

Threats to Silang Environment

By

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The major threats to the environment of the Municipality of Silang are pollution from open dumping of waste, pollution of esteros and rivers, open burning of wastes including plastics, dumping of hazardous wastes into water bodies, unregulated quarrying, illegal construction of hog and poultry wastes, informal settlers, unregulated junk shops, lack of MRF and composting facility for solid wastes, illegal cutting of trees, soil erosion and poor drainage/sewerage systems.

The Provincial Environmental Code of Cavite

By

Ms. Annabel Cayabyab, PG_ENRO-Cavite

The Cavite Province envisions a well-managed, preserved and rehabilitated place with rich natural resources that provide food, livelihood, sustainable economic development, employment and world-class recreational and historical sites, wherein people live in harmony with each other and with nature in the modern revolution for the pursuit of successes and international recognition. This paper presents the Provincial Environmental Code of Cavite, or Provincial Ordinance 2008-001. The code covers management of the forest, mineral, water and marine and coastal resources, waste management, air and noise pollution management, ecotourism, environmental impact assessment, ecotourism, land use planning, organization, penalties and miscellaneous provisions. On water resources, the salient feature of the code includes water resources pricing, pollution regulation of industrial, recreational and commercial users and establishment of the Cavite Network of Watersheds. In Silang town, water is consumed and wastewater generated by its 199,825 residents (or 49,747 households), 16 refilling stations, 7 industrial estates, 8 piggery farms and from 128-175 backyard hog farmers. The members of the watershed network and the Cavite Water Regulatory Board are presented.

Geo-Hazards: Causes and Mitigation Measures

By

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The Philippines lies along the Pacific ring-of-fire and is one of the countries most vulnerable to natural disasters. Geo-hazards such as earthquakes, volcanic activity, mass movement and flooding cause extensive damage to life and property. Landslides often occur at the base or top of an old-fill or steep cut slope in existing old landslides, drainage hollows, or poorly developed hillsides. Contributing factors are steep slopes, lack of vegetation, weathered rocks, relict structures and water saturation. Structural mitigation includes engineering measures such as retaining walls, concrete cover, chicken wire and use of coconet among others. Flooding occurs in flood plains near major river systems in flat topography, while flash floods occur in areas adjacent to smaller circular-shaped basins. Structural flood mitigation measures include flood regulation pond and widening of drainage systems. Other measures include cleanup/dredging of waterways, prevention of encroachment to river area, on-site retarding ponds, flood warning and evacuation system. The flood susceptibility map of Cavite shows the coastal towns along Manila Bay and Bgy Carmen in the eastern catchment as highly vulnerable to flooding. The headwaters originate from Silang and other towns located upstream.

Silang Hydrologic Balance

By

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Land use, vegetal cover and slope are some of the conditioning factors influencing the annual water balance of a watershed. The agricultural areas of Silang and Tagaytay towns which make up the Santa Rosa and San Cristobal watershed is still conducive to rainfall percolation and groundwater recharge. High recharge low-runoff conditions can be found in forested lands, agricultural lands, cultivated areas, lawns/gardens and meadows, parks, open spaces, vacant lots and low-density areas. While mountainous lands, high-density urban areas, commercial and business areas, industrial districts, and built-up pavements exhibit low-recharge high-runoff conditions. A scenario of a highly urbanized Silang town and implications on its hydrology is presented. Assuming a 10-year storm return period of 291.2mm and a 100% increase or doubling of existing built-up areas, i.e. residential, commercial and industrial areas, infiltration rates is projected to decrease by 41% from 40.12mm to 23.47mm and storm flows will increase by 20% from 167.6 m³/sec to 201.6 m³/sec. With more intense land use accompanied by unprecedented increases in population, this scenario presents serious threats to the hydrology of Silang and those of its neighbors downstream.

