

Review



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Practical Approach for Implementing Health Impact Assessment on Unleaded Gasoline in the Philippines Introduction 1. Thesis ment Nalco Chemical Company in the Philippines has been in operation since 1980 and ever since then the American multinational company (MNC) has been the target of many environmental organizations including Green Peace (www. nalco. com). The incidence and prevalence of lung diseases among people in Manila, who were directly exposed to the vaporized leaded gasoline over a considerable time period, would be investigated in particular, under this study. While there is a dearth of published literature on the subject this study would seek to develop a series of metrics to determine the positive and negative correlations between and among the prevalence and incidence of pulmonary diseases among employees and the heterogeneous contributory factors such as the duration exposure to unleaded gasoline, employee position and work practices at Nalco in Manila.

This researcher suggests unleaded gasoline use for the benefit of all employees in particular and people in general in the Philippines. This research focuses on many related aspects such as short-term and long-term social costs and benefits. While social costs of not using unleaded gasoline and its impact on health of the people in the Philippines would be investigated with reference to Nalco, benefits would be investigated with general reference to a larger population sample in the Philippines. The study in full would investigate health, social, economic and the environmental impact.

2. Risk Assessment

2. 1. Screening

Does the use of leaded gasoline need a HIA?

Environmental organizations and critics in the Philippines have time and again pointed out that the Filipinos' state of health, especially in Manila, has been deteriorating over the years primarily due to air pollution caused by the ever increasing use of leaded gasoline (Brandon et al 2007; Sastry 2002). These critics have particularly sought to focus attention on the causal factor of using leaded gasoline as a direct impacting agent on the general health factor of the nation (Louella et al. 2006). This state of affairs particularly warrants a comprehensive HIA in Manila.

Which health impacts need to be considered?

A series of health impact assessments will be made in this HIA to analyze the existing literature on the extent and the incidence of negative health effects on the Filipinos. One of the health impacts would be focused on the verifiable statistical measures such as the mean, the mode and the median population samples that have been affected within a particular locality (AHA 2010).

Manilans become the central point of focus while most of the theoretical and conceptual references would be focused on the Nalco employees. Next, this study would investigate one of the most dreaded positive correlations between the excessive use of leaded gasoline and the prevalence and the incidence of diseases caused by the inhalation of polluted air. The third health impact is related to the current state of Manilans' health, given a highly populated and congested third world city environment (Islam 1994; Finkelman 1996). In this respect, some reports on the socio-economic problems of vulnerable populations in cities like Manila have been studied by this researcher.

2. 1. Theoretical and Conceptual Analysis

This HIA is particularly related to how and why the use of leaded gasoline

invariably takes precedence over the use of unleaded petroleum. Thus this study would carry out a Cost-Benefit Analysis based approach with particular emphasis on the variables concerning the current level of health consciousness among Manilans. Finally it would focus attention on the level of concern shown by both the government and private enterprises in the Philippines.

Figure 1: Demand For and Supply of Gasoline in the Philippines

Source: Review of Economics and Statistics, 57(4), 502-07

According to the above diagram, the positive in demand curve from D1 to D2 will result in increasing in price (P) and quantity (Q) of the gasoline. As a result the supply curve will shift to the right from S1 to S2. Equilibrium is the point where the quantity demanded equals the quantity supplied, thus there is no surplus of goods as well as no shortage of the same. Initially, E1 is the equilibrium point and due to the increase in demand, equilibrium shows at E2. However after the demand increase supply will decrease and equilibrium point shows at E3.

Suppliers adopt their own strategies in order to meet contingency demand by consumers. As a result suppliers tend to change their strategy according to the shifts in demand (Comnor & Jon 2001, 140). Assuming a greater degree of pressure on supplier networks coming from greater market demand, suppliers would up their stake in the ultimate outcomes of the corporate strategy and business policy. This is the inevitable result of growing power of big Gasoline organizations becoming more and more independent to expand business.

2. 2. Is there a Potential for Cumulative Effects from this Use?

Empirical evidence suggests that in the Philippines in general and Manila in

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particular, health implications related to the use of leaded gasoline have been rising little faster as a result of pulmonary diseases caused by polluted air (MECA 2003; McConnell 2003). The number of patients seeking medical treatment for cough, whooping cough, silicosis, bronchitis and even pneumonia has been rising much faster in Manila than elsewhere in the cities (Brandon et al 2007). According to World Health Organization (WHO 2004) reports, the environmental pollution in the country has been greatly responsible for the rising level of lung diseases among the elderly population. For example, almost 35% of those over 40 years of age suffer from diseases like persistent cough and pneumonia (<http://web.worldbank.org>).

While the government expenditure on the provision on health care in the Philippines has been rising in terms of nominal budgetary expenditure, in real terms annual expenditure has been falling. On the other hand private sector expenditure on health care provision has increased by little more than two times during the last 5 years. However, this rise in health care expenditure by private enterprise has really affected the poor in the Philippines. The average household's expenditure on medical treatment has increased by two folds and almost 20% to 22% this expenditure is on lung related health care.

