



Interpretation Guidelines - Indicators for Sustainable Banana and Pineapple Production in the Philippines

Sustainable Agriculture Network

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Sustainable Agriculture Network (SAN):

Conservación y Desarrollo (C&D), Ecuador · Fundación Interamericana de Investigación Tropical (FIIT),
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Mexico · Rainforest Alliance · SalvaNatura, El Salvador

Comments or suggestions about the contents of this document can be sent by electronic mail to:

agstandards@ra.org

Or by post to:

Sustainable Agriculture Network Secretariat
Rainforest Alliance
P.O. Box 11029
1000 San José
Costa Rica

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1. Introduction

1.1 The Sustainable Agriculture Network and the Rainforest Alliance

The Sustainable Agriculture Network (SAN) is a coalition of independent non-profit conservation organizations that promote the social and environmental sustainability of agricultural activities by developing standards. A Certification Body certifies farms that comply with SAN's standards. Each inspection body - authorized by a Certification Body - provides audit services for farmers and agricultural companies in their respective countries. SAN members also offer their knowledge and experience in working towards the development of the Sustainable Agriculture Standard. Rainforest Alliance currently holds the Secretariat for the Sustainable Agriculture Network and coordinates the development and review of standards and related policies for the SAN. Rainforest Alliance also administers the *Rainforest Alliance Certified*TM trademark.

Those farms that can meet the SAN criteria are awarded the *Rainforest Alliance Certified*TM seal of approval. Since 1992, almost 800 certificates for more than 31,000 farms - including small family farms of cooperatives, as well as plantations - in 24 countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Côte d'Ivoire, Dominican Republic, Ecuador, El Salvador, Ethiopia, Guatemala, Honduras, India, Indonesia, Jamaica, Kenya, Mexico, Nicaragua, Panama, Peru, Philippines, Tanzania and Vietnam) have met the SAN standards on almost 600,000 ha for 22 crops: coffee, cocoa, banana, tea, pineapple, flowers and foliage and citrus. Other crops include Açai, Avocado, Aloe Vera, Chestnut, Cupuaçu, Grapes, Guava, Heart of Palm, Kiwi, Macadamia, Mango, Onion, Passion Fruit, Plantain, Rubber and Vanilla.

SAN representatives and their operating countries are: Conservación y Desarrollo (C&D), Ecuador; Fundación Interamericana de Investigación Tropical (FIIT); Guatemala; Fundación Natura, Colombia; ICADE, Honduras; IMAFLORA, Brazil; Pronatura Chiapas, Mexico; SalvaNatura, El Salvador and Rainforest Alliance. Rainforest Alliance is the operating member of the SAN for the time being in Africa and Asia.

1.2 The Sustainable Agriculture Network's Mission

The Sustainable Agriculture Network (SAN) promotes efficient agriculture, biodiversity conservation and sustainable community development by creating social and environmental standards. SAN fosters best management practices across agricultural value chains by encouraging farmers to comply with SAN standards and by motivating traders and consumers to support sustainability.

SAN pursues its mission by:

- Integrating sustainable production of crops and livestock into local and regional strategies that favor biodiversity conservation and safeguard social and environmental well-being.
- Raising awareness among farmers, traders, consumers and business leaders about the interdependencies among healthy ecosystems, sustainable agriculture and social responsibility.
- Impressing upon business leaders and consumers the importance of choosing products grown on environmentally sustainable and socially responsible farms.

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- Stimulating dialog among environmental, social and economic groups, North and South, about the benefits of sustainable agriculture.

2. Standards, Criteria and Indicators

The objective of the Sustainable Agriculture Standard is to provide a measure of each farm's social and environmental performance and agricultural management practices. Compliance is evaluated by audits that measure the degree of the farm's conformity to environmental, social and agricultural practices indicated in the standard criteria.

Standard Structure

- The sustainable agriculture standard consists of ten principles. Each principle is made up of criteria. The criteria describe good practices for social, environmental and agricultural management, and are evaluated by the certification process.
- It is important to emphasize that compliance with the standard is evaluated by comparison with the criteria, not with the indicators. Criteria are binding for the compliance evaluation process, whereas indicators are not.
- On the other hand, indicators just "indicate" how good or unacceptable management practices appear, and often contain examples of both good and unacceptable social and environmental practices. In this way the indicators guide the farm in its efforts to comply with the standard and may change according to the conditions of different countries, regions or cultures.

3. Objectives and Use of Interpretation Guidelines

How the *Standard for Sustainable Agriculture* with its criteria is interpreted and applied to particular situations is determined by *Interpretation Guidelines*. Two types of guidelines exist: 1.) Generic interpretation guidelines and 2.) Local Interpretation Guidelines.

- Generic Interpretation Guidelines provide guidance for farmers and group administrators how to implement the Sustainable Agriculture Standard on their farms.
- Interpretation Guidelines – generic and local - only contain indicators. They are not binding for certification processes, but they are important for implementing good agricultural practices on farms and provide more detailed guidance during audit processes.
- Local Interpretation Guidelines interpret the binding criteria of the standard for local conditions or a specific crop and are developed by a local Workgroup.

The development of Local Interpretation Guidelines is led by Workgroups which are coordinated by SAN's Secretariat and organized by the local SAN representative. The balance of interest among the different stakeholders possibly influenced by these guidelines is assured and approved by SAN's Board of Directors. SAN's Secretariat coordinates the writing of local and generic interpretation guidelines. The final version of guidelines is approved by the Secretariat.

The members of Workgroups that develop Local Interpretation Guidelines have to comply with the following requirements:

- Understanding and support for SAN's mission and vision.
- Knowledge and experience with respect to the topics under discussion.

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- Comprehension of the potential influence that this document can have.
- Representation of the different points of view of interested stakeholders.

