



A Primer on
The GREENING SCTEX PROGRAM
"Green Roads, Good Lives, Safe Travel"

Transportation systems have traditionally been designed for traffic mobility and driver safety. Road systems and roadsides are now being designed to address a variety of other functions, including aesthetic, environmental, and community interests. Context Sensitive Design is a new approach in transportation planning that recognizes community values. Roadside vegetation and green spaces are often valued features of transportation corridors. It is along this context that the BCDA Board issued and approved a Resolution on July 1, 2008 directing that the Greening SCTEX Program be undertaken by the BCDA-BMHI.

On July 24, 2008, the BCDA family together with the SBMA, CDC, the Armed Forces of the Philippines, the staff of DENR-R3, NGOs and Executives of local government units (LGUs) made history when they launched the Greening SCTEX Program. The launch was culminated by planting 1,000 Narra seedlings, our national tree, in the Clark North B Interchange of the Subic-Clark-Tarlac Expressway.

This event signaled the start of the 5-year tree-planting program of the BCDA for the newest and most modern toll way in the Philippines. The trees to be planted are endemic species, which would help "Filipinize" the toll road and promote an enjoyable, stress-free and safe journey for the motorists plying the SCTEX stretch.

The Greening Program has the following objectives:

- a) to implement a tree planting program along the SCTEX that will promote endemic and indigenous tree species;
- b) to foster a healthier ecology along the expressway;
- c) to mobilize support from local communities, LGUs, corporate entities and other sectors as well as international bodies; and
- d) to enhance the toll road's aesthetic values.

20K trees in Five

The greening program aims to plant a minimum of 20,000 trees in five years along the expressway to create a veritable "heritage tree museum" that could be a model for future Philippine infrastructures. Furthermore, BCDA seeks to contribute to the DENR's Green Philippine Highways Program and to the Government's over-all greening program.

The economic benefits of trees have been understood for a long time. Introduction of trees along road systems has both *direct and indirect benefits*. Its direct benefits can be translated into socio-economic benefits as follows:

- a) abatement of the intensity of noise;
- b) energy conservation;
- c) increase of market value of adjacent lands;
- d) source of raw materials such as wood;
- e) beautification and improvement of the aesthetic value of the landscape;
- f) reduction of glares and reflection of solar radiation; and
- g) screening of objectionable views.

The indirect benefits are geared toward the enhancement and improvement of the environment. Generally, it makes the road environment a better place. Research results revealed that trees:

- a) can sequester atmospheric gases such as CO₂, NO₂ , SO₂ and other harmful gases,
- b) filter air particulates,
- c) modify air temperature,
- d) serve as windbreaks,
- e) increase infiltration,
- f) reduce surface runoff and minimize soil erosion,
- g) protect riverbanks and watersheds,
- h) absorb toxic and heavy metals, and
- i) provide food and habitat for urban wildlife.

With all these benefits, there is really a need to establish forest corridors to improve the psychological, sociological, and economic well-being of the urban motorists. The physical effects of trees--the shade (solar regulation), humidity control, wind control, erosion control, evaporative cooling, sound and visual screening, traffic control, pollution absorption and precipitation--all have economic benefits. Additionally, quantification of the economic benefits of trees helps justify public and private expenditures to maintain them.

The value of trees

Did you know that a mature leafy tree produces as much oxygen as 10 people inhale in a year?

Trees also serve as an effective protection from the sun's ultraviolet (UV) rays that can cause skin cancers.

In addition to the uptake of harmful gases, trees also act as filters intercepting airborne particles and reducing the amount of harmful particulate matter. The particles are captured by the surface area of the tree and its foliage. Although trees are only temporary host to these particles, if they did not exist, the particles would remain airborne and harmful to humans. Increased tree cover will increase the amount of particulate matter intercepted from the air.

Trees are also the natural habitats for birds, insects and other wildlife. Planting more trees means ensuring the biological diversity in our environment.

Trees planted along the expressway can decrease the heat generated in the area (urban heat island effects), to the benefit of thousands of motorists that regularly ply the SCTEX route.

Trees can boost the SCTEX image positively and can attract tourists to the "Heritage Tree Museum". Thus, trees increase the value of the expressway.

In tropical countries like the Philippines, trees are one of the important factors that can stave off global warming. Trees are the Earth's lungs because they absorb and store the key greenhouse gases (GHG) like carbon dioxide, which is emitted by our cars, factories, power plants, etc. Carbon dioxide or CO₂ is the main greenhouse gas which if not trapped by trees and other plants could reach our atmosphere and trap heat around the Earth's surface and cause the greenhouse effect which leads to global warming and climate change.

Driver Response

Early transportation publications promoted trees. In 1949, Neale (*Highway Landscaping Influences Traffic Operation and Safety*, Traffic Quarterly), proposed that "trees have undoubtedly saved many lives and prevented many accidents in intangible ways," observing that well-spaced trees might improve driver comfort by providing relief from the sun and wind, help keep drivers alert, and can cut cross-glare. Zeigler (1986. *Guide to Management of Roadside Trees*, U.S. Dept. of Transportation), also reported benefits: shade, windbreaks, visual buffer, physical protection for pedestrians from run-off vehicles, and contributions to historic character.

Few of these benefits have been scientifically evaluated, but there are compelling studies that hint at possibilities. For example, commuting may be one of the most stressful experiences of urban life. Increased blood pressure, higher illness rates, lowered job satisfaction, absenteeism and lower performance on cognitive tasks are all related to longer more difficult commutes. Views of nature provide restorative effects and reduce stress response. One study specifically looked at the effects of roadside character on stress (Parsons, R.L. et al. 1998. The view from the road: implications for stress recovery and immunization. *Journal of Env'l Psychology*). Simulator drivers who saw built-up, strip-mall style roadsides showed slower recovery from introduced stressors. Drivers viewing roadside nature scenes returned to normal, baseline conditions faster. In another study by Cackowski, J.M. et al. 2003) appearing in *Environment and Behavior*, highway drivers with views of natural roadsides were found to have higher frustration tolerance, a known precursor of road rage. In addition, in a simulator study, identical street pairs, presented with and without trees, were used to test the effect in a drive-through virtual environment. Individual driving speeds were significantly reduced in the suburban settings. Faster drivers and slower drivers both drove slower with the presence of trees.

Opportunities for Corporate Sponsors

Successful corporations under their Corporate Social Responsibility (CSR) process can sponsor the Greening SCTEX Program. This will be a manifestation of their commitment to the health and well-being, of not only motorists, but also the communities along the expressway. More importantly, they will be contributing to: the sustainability of our environment, increasing its biodiversity, and conserving species. This intentional good action shall inculcate to the Filipino people the grandeur and richness of its native tree species.