3. Scoping

Health hazards that must be addressed in HIA due to the use of leaded gasoline in Manila include not only the direct impact related outcomes but also those which are remotely connected with cumulative impacts such as secondary effects of the inhalation of polluted air and water pollution (WHO 2006). Potential health impacts related to the use of leaded gasoline in

Manila are many in number though primary and immediate ones include such things as physical debility, lower productivity and long term consequences of ingestion of leaded fumes (Louella et al. 2006). Both social and economic costs of medical treatment far outweigh the benefits associated with the low cost of purchasing gasoline (Storchmann 2005). Traffic congestion in Manila has increased by a greater percentage because many vehicles that belch out have been imported (Faiz and Sturm 2007). The ubiquitous three wheeler guzzles leaded petroleum at a rate that has little parallel elsewhere in the world the number of three wheelers in the city of Manila has increased by more than 8 folds during the past decade (Krupnick et al 2003).

3. 1. Scoping and Costs/Benefits

Figure 2: Marginal Social Costs and Benefits

Source: Review of Economics and Statistics, 57(4), 502-07

According to the above diagram, marginal social cost (MSC) curve shifts on to the right when the demand for leaded gasoline increases (shown by marginal social benefit curve 2), because it is cheaper to produce leaded gasoline. This development would have a negative impact on the society by way of congestion and pollution. When air pollution increases MSB would be reversed thus the vertical distance between the two MSC curves shows the marginal external costs of using leaded gasoline in Manila. Unless the government imposes a heavy tax on the consumption of leaded gasoline there would be heavy social costs because the demand for cheaper gasoline keeps on rising while the supply also keeps pace with demand.

This HIA would use the probable benefits/disadvantages associated with the use/non-use of unleaded petrol as the methods for analysis:

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Unleaded petrol reduces the incidence and the prevalence of certain diseases, especially lung diseases.

When the incidence and prevalence of such diseases diminish there would be a corresponding decrease in government and private expenditures on health care infrastructure such as hospitals and a corresponding decrease in expenditures on health care products and services by people.

Social benefits by way of reduced congestion on the roads would increase the country's productivity. For example, the country's Gross Domestic Product (GDP) would rise in real terms when inflationary pressures on health care provisions are reduced.

So far no fully comprehensive scientific study has been designed and carried out to determine the amount of lead in the air in Manila or the Philippines, and therefore this HIA is particularly handicapped by the absence of concrete data on the level of air pollution and the incidence and prevalence of lead related diseases among Manilans.

Sources of Data

HIA related risk management involves how best to access the best possible data available. A national database for information dissemination and resource redistribution would be the most ideal. Both government and private institutions can be involved in this exercise. World Health Organization (WHO) publications, research papers published by universities and research institutions and individual researchers can be used along with internet based sources.

4. Profile of the Population in the Philippines

According to the Philippine's Department of Health estimates in 2009, there was a population of 97.9 million in the Philippines while the population

density in Manila in 2009 was estimated at 43, 079 per square km. According to employment/unemployment statistics, the rate of unemployment was 7. 4 which according to comparative figures for neighboring countries like Malaysia and Singapore, was too high (DOH 2009). Costs of treatment and drugs would diminish accordingly, thus leading to a proportionate or above-proportionate fall in health care expenditure by people (Sastry 2002).

Independent analysts have pointed out that in the Philippines every two minutes a patient seeks medical treatment for ailments directly or indirectly related to air pollution.

5. HIA Related Outcomes in Manila

The implementation process involves decision making and decision implementation with emphasis on defining targets for the future. Such measures will have to be coordinated at the national level by both government and private organizations such as universities, research institutions and medical institutions. HIA is meaningless if and when such definitive actions are not implemented. Manila authorities ought to make decisions with immediate effect in order to reduce and control the incidence of environmental pollution and the rise in diseases among people due to the excessive use of leaded gasoline.

Risk levels associated with the increasing purchase of leaded gasoline have been rising and in fact the current level of air pollution with lead in Manila, in particular, is said to be above the global average (Sharma and Reutergardh 2000). Though over the past three years the country has been scaling down its overall consumption of leaded petrol there is very little positive impact on the environment and its people (Lovi 1998).

Risk management process in the Philippines requires both reduction and cost

spread measures. Contingency planning is said to be one of the most effective measures in response to critical situations that arise as a result of rising risks, especially health risks. The government in the Philippines needs to be aware of the efficacy of such measures. In Beijing this year, people and children going to work and school respectively had to wear protective masks to fend off the ill effects of a thick yellow fog that was the result of pollution. There was no contingency planning in Beijing (National Cancer Institute 2006).

Contingency or emergency planning in Manila would cost a considerable amount of money though. Alternative energy sources such as solar power and even nuclear power can be a better option in the planning stage though yet again nuclear energy is very expensive and dangerous. However the country must focus on such alternatives in times of an impending emergency.

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