These workgroups gather specific input for local interpretation guidelines, such as:

- Best farm management practices for ecosystem conservation in the region.
- Information about native trees that can be used in reforestation efforts.
- Local legislation regarding protection of ecosystems, riparian zones, endangered plants and animals, deforestation and reforestation. Also, information about local and regional conservation programs, protected areas, watersheds and corridors.
- Information about local diseases, pests, necessary agricultural practices and other factors that can influence the economic sustainability of farms.
- Local labor and occupational health laws executed by the local health and labor ministries or related authorities that can orient farms to implement their social policies.
- Best practices for erosion prevention and waste management.

4. Structure of this Document

These Interpretation Guidelines define the country, where the respective indicators are applicable (section 5.1). Section 5.2 (Preceding) explains how the initiative to develop these local indicators was justified. The following section 5.3 summarizes the management aspects covered by the criteria of the SAN Sustainable Agriculture Standard that are interpreted by the local indicators. The main chapter (section 6) of the document defines the local indicators that interpret the relevant SAN criteria for the determined region. Finally, applicable legislation and other information are referenced in the Annexes.

5. Scope of these Interpretation Guidelines

5.1 Geographical Scope

These Interpretation Guidelines have been specifically designed for banana and pineapple production in the Philippines.

5.2 Preceding

After the first *Rainforest Alliance Certified*TM certification of banana and pineapple plantations in 2006 in the Philippines, producers felt the need to interpret SAN's Sustainable Agriculture Standard for the social and environmental conditions that reign the Mindanao region of the Philippines.

The initiative to write the Local Indicators for Sustainable Banana and Pineapple Production was started with a workshop that gathered experts in Davao City, Philippines on October 17, 2007. During a brainstorming exercise, the aspects mentioned in section 5.3 were prioritized and it was decided that they need further interpretation through local indicators.

A second workshop took place on August 14, 2008 at the Waterfront Hotel, Davao City. The participation of interested stakeholders was balanced with the participation not only of banana and pineapple producers, but government representatives from the Fertilizer and Pesticide Authority,

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Agriculture Ministry, EMB, as well as University representatives, which resulted in the analysis of the following issues:

- Buffer zones next to roads and housing areas for pineapple and banana plantations
- Hunting of wildlife
- Erosion control
- Permitted pesticides
- Permit for water uses
- Clean water act
- Clean air act

A third workshop was held on October 17, 2008 at the IFC office, Davao City. This workshop was attended by the technical working group which had been previously appointed by the indicator development group. There was a balanced representation with the presence of banana and pineapple producers, government representatives from the Fertilizer and Pesticide Authority, Department of Environment and Natural Resources, Environmental Management Bureau (EMB), as well as University representatives.

The topics of discussion were:

1. A list of pesticides that should be considered banned on farms in the Philippines seeking and maintaining *Rainforest Alliance Certified*TM certification.
2. Structure and dimensions of buffer zones in banana and pineapple farms in the Philippines seeking and maintaining *Rainforest Alliance Certified*TM certification.

A fourth and final workshop was held on December 16, at the IFC office, Davao City. The participation of interested stakeholders was similar to the third workshop. The workshop provided some helpful specification of national law references and additional comments.

IFC office staff collected and provided the desired legal reference documents in January 2009. The final draft of the document was completed during a meeting on February 6, 2009 at the IFC office in Davao City, Philippines.

5.3 Covered Aspects

The following aspects are subject to local interpretation in this document:

1. Ecosystem Conservation
2. Wildlife Protection
3. Water Conservation
4. Occupational Health and Safety
5. Community Relations
6. Integrated Crop Management
7. Soil Management and Conservation
8. Integrated Waste Management

6. Indicators for Sustainable Banana and Pineapple Production in the Philippines

The following tables are organized by the relevant principle of the Sustainable Agriculture Standard and contain two columns:

1. Left column: The relevant section of the criterion is referenced in bold letters (as a textual copy of the official SAN standard),
2. Right column: The local indicators that interpret the relevant binding criteria for the environmental and social conditions in the specific region.

6.2 Ecosystem Conservation

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>2.1 Critical Criterion. All existing natural ecosystems, both aquatic and terrestrial, must be identified, protected and restored through a conservation program. The program must include the restoration of natural ecosystems or the reforestation of areas within the farm that are unsuitable for agriculture.</p> <p>2.2 Critical Criterion. The farm must maintain the integrity of aquatic or terrestrial ecosystems inside and outside of the farm, and must not permit their destruction or alteration as a result of management or production activities on the farm.</p> <p>2.3 Production areas must not be located in places that could provoke negative effects on national parks, wildlife refuges, biological corridors, forestry reserves, buffer zones or other public or private biological conservation areas.</p>	<p>I. Department Administrative Order No. 25, Series of 1992 (National Integrated Protected Areas System (NIPAS) Implementing Rules and Regulations) applies (See Annex 1).</p> <p>II. Davao City Watershed Code (“Resolution No. 03253-07, Series of 2007”) prohibits the conversion of all land parcels classified as conservation areas and also banned human settlements, except for housing and administrative facility for research. The code imposes an additional environmental tax (Article 17) and provides for a 3-year gradual phase out for companies which have planted bananas in watershed areas in Davao City. There are also specific requirements for monocultures on prime agricultural areas (Article 10). The 16 conservation areas are: Tamugan-Panigan Watershed areas, Tamugan-Davao River floodplains and terraces, Suawan floodplains, Mts. Makabol-Alikon Area, Malagos Watershed Area, Upper Talomo River, Subasta-Sirib, Tagakpan, Lipadas River, Tagluno Creek, Tagurano aream Kilate-Bato and Banod areas, Bayabas, Sibulan-Baracatan area and the Mt. Apo Natural Park.</p> <p>III. Republic Act No. 8435 (Agriculture and Fisheries Modernization Act) applies: Section 12. Protection of Watershed Areas: All watersheds that are sources of water for existing and potential irrigable areas and recharge areas of major aquifers identified by the Department of Agriculture and the Department of Environment and Natural Resources shall be preserved as such at all times.</p> <p>IV. Bukidnon Provincial Code on Mt. Kitanglad (Republic Act No. 8978, dated November 09, 2000) applies.</p> <p>V. Reference to Environmental Compliance Certificate (ECC) for companies above 100 ha (“Annex 2-30a Standard ECC Format & Content – with Supplementing Guidelines on Decision Making”) and Certificate of Non-Coverage (CNC) for farms below 100 ha (“Annex 2-31 Standard Format and Content of Certificate of Non-Coverage (CNC)”) has to be considered by farms.</p>

