

## Stakeholders Awareness Improvement for a Better Air Quality in Surabaya Proposal

City of Surabaya, Indonesia

### 1. Background

Air is very important for life of creatures and an existence of other objects. Therefore, air must be protected for sustainability of human life. This means its exploitation must be carried out wisely by considering the importance of both present and future generations. For obtaining appropriate air quality according to a desired quality level, then, controlling of air pollution becomes a very important thing to be conducted.

Nowadays, impact of air pollution becomes a serious problem in urban areas. Air pollution can have a direct impact to health of human beings and it can also disturb other creatures and the environment. Air pollution has a big impact on respiratory diseases. Particulates and other chemical components in the air are very dangerous for health. Ambient and indoor air pollution causes about 20-30% of respiratory diseases, in addition, air pollution in developing countries causes tens of thousands excess death (Schwela, 2002).

Air pollution in Surabaya cause by various sources, namely:

a. Stationary source:

- Pollutants from refining industry (fuel consumption): food, beverage, wood refining, chemical, mineral non metal industry, textile, metal refining. The source of the pollutants is presented in Table 1.
- Pollutants from non mobile source (fuel consumption) that is used electric power, fireplace commercial/industry, and fireplace domestic (coal, fuel, nature gas/LPG/wood): dust (0 ton/year), SO<sub>2</sub> (0,37 ton/year), NO<sub>2</sub> (4,9 ton/year), HC (0,17 ton/year), CO (0,79 ton/year), others (121,1 ton/year).

Table 1. Air Pollution from refining industry

Parameter	Dust Ton/year	SO <sub>2</sub> Ton/yr	NOx Ton/yr	HC Ton/yr	CO Ton/yr	Others Ton/yr
1. Food	4.442,42	0,00	0,00	0,00	0,00	0,015
2. Beverage	0,02	0,00	0,00	0,00	0,00	0,00
3. Woods and other forest product	42,47	0,00	19,82	0,00	0,00	0,00
4. Chemical	29,59	0,00	0,00	236,72	0,00	0,00
5. Mineral non metal	0,00	0,00	0,00	0,00	0,00	0,00
6. Metal	31,68	0,00	0,00	0,00	255,20	0,00
7. Metal Refining	0,00	0,00	0,00	0,00	0,00	0,00
8. Textile	658,50	0,00	0,00	0,00	0,00	0,00
	5204,66	0,00	19,82	236,72	255,20	0,015

Source: Environment Quality Scale Surabaya, Book III

b. Mobile sources

Dust (3,35 ton/year), SO<sub>2</sub> (0,26 ton/year), NOx (46,2 ton/year),  
HC (28,45 ton/year), CO (9,5 ton/year), others (0,8 ton/year).

In the last few years, the growth of Surabaya is very fast either from physical and also non physical aspects, due to urban development. The growth of industrial sectors is high enough to bring the impacts to all environment sectors in Surabaya. One of the impacts of the city is the growth of mobility of residents and goods, it causes a progressive traffic jam, where the traffic density is relatively high enough (current V/C ration is about 0,8 – 1,2). The total length of road in the city of Surabaya is approximately 2,035.95 km (in 2000s), and the amount of passenger vehicles, wagon car, motorbike have reached approx. 909.131 (2000) which tends to increase

every year. The traffic increases air contamination from both mobile sources as well as from non-mobile sources (industry). According to a study, the major pollution source in Surabaya is from the activity of transportation (mobile source) that contributes to 65 – 75%.

To obtain information about the quality of ambient air, it needs a regular measurement and application of an ambient air quality standard. The ambient air quality standard is determined as maximum concentration of ambient air quality that could prevent the occurrence of air pollution. The standard needs to be revised every 5 years. The city of Surabaya establishes an ambient air quality standard based on National Ambient Air Quality Standard.

Realizing such matters mentioned above, it is the responsibility of all stakeholders to improve the urban air quality. The improvement of air quality provides great contribution to the sustainable development which is part of better quality of life for present and future generations.