Groundwater Recharge and Depletion

By

Engr. Teddy dela Cruz, GM, Silang Water District

Groundwater and surface waters from Silang flow in a north and northwest direction towards the towns of Dasmarinas and General Trias draining to Manila Bay, and in a north-east direction towards Carmona and the Laguna towns of Binan, Santa Rosa, Cabuyao and Calamba draining into Laguna Lake. Sustained pumping of groundwater has caused declining water tables and depletion of the groundwater resources in Silang. In May 2004, the wells reached to 1056 base in a well inventory survey by the Silang Water District. Groundwater depletion leads to cones of depression, water competition, land subsidence, declining water quality and saltwater intrusion especially along coastal areas. Sources of contaminants are leaks and spills from establishments, hazardous wastes, pesticides and fertilizers from farms, leachates from land fills, septic systems, saline intrusion and abandoned wells. There are 10 groundwater springs with elevation ranging from 90 to 459 meters above mean sea level with production ranging from 0.07 to 73 liters per second. The location map of the wells and springs is presented.

Existing General Land Use Map

By

Romeo B. Alilio, MPDO

With rich volcanic soils, higher elevation, abundant rainfall, and productive plantations, Silang Municipality occupies a niche in the CALABARZON region. Of Silang's 15,641 hectare land area, agricultural land occupies 60.3%, followed by built-up (24.6%), river bodies (6.6%), industrial use (4.99%), tourism use (1.92%), forests (1.33%) and agro-industrial use (0.26%). The proposed general land use map shows areas zoned for primary urban core, secondary urban core, general development, tourism (golf course), socialized housing, industrial, agro-industrial, forest, water zone, agricultural zone and Strategic Agriculture and Fisheries Development Zone. The zoning map delineates the eastern and northern barangays as general development zones. To maintain its agricultural areas, Silang delineated areas as agricultural zones and Strategic Agriculture and Fisheries Zone. The forest zone in Bgy Cabangaan with slopes greater than 18% are already alienated land with private titles.

Silang, Cavite: The World Model of Multi-Storey Cropping in Agriculture/Agroforestry

By

Dr. Perfecto Evangelista

This paper presents the thematic maps of Silang for land use, land classification, slope, soil series and soil taxonomy. A SPOT imagery map dated Dec 18, 2008 was presented. The SPOT map showed the upland barangay of Cabangaan, presently delineated as forest land, as already deforested and converted to plantations and grass lands. An updated land use map based on SPOT imagery was presented. The updated land use map showed a total area of 13,834.69 has, less than cited official figures. Of this area, 75.38% is agricultural and open space. Of the 10,163.36 has of agricultural lands, 35% is delineated as Strategic Agriculture and Fisheries Zone. Only 5% of this zoned area can be converted to non-agricultural use. Demand for land for non-agricultural use such as housing is increasing. The current population growth rate of 4.62% will require new residential housing of about 1,300 hectares by 2017. These new settlements will most likely result in the conversion of existing agricultural lands. The northern and eastern barangays, currently designated as general development zone, are areas in transition from agriculture to residential use. Examples of this growing trend are the Ayala West Grove and Cathay Land development in Bgy. Inchican.

Local Policies of Silang on Environment

By

Hon Rosalie B. Loyola, SB-Silang

The Municipality of Silang has enacted several ordinances in relation to solid waste management, waste segregation, creation of the MENRO office, identification and conversion of open dump site to controlled dump site. The solid waste management program of Lumil High School demonstrated best practices in waste recycling and management.

Politics of Land Use in the Philippines

By

Ms. Eileen Belamide Sison, IDEAS

Land use issues in Cavite include forest depletion, biodiversity loss, pollution (in all forms), rapid conversion due to quarrying, mining, conversion to built-up areas, geo-hazards and groundwater depletion. The drivers to unsustainable land use are rapid population growth, urban sprawl, graft & corruption, lack of awareness by citizenry and lack of political will. Examples of good politics in land use is the ban of small scale mining in Puerto Princesa, ban on aerial spraying of banana plantations in Davao City, marine sanctuaries established by LGUs and ban on GMOs such as BT Corn by Bukidnon Province. While examples of bad politics is the building of San Mateo landfill in a watershed, allowing quarrying disguised as “leveling”, permitting a toxic waste facility to operate within a residential area and absence of well studied/updated land use policies at the local level. For Silang Municipality, the challenges include continuing population growth and increase in built-up areas, threat of soil degradation/depletion, threat of flooding and pollution of land and water resources. The challenges for its citizenry include need for long-term thinking, changing “business-as-usual” mindset, electing competent officials and exacting accountability, performance and integrity from government officials. Land use planning should be science-based, combines both short-term and long-term thinking, cognizant of the carrying capacity of natural resources and using participatory approaches in planning.