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Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>2.5 There must be a minimum separation of production areas from natural terrestrial ecosystems where chemical products are not used. A vegetated protection zone must be established by planting or by natural regeneration between different permanent or semi-permanent crop production areas or systems. The separation between production areas and ecosystems as defined in Annex 1 (of Sustainable Agriculture Standard) must be respected.</p> <p>2.6 Aquatic ecosystems must be protected from erosion and agrochemical drift and runoff by establishing protected zones on the banks of rivers, permanent or temporary streams, creeks, springs, lakes, wetlands and around the edges of other natural water bodies. Distances between crop plants and aquatic ecosystems as indicated in Annex 1 (of Sustainable Agriculture Standard) must be respected. Farms must not alter natural water channels to create new drainage or irrigation canals. Previously converted water channels must maintain their natural vegetative cover or, in its absence, this cover must be restored. The farm must use and expand vegetative ground covers on the banks and bottoms of drainage canals.</p>	<p>I. The following Philippine Regulations for buffer zones apply:</p> <ul style="list-style-type: none"> a. Department Administrative Order No. 25, Series of 1992: National Integrated Protected Areas System (NIPAS) Implementing Rules and Regulations (see Annex 1). b. DENR Administrative Orders No. 92-13 Regulations Governing the Establishment of Buffer Zones within Forestlands (see Annex 2). c. Republic Act No. 8435 – Agriculture and Fisheries Modernization Act of 1997. d. Davao City Watershed Code (reference to 2.1 II) which also provides regulation on the establishment of buffer zones. e. Davao City Zoning Ordinance (see Annex 2). f. Department of Environment and Natural Resources Administrative Order 99-21 (see Annex 3). <p>II. About DENR Administrative Order No. 92-13 (Regulations Governing the Establishment of Buffer Zones within Forestland): This Order was issued to ensure the sustainability of the remaining forest resources by establishing buffer zones between the boundary of production forests and areas used for agricultural and other purposes.</p>

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Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>2.7 The farm must establish and maintain vegetation barriers between the crop and areas of human activity, as well as between production areas and on the edges of public or frequently traveled roads passing through or around the farm. These barriers must consist of permanent native vegetation with trees, bushes or other types of plants, in order to promote biodiversity, minimize any negative visual impacts and reduce the drift of agrochemicals, dust and other substances coming from agricultural or processing activities. The distance between the crop plants and areas of human activity as defined in Annex 1 (of Sustainable Agriculture Standard) must be respected.</p>	<p>I. The passage of the Ordinance 0309-07 titled “Banning Aerial Spraying as an Agricultural Practice in all Agricultural Activities by all Agricultural Entities in Davao City” on March 23, 2008 prohibits the use of aerial spraying as a mode of applying chemicals, mainly pesticides, in the banana and other plantations. According to a newspaper article (Sun Star Davao, dated January 13, 2009) this ordinance was declared unconstitutional on January 9th, 2009 by the Court of Appeals in Cagayan de Oro City, while the Davao City government “is gearing up to bring the battle to the Supreme Court”. The areas affected by this ordinance under legal dispute are located mostly in the districts of Baguio, Calinan and Marilog in the northwest, in Mandug and Callawa area in north-central Davao City, and in Toril in the southwest. The ban gave plantation owners and banana growers three months to shift to any mode of application and required them to set aside 30 meters in the perimeters of their plantations as buffer zone that should be planted with “diversified trees that grow taller than what are usually planted and grown in the plantation to protect those within adjacent fields, neighboring farms, residential areas, schools and workplaces.” (Source: Ordinance No. 0309-07, section 3 e)</p> <p>II. Annex 4 advises on a suitable design and plant species to be used for buffer zones and vegetative barriers that minimize pesticide drift and odor.</p>

6.3 Wildlife Protection

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>3.1 An inventory of wildlife and wildlife habitats found on the farm must be created and maintained.</p>	<p>I. Farms promote the participation of communities in wildlife inventories and wildlife management planning.</p>
<p>3.2 Ecosystems that provide habitats for wildlife living on the farm, or that pass through the farm during migration, must be protected and restored. The farm takes special measures to protect threatened or endangered species.</p>	<p>I. Farms consider wildlife species as elements of pest control and indicators for agro-ecosystem health. II. Farms respect the contents of Republic Act 9147 (see Annex 5).</p>
<p>3.3 Critical Criterion. Hunting, capturing, extracting and trafficking wild animals must be prohibited on the farm. Cultural or ethnic groups are allowed to hunt or collect fauna in a controlled manner and in areas designated for those purposes under the following conditions:</p> <ul style="list-style-type: none"> a. The activities do not involve species in danger of or threatened with extinction. b. There are established laws that recognize the rights of these groups to hunt or collect wildlife. c. Hunting and collection activities do not have negative impacts on the ecological processes or functions important for agricultural and local ecosystem sustainability. d. The long-term viability of the species' populations is not affected. e. These activities are not for commercial purposes. 	<p>I. Sections 7, 23 and 27 of Republic Act 9147 (see Annex 5) apply.</p>
<p>3.4 The farmer must keep an inventory of the wild animals held in captivity on the farm, and implement policies and procedures to regulate and reduce their tenancy. Endangered or threatened species must not be held in captivity.</p>	<p>I. Sections 8 and 26 of Republic Act 9147 apply (see Annex 5).</p>
<p>3.6 Farms that reintroduce wildlife into natural habitats must have the appropriate permit from the relevant authorities and comply with the conditions established by law, or reintroduce the animals via duly authorized and established programs. A competent professional must advise the farm on release practices. Exotic wildlife must not be introduced into the farm.</p>	<p>I. Sections 12 and 13 of Republic Act 9147 apply (see Annex 5).</p>

6.4 Water Conservation

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>4.1 The farm must have a water conservation program that ensures the rational use of water resources. The program activities must make use of the best available technology and resources. It must consider water re-circulation and reuse, maintenance of the water distribution network and the minimizing of water use. The farm must keep an inventory and indicate on a map the surface and underground water sources found on the property. The farm must record the annual water volume provided by these sources and the amount of water consumed by the farm.</p>	<p>I. Farms filter and recycle the water used in packing plants for fruit washing in order to minimize water use and track their water consumption through proper records. II. Farms comply with the provisions of the Republic Act 9275 for a comprehensive water quality management and for other purposes.</p>
<p>4.2 All surface or underground water exploited by the farm for agricultural, domestic or processing purposes must have the respective concessions and permits from the corresponding legal or environmental authorities.</p>	<p>I. Farms comply with the provisions of the Republic Act 9275 for a comprehensive water quality management and for other purposes.</p>
<p>4.4 The farm must have appropriate treatment systems for all wastewaters it generates. The treatment systems must comply with applicable national and local laws and have the respective operating permits. There must be operating procedures for industrial wastewater treatment systems. All packing plants must have waste traps that prevent the discharge of solids from washing and packing into canals and water bodies.</p>	<p>I. Farms comply with the provisions of Sections 16 and 27 of the Republic Act 9275 for a comprehensive water quality management and for other purposes, as well as relevant other sections. II. For residual waters, also Department Administrative Orders 34 and 35 for the Effluent Standards apply.</p>
<p>4.7 Critical Criterion. The farm must not deposit into natural water bodies any organic or inorganic solids, such as domestic or industrial waste, rejected products, construction debris or rubble, soil and stones from excavations, rubbish from cleaning land, or other materials.</p>	<p>I. Farms comply with the provisions of Section 27 of the Republic Act 9275 for a comprehensive water quality management and for other purposes, as well as relevant other sections. II. Where nematicide application is necessary, farms take all measures to avoid water contamination, avoiding unfavorable climatic conditions and using nematicide injection instead of granular applications.</p>

6.5 Occupational Health and Safety

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>6.4 Workers that carry out activities identified as being dangerous or a health risk in the occupational health and safety program, or those that require special skills such as the handling and application of agrochemicals, carrying heavy loads or using agricultural machinery or equipment, must receive a medical check-up at least annually to guarantee physical and mental capacities for such work. Workers must have access to the results of their medical examinations.</p> <p>6.5 Personnel who apply or handle agrochemicals must have examinations necessary to determine the potential effects of the agrochemicals they handle before initiating such activities on the farm. These workers must not suffer from chronic diseases, hepatitis or renal diseases, or respiratory diseases nor have been declared mentally challenged. Only males between the ages of 18 and 60 are permitted to apply agrochemicals. On farms where organophosphates and carbamates are applied, cholinesterase examinations must be carried out every six months or as stipulated by law, whichever is more frequent. The examination results must be documented in a manner in which the following information is easily found: name of examined worker, examination date and results, and any recommendations regarding the worker's capacity to apply agrochemicals. Workers must have access to the examination results and must be assigned to other activities if the recommendations indicate that they are unfit to apply these products.</p>	<p>I. Section 4.6.b of the <i>Pesticide Regulatory Policies in the Philippines</i> (Source: FPA) applies: Health examination -</p> <ul style="list-style-type: none"> a. Pre placement, periodic and exit health examinations are required for all personnel working with pesticides. b. Workers exposed to Categories I and II pesticides shall have semi-annual examinations consisting of complete medical examinations, hematologic, liver and kidney function tests. For those exposed to Categories III and IV pesticides shall have annual medical and laboratory examinations.

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>6.15 The farm must take permanent actions to protect workers, neighbors and other persons from the effects of the application of agrochemicals and biological or organic inputs. The farm must identify the groups that are most exposed to applications and have mechanisms for alerting them well in advance regarding application dates and areas and the time periods during which entry to these areas is restricted. Access to these areas must be prevented by warning signs with symbols or by other safety indications. The farm must implement an application schedule in order to prevent undue entrance of unauthorized persons into the application area. The workers know and respect the restricted entry intervals, and quarantine and pre-harvest periods stipulated in the Material Safety Data Sheet for applying agrochemicals. For products that do not have restricted entry periods in the Material Safety Data Sheet, the following restricted entry intervals must be applied:</p> <ul style="list-style-type: none"> a. WHO class III and IV technical grade active ingredients of pesticides: between 4 and 12 hours. b. WHO class II technical grade active ingredients of pesticides: between 24 and 48 hours. c. WHO class Ia and Ib technical grade active ingredients of pesticides: between 48 and 72 hours. <p>When two products with different restricted entry or pre-harvest application intervals are used at the same time, the longest interval and the strictest quarantine procedures must be applied. Spray booms must have a colored sign, visible from 30 meters, that corresponds to the toxicity of the product being applied or to that of the most toxic product in the application mix.</p>	<ul style="list-style-type: none"> I. Aerial spray operation is not applied for any pineapple plantation. II. Aerial spray operation on banana plantations is stopped if: <ul style="list-style-type: none"> a. Wind velocity exceeds 3 mph (4.8 km/h). b. Air temperature in the shade reaches 28 °C (84 °F). c. Rain is expected to fall in 2-3 hours. d. Droplet coverage is less than 50 - 70 droplets/cm² for contact fungicides or 20 - 30 droplets/ cm² for systemic fungicides. III. Aircraft flying height is 6 to 8 meters above the banana canopy with a flying speed of 100 - 110 mph and a delivery rate of 23 to 30 liters solution per hectare (calibrated). IV. DOLE (Department of Labour and Employment) 2.63 guideline on occupational health.

6.6 Community Relations

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>7.2 The farm must implement and carry out policies and procedures for identifying, consulting and considering the interests of local populations and community interest groups regarding farm activities or changes that could have a negative impact on their quality of life or on local natural resources.</p>	<p>I. Farms assure that communities are well informed and understand the risks and the farm's risk mitigation activities with respect to aerial fumigation and other pesticide applications.</p> <p>II. Farms promote the formal consultation of elder people (retired workers or employees, community members) in consultation processes, e.g. through a Council of Elders.</p>
<p>7.5 The farm must help with local environmental education efforts and must support and collaborate with local research in areas related to this standard.</p>	<p>I. Farms reinforce the environmental awareness of neighboring communities through environmental education outreach programs.</p>

6.7 Integrated Crop Management

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>8.1 The farm must have an integrated pest-management program based on ecological principles for the control of harmful pests (insects, plants, animals and microbes). The program must give priority to the use of physical, mechanical, cultural and biological control methods, and the least possible use of agrochemicals. The program must include activities for monitoring pest populations, training personnel that monitor these populations, and integrated pest management techniques. As part of the program, the farm must collect and record the following information about pest infestations: infestation dates, duration, area and location; type of pest; the control mechanisms employed; environmental factors during the infestation; and damage caused and estimated costs of damage and control.</p>	<p>I. Weed control may not be necessary in all cases, but if necessary is conducted through manual weeding and establishment of cover crops. II. Ants are baited instead of controlled with insecticides. III. “Moko” (bacterial wilt) disease is controlled with the use of fire for pest and disease management, if it is the best ecological option. This option is approved by competent authorities, reflects technical considerations and focuses on problematic areas only.</p>
<p>8.4 Critical Criterion. The following chemical or biological substances cannot be used on certified farms:</p> <ul style="list-style-type: none"> a. Biological or organic substances that are not legally registered in the country for commercial use. b. Agrochemicals that are not registered officially in the country. c. Agrochemicals that are mentioned in the List of Banned and Severely Restricted Pesticides in the U.S. by its Environmental Protection Agency (EPA) or pesticides banned or severely restricted in the European Union. d. Substances that have been banned globally under the Stockholm Convention on Persistent Organic Pollutants (POPs). e. Substances listed in Annex III of the Rotterdam Convention on Prior Informed Consent (PIC), in relation to national bans or severe restrictions for documented health or environmental reasons in at least two regions of the World. f. All Pesticide Action Network Dirty Dozen substances. 	<p>I. Annexes 6, 7, 8 and 9 apply. II. Prohibited Pesticide List – Sustainable Agriculture Network applies. III. “Pesticide comparison table” (Annex 7).</p>

6.8 *Soil Management and Conservation*

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>9.1 The farm must execute a soil erosion prevention and control program that minimizes the risk of erosion and reduces existing erosion. The program activities must be based on the identification of soils affected by or susceptible to erosion, as well as soil properties and characteristics, climatic conditions, topography and agricultural practices for the crop. Special emphasis must be placed on controlling runoff and wind erosion from newly tilled or planted areas, as well as preventing sedimentation of water bodies. The farm must use and expand vegetative ground covers on the banks and bottoms of drainage canals to reduce erosion and agrochemical drift and runoff towards water bodies.</p> <p>9.5 <i>Critical Criterion.</i> New production areas must only be located on land with the climatic, soil and topographic conditions suitable for intensity level of the agricultural production planned. The establishment of new production areas must be based on land use capacity studies that demonstrate long-term production capacity. The cutting of natural forest cover or burning to prepare new production areas is not permitted.</p>	<p>I. Pineapple farms base their soil erosion program on soil slope maps and analysis of potential soil use.</p> <p>II. Pineapple farms implement contour planting, check dams and sediment traps as measures of erosion control.</p> <p>III. The farm takes measures to minimize the loss of soil due to blowing on newly tilled areas. Tilling is managed so as to minimize soil erosion.</p>
<p>9.3 The farm must use and expand its use of vegetative ground cover to reduce erosion and improve soil fertility; structure and organic material content, as well as minimize the use of herbicides. There must be a vegetative ground cover establishment and expansion plan that indicates the areas with existing cover, as well as areas where cover will be established in the future. The farm must include a timeframe for these activities.</p>	<p>The following indicators apply for pineapple plantations mainly:</p> <p>I. Weed control is conducted through manual weeding and establishment of cover crops.</p> <p>II. Drainage canals have vegetative cover on the banks and bottoms.</p> <p>III. There is no evidence that the farm applies herbicides on the banks or bottoms of the canals to control vegetation.</p> <p>IV. The farm carries out activities to establish ground cover in those canals where it is absent.</p> <p>V. Exotic species adapted to local conditions are used only in cases when it has been proven that the use of native species strongly limits crop development, when propagation materials are not locally available, or when it is proven that the exotic species has a special value for the environment or wildlife.</p>

6.9 Integrated Waste Management

Criteria	Indicators for Banana & Pineapple Production in the Philippines
<p>10.1 The farm must have an integrated waste management program for the waste products it generates. This must be based on the concepts of refusing or reducing the use of products that have actual or potential negative impacts on the environment or human health as well as reusing and recycling waste. As part of this program, the sources and types of waste must be identified and the quantity (weight or volume) must be estimated. The activities of the integrated waste management program must be in accordance with the types and quantities of waste generated.</p>	<p>I. Republic Act 9003 - Ecological Solid Waste Management Act of 2000 applies (see Annex 10).</p>
<p>10.2 The use of open waste dumps and open-air burning of waste is not permitted. The burning of waste products is only allowed in an incinerator designed for that purpose, based on technical studies that determined the size, optimum location and control measures for minimizing the environmental and human health impacts related to its construction and operation. The farm must have the relevant legal permits for the construction and operation of this incinerator, as well as the appropriate operating procedures.</p>	<p>I. Sections 37, 39, 40, 41, 42 and 48 of Republic Act 9003 - Ecological Solid Waste Management Act of 2000 apply (see Annex 10).</p> <p>II. The Philippine Clean Act of 1999 (8749) Section 20 applies: Ban on Incineration. - Incineration, hereby defined as the burning of municipal, bio-medical and hazardous wastes, which process emits poisonous and toxic fumes, is hereby prohibited: Provided, however, That the prohibition shall not apply to traditional small-scale method of community/ neighborhood sanitation "siga", traditional, agricultural, cultural, health, and food preparation and crematoria: Provided, further, That existing incinerators dealing with bio-medical wastes shall be phased out within three (3) years after the effectivity of this Act: Provided, finally, That in the interim, such units shall be limited to the burning of pathological and infectious wastes, and subject to close monitoring by the Department. Local government units are hereby mandated to promote, encourage and implement in their respective jurisdiction a comprehensive ecological waste management that includes waste segregation, recycling and composting. With due concern on the effects of climate change, the Department shall promote the use of state-of-the-art, environmentally-sound and safe non-burn technologies for the handling, treatment, thermal destruction, utilization, and disposal of sorted, non-recycled, non-composted municipal, bio-medical and hazardous wastes.</p>

Annex 1 - Department Administrative Order 92-25

Section 10. Protected Area Management Zoning:

To provide flexibility in management, each protected area and its attached buffer zones shall be divided into one or more of the categories listed below:

- a. **Strict Protection Zone.** - Areas with high bio-diversity value which shall be closed to all human activity except for scientific studies and/or ceremonial or religious use by indigenous communities.
- b. **Sustainable Use Zone.** - Natural areas where the habitat and its associated biodiversity shall be conserved but where consistent with the management plan and with PAMB approval;
- c. **Restoration Zone.** - Areas of degraded habitat where the long term goal will be to restore natural habitat with its associated biodiversity and to rezone the area to a more strict protection level.
- d. **Habitat Management Zones.** - Areas with significant habitat and species values where management practices are required periodically to maintain specific non-climax habitat types or conditions required by rare, threatened or endangered species.
- e. **Multiple-Use Zones.** - Areas where settlement, traditional and/or sustainable land use, including agriculture, agroforestry, extraction activities and other income generating or livelihood activities, may be allowed to the extent prescribed in the management plan. Land tenure may be granted to tenured residents, whether indigenous cultural members or migrants.
- f. **Buffer Zone.** - Areas outside the protected area but adjoining it that are established by law (Section 8 of the Act) and under the control of the DENR through the Park Area Management Board. These are effectively multiple-use zones that are to be managed to provide a social fence to prevent encroachment into the protected area by outsiders. Land tenure may be granted to occupants who qualify. Buffer zones should be treated as an integral part of the protected area in management planning.
- g. **Cultural Zones.** - Areas with significant cultural, religious, spiritual or anthropological values where traditional rights exist and ceremonies and/or cultural practices take place.
- h. **Recreational Zones.** - Areas of high recreational, tourism, educational or environmental awareness values where activities may be allowed as prescribed in the management plan.
- i. **Special Use Zones.** - Areas containing existing installations of national significance, such as telecommunication facilities, irrigation canals or electric power lines. Such installations may be retained subject to mutual agreements among the concerned parties, provided such installations will not violate any of the prohibitions contained in Section 20 of the Act.
- j. **Other management zones** such as may be used in the management plan and approved by the Secretary.

Annex 2 - Davao City Zoning Ordinance

USE REGULATIONS FOR AGRICULTURAL AND PASTURE LAND (Agr) ZONE.

In agriculture zones the following uses shall be permitted:

1. All existing customary urban/ urbanizable areas of all rural barangays provided that:
 - a. The area falls within the 500 meter radius distance from an existing or proposed elementary school sites.
 - b. No industries shall be allowed to be established within the area except uses here under specified.
2. Agro- industrial and other incidental uses directly supportive for a large scale commercial plantation such as processing/ canning, packaging and the like, provided that all requirements of other government agencies concerned for the conduct of such shall strictly be complied with.

ROAD SETBACK REGULATIONS. The following road setback regulations shall be applied:

Zoning Classification	Major Thoroughfare 30 m & above	Secondary Road	Tertiary Road
	Diversion/Railway	Provincial/City	Mun. Brgy. Sub
Residential	10	10	3
Commercial	20	20	7
Industrial	30	25	10
Agricultural	20	20	7
Agro-Industrial	30	25	10
Institutional	20	20	10
Parks & Recreation	10	10	3
Forest	30	25	10

BUFFER REGULATIONS. A buffer of 3 meters shall be provided along entire boundary length between two or more conflicting zones allocating 1.5 meters from each side of the district boundary. Such buffer strip should be open and not encroached upon by any building or structure and should be a part of yard or open space.

BUFFER STRIP / EASEMENT. In the utilization, exploitation, development, conservation and protection of water resource the following setbacks and / or easements along the entire length of the banks of rivers, creeks and streams, shores of the sea, lakes, all waterways shall be observed:

1. Five (5) meters setback along banks of waterways in urban areas except for the portion from the mouth of the Davao River up to the Maa-Marfori Bridge Area which should have a thirty (30) meters wide river easement for road and promenade purposes.
2. Twenty (20) meters easement for the same in all agricultural.
3. Forty (40) meters for forest and conservation areas.
4. Forty (40) meters for shores of the seas, lakes and similar bodies of water.

Annex 3 - Department of Environment and Natural Resources Administrative Order 99-21

Section 1. To insure the preservation of ecological balance and protection of the environment, all concerned shall observe in the processing, verification and approval of isolated and cadastral surveys, the requirements of Section 1 of R.A. No. 1273 which amended Section 90 of C.A. 141 otherwise known as the “Public Land Act”, Section 16 of P.D. No. 705 otherwise known as the “Forestry Code” and Article 51 of P.D. No. 1067 otherwise known as “Water Code of the Philippines, are quoted as follows:

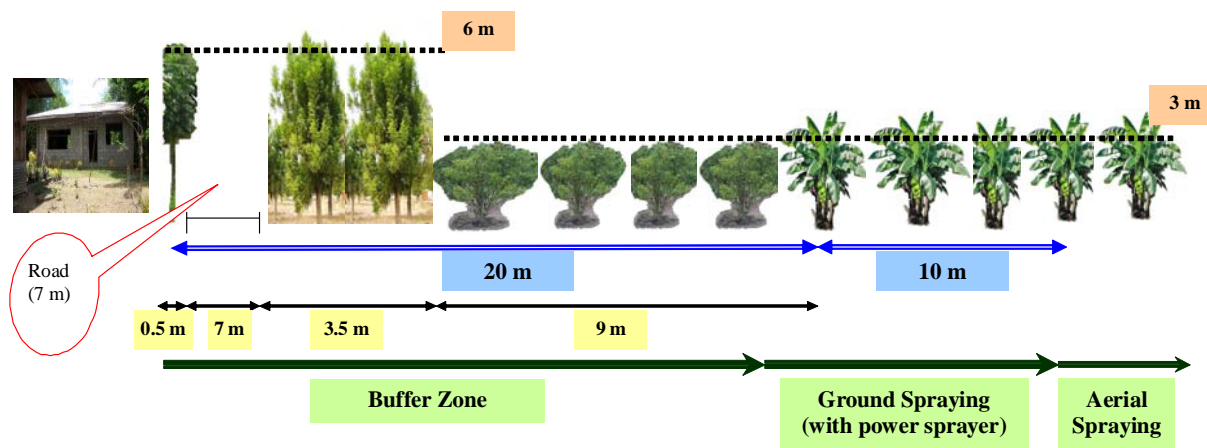
- a. “Section 1 (I) That the applicant agrees that a strip of forty meters wide starting from the bank on each side of any river or stream that may be found on the land applied for shall be demarcated and preserved as permanent timberland to be planted exclusively to trees of known economic value, and that he shall not make any clearing thereon or utilize the same for ordinary farming purposes even after patent shall have been issued to him or a contract lease shall have been executive in his favor.” (R.A. No. 1273)
- b. “Section 16. Areas needed for forest purposes x x x
(7) Twenty-meter strips of land along the edge of the normal high waterline of rivers and streams with channels of at least five (5) meters wide;
(8) Strips of mangrove or swamplands at least twenty (20) meters wide, along shorelines facing oceans, lakes and other bodies of water and strips of land at least twenty (20) meters facing lakes; x x x .” (P.D. No. 705)
- c. “Article 51. The banks of rivers and streams and the shores of the seas, and throughout their entire length and within a zone of three (3) meters in urban areas, twenty (20) meters in agricultural areas and forty (40) meters in forest areas, along their margins, are subject to the easement of public use in the interest of recreation, navigation, floatage, fishing and salvage x x x “ (P.d. NO. 1067).

Annex 4 – Buffer zones and vegetative barriers: plant list and design

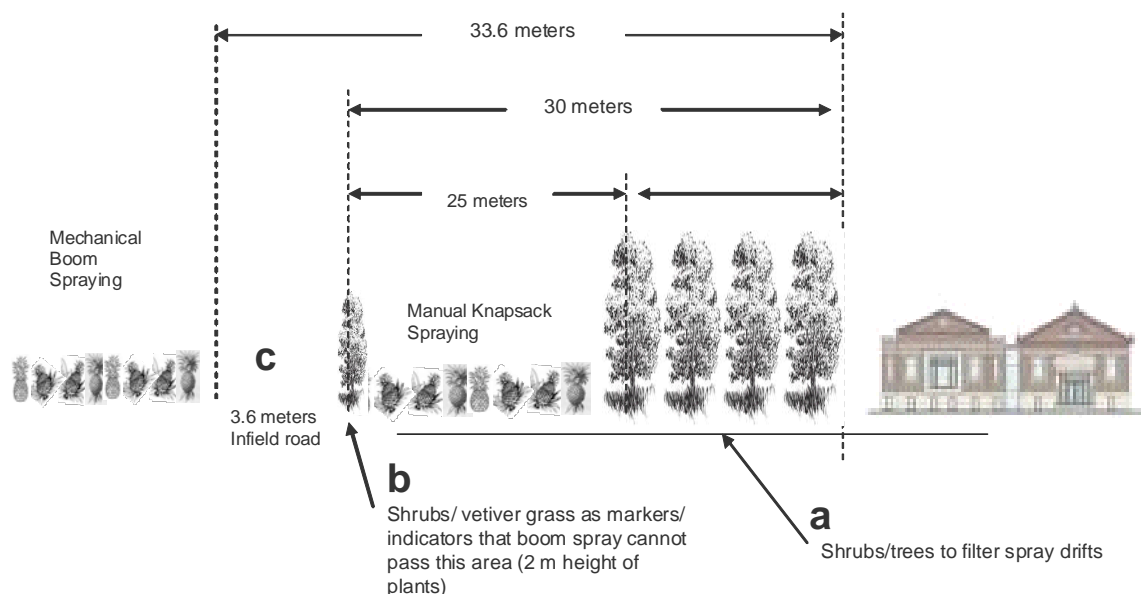
- The following species are suitable for buffer zones, if specifications are applied:

Common Name	Scientific Name	Planting Distance	Width	Desired Height
1. Mahogany	<i>Swietenia macrophylla</i>	3 m	0.5 m	6 m
2. Neem Tree	<i>Azadirachta indica</i>	Kwingkang	3.5 m	6 m
3. Kalamansi (citrus)	<i>Citrus microcarpa</i>	2.5 m x 3 m	9 m	3 m

- For banana plantations the following buffer zone design applies:



- For pineapple plantations the following buffer zone design is field tested, in the case that only fertilizers are applied in the Manual Knapsack-Spraying strip:
 - 5-meter wide buffer zone with enhanced vegetation (Four lines of quincunx with 1x1 meter spacing).
 - 25-meter distance demarcation barrier (shrubs and vetiver grass) from the buffer zone to the end of the block. This will indicate the use of manual knapsack spraying.
 - 3.6-meter wide infield road to separate the areas used for mechanical spraying.



Annex 5 – Republic Act 9147

**Republic of the Philippines
Congress of the Philippines
Metro Manila
Eleventh Congress
Fifth Special Congress**

Begun and held in Metro Manila, on Monday, the nineteenth day of March, two thousand one.

REPUBLIC ACT NO. 9147

AN ACT PROVIDING FOR THE CONSERVATION AND PROTECTION OF WILDLIFE RESOURCES AND THEIR HABITATS, APPROPRIATING FUNDS THEREFORE AND FOR OTHER PURPOSES

SEC. 6. Wildlife Information. - All activities, as subsequently manifested under this Chapter, shall be authorized by the Secretary upon proper evaluation of best available information or scientific data showing that the activity is, or for a purpose, not detrimental to the survival of the species or subspecies involved and/or their habitat. For this purpose, the Secretary shall regularly update Wildlife information through research.

SEC. 7. Collection of Wildlife. - Collection of wildlife may be allowed in accordance with Section 6 of this Act: Provided, That in the collection of wildlife, appropriate and acceptable wildlife collection techniques with least or no detrimental effects to the existing wildlife populations and their habitats shall, likewise, be required: Provided, further, That collection of wildlife by indigenous people may be allowed for traditional use and not primarily for trade: Provided, furthermore, That collection and utilization for said purpose shall not cover threatened species: Provided, finally, That Section 23 of this Act shall govern the collection of threatened species.

SEC. 8. Possession of Wildlife. – No person or entity shall allowed possession of wildlife unless such person or entity can prove financial and technical capability and facility and to maintain said wildlife: Provided that the source was not obtained in violation of this Act.

SEC. 23. Collection of Threatened Wildlife, By-Products and Derivatives. –The collection of threatened wildlife, as determined and listed pursuant to this Act, including its by-products and derivatives, shall be allowed only for scientific, or breeding or propagation purposes in accordance with Section 6 of this Act: Provided, That only the accredited individuals, business, research, educational or scientific entities shall be allowed to collect for conservation breeding or propagation purposes.

SEC. 26. Registration of Threatened and Exotic Wildlife the Possession of Private Persons. - No person or entity shall be allowed possession of wildlife unless such person or entity can prove financial and technical capability and facility to maintain said wildlife. Twelve (12) months after the effectivity of this Act, the Secretary shall set a period, within which persons/entities shall register all threatened species collected and exotic species imported prior to the effectivity of this Act. However, when the threatened species is needed for breeding/propagation or research purposes, the State may acquire the wildlife through a mutually acceptable arrangement.

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After the period set has elapsed, threatened wildlife possessed without certificate of registration shall be confiscated in favor of the government, subject to the penalties herein provided.

All Philippine wildlife which are not listed as threatened prior to the effectivity of this Act but which may later become so, shall likewise be registered during the period set after the publication of the updated list of threatened species.

SEC. 27. Illegal Acts. - Unless otherwise allowed in accordance with this Act, it shall be unlawful for any person to willfully and knowingly exploit wildlife resources and their habitats, or undertake the following acts:

- (a) Killing and destroying wildlife species, except in the following instances;
 - (i) When it is done as part of the religious rituals of established tribal groups or indigenous cultural communities;
 - (ii) When the wildlife is afflicted with an incurable communicable disease;
 - (iii) When it is deemed necessary to put an end to the misery suffered by the wildlife;
 - (iv) When it is done to prevent an imminent danger to the life or limb of a human being; and
 - (v) When the wildlife is killed or destroyed after it has been used in authorized research or experiments.
- (b) Inflicting injury which cripples and/or impairs the reproductive system of wildlife species;
- (c) Effecting any of the following acts in critical habitat(s):
 - (i) Dumping of waste products detrimental to wildlife;
 - (ii) Squatting or otherwise occupying any portion of the critical habitat;
 - (iii) Mineral exploration and/or extraction;
 - (iv) Burning;
 - (v) Logging; and
 - (vi) Quarrying
- (d) Introduction, reintroduction or restocking of wildlife resources;
- (e) Trading of wildlife;