The city of Surabaya has tried efforts to improve air quality. The latest activity is a workshop “Stakeholders Participation in Air Quality Improvement in Surabaya” which is intended to increase stakeholder awareness by various aspects of urban air quality issues. All stakeholders should be mobilized for participating actively in planning and implementing a comprehensive urban air quality. The workshop presented initial point of future ideas and how the ideas will be implemented by related stakeholders. This means by collaboration of multi-stakeholders in improving air quality in Surabaya, other areas will be motivated to take similar actions.

The workshop pointed out some important findings which are generally classified into several aspects as follows:

- Transport policy is not adequate to provide guidance and mechanisms to resolve recent transportation issues
- The increasing number of vehicles
- Leaded gasoline
- Old vehicles are in poor condition and poor maintenance of emission
- Awareness and public participation are still poor and not effective yet
- Industrial air pollution is not properly managed

Looking at the above conditions the city of Surabaya is intending to carry out an integrated pilot project on improvement of awareness of stakeholders in improving urban air quality in Surabaya.

## **2. Objectives**

The objective of the project is to provide opportunity to all stakeholders to participate in air quality management by preparing materials and mechanisms of the involvement of the stakeholders in Surabaya and conducting public activities to improve air quality.

Specific objectives are not limited and include:

- a. Improving awareness of people of Surabaya for better air quality
- b. Promoting cooperation of multi-stakeholders in air quality management
- c. Increasing public awareness and cooperation in improving air quality in Surabaya
- d. Preparing network activities of all stakeholders to increase air quality in Surabaya
- e. Conduct of public activities to improve the awareness of stakeholders

## **3. Scope of Works**

The pilot project comprises comprehensive activities about air quality management. The pilot project activities are:

- a. Collection of data and information about urban development which may be potential for air pollution
- b. Analysis and determination of urban air pollution levels and its sources
- c. Identification of components of stakeholders that contribute to improve air quality
- d. Determine stakeholders' roles in the effort of air pollution prevention
- e. Prepare stakeholders' action plan to overcome air pollution and air quality management

- f. Prepare modules and instruction materials for stakeholder awareness about air quality management, air pollution; specific attention will be emphasized to children and women roles
- g. Prepare materials for air pollution prevention from industry for small, medium and large scale regarding air quality management
- h. Prepare community empowerment for air quality involving women association, NGO and youth association
- i. Prepare action plan of capacity building for civil servants, NGO, media concerning air quality management
- j. Exchange information and experience with other places (cities or regions both local and abroad)
- k. Develop networks and partnerships with other places and other institutions (local and international institutions)
- l. Carry out some pilot project for public campaigns on air quality management for mass media as TV, radio, newspaper, etc.
- m. Undertake public competition of clean environmental campaign, greenery for school children and women association throughout Surabaya
- n. Provide technical training for air quality improvement particularly for public transport sectors such as drivers and policemen
- o. Undertake writing competition for primary, junior high school, senior high school and university students about air quality in Surabaya

#### **4. Outputs**

The outputs of the project are expected to be valuable matters for Surabaya and also as references for other areas. Therefore, outputs at last and are not limited to:

- a. Urban air pollution condition in Surabaya
- b. List of stakeholders that contribute to improve air quality in Surabaya
- c. Action plan overcoming air pollution and air quality management, particular attention for stakeholder participation
- d. Action plan of capacity building for civil servants, NGO, media concerning air quality management
- e. Community empowerment plan for air quality involving women association, NGO and youth association
- f. Modules and instruction materials for stakeholder awareness about air quality management, air pollution for school children youth, and women
- g. Materials for air pollution prevention from industry for small, medium and large scale regarding air quality management
- h. Person trained for air quality improvement from industrial sector
- i. Number of primary, junior high school, high school and university students about air quality in Surabaya

#### **5. Implementation Plan**

Implementation of this project is expected to be supported by several agencies namely UNESCAP, IGES, ADB and the city of Surabaya. The city of Surabaya will take the lead of the activities. Other agencies are welcome to support in materials and financial for the implementation of the project. To implement such multi-agency project, an officer approved by all agencies is needed to execute the project. The project officer will prepare all administration things so the availability of support and assistance will be on schedule. The project officer is responsible for the overall implementation of the project. For such purposes, the officer must be provided with sufficient authority to take necessary activities for the project.

A working team consists of several experts need to be hired to carry out the identification and preparation of materials. Then, the team is also to be coordinator for implementation of the pilot project. The working team can be a group of consultants to undertake the project. This working team is responsible to undertake activities in the project. The team should include community, women association, youth association, and local people, so, the implementation will cover all stakeholders.

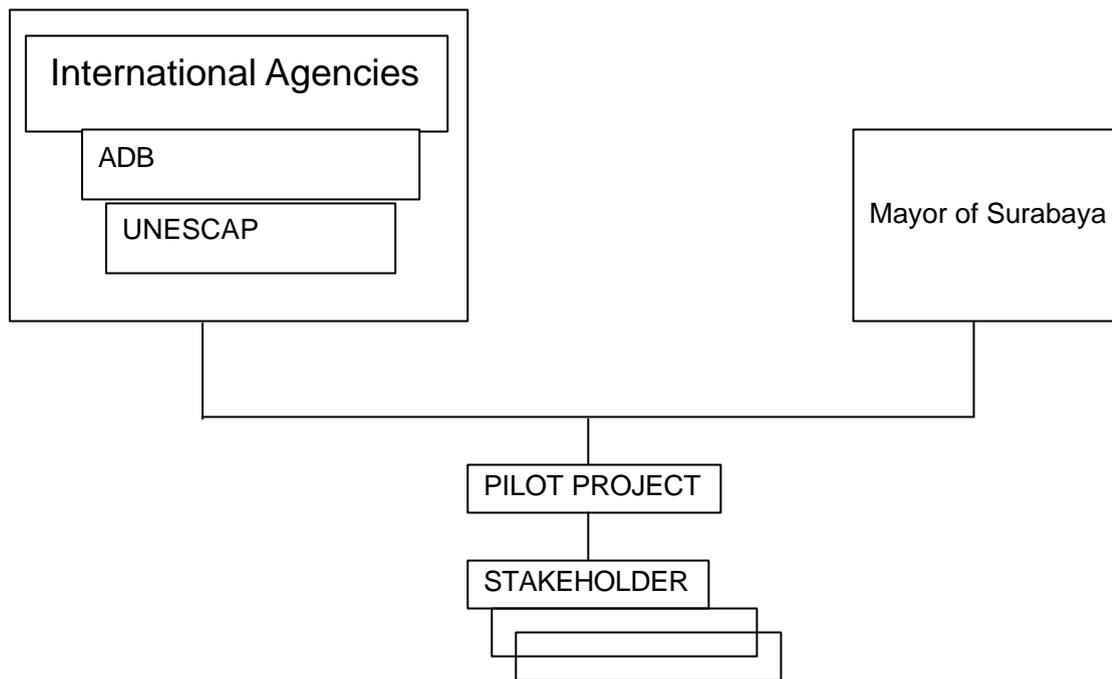


Figure 1. Organization of the project

## 6. Resources

It is expected that all stakeholders will actively participate for the project. For such purposes all stakeholders should provide contributions either in financial and non financial matters. International assistance is expected to support the project, UNESCAP, IGES and ADB are the most potential agencies that may provide financial assistance to the project. There are many other international agencies that may involve in the project such as GTZ, GEF, ICLEI, CITYNET, JICA and World Bank. The city of Surabaya will generate local resources to implement the project including private sector and the community. As mentioned above, the project offices should make arrangements so all agencies can provide appropriate contributions to the project. It is estimated that about USD 60,000 will be needed for the pilot project. The expenses include the preparation of materials and analysis of urban air quality, and implementation of community activities such as community training, competitions, campaigns, etc. Further programs should be determined during implementation of the pilot project.