia Sant Angelo V (2007)

[7] NSO. Malta in Figures 2008

3.1 WATER

Water supply in the Maltese Islands is obtained from the aquifers and desalination facilities. Natural sources of water in the Maltese Islands are scarce and are insufficient to meet local demand because of climate, the nature of local geology, and other natural characteristics. In Malta alone, water production from desalination plants amounted to 54.9%, followed by groundwater abstraction 45.1% in 2005[8].

Water production by desalination process is on the increase, although it is expensive as it is energy intensive. Shortages of the public supply are nowadays rare. The quality and integrity of natural aquifer systems are at risk especially from over-exploitation and contamination resulting from anthropogenic activity. This natural water source is easily polluted due to the small size of the island, making isolation of polluting activities difficult. In addition, local soil is shallow and poor in nutrients and so, fertilisation is used abundantly for agricultural purposes.

[8] Source: Water Services Corporation

Practically 100% of the population has access to potable water supply and sanitation. All schools (100%) have access to a continuous safe water supply (tap water) within legal standards as well as access to a sanitation system with uninterrupted access to water with separate toilets for boys and girls.

Malta is in line with EU standards on microbiological agents in bathing water. The recreational use of the sea surrounding the Maltese Islands is important for locals and tourists alike especially in the warm season. Tourism is a very important industry and opportunities for swimming and other sea sports, such as diving are promoted to encourage increased tourist influx. The increased tourist population, which averaged at about 1.2 million per year between 2000 and 2007[9], is known to increase the burden on the sewerage collection system. This may result in sporadic occasions of sewage overflow to the sea around the coast. This is mainly due to the fact that the main sewerage systems are very near to the bathing areas. Such episodes are both a health hazard and a nuisance to locals and tourists alike. In this eventuality, the public is informed through press statements and warning signs in the areas where sewage contamination is detected.

Three sewage treatment plants have been commissioned to address the issue of sewage discharge into the sea. One started operating in Gozo at the end of 2007, while the Malta North (Tac-Cumnija) sewage treatment plant began operations in 2008, while the Malta South sewage treatment plant is planned to be operational in 2010.

Malta's third sewage treatment plant situated in Xghajra (Malta) is a €60million investment project that will be operable in 2010. The project is predicted to treat the overall 80% of the untreated sewage in Malta.

[9] Source: National Statistics Office (NSO Release 13/ 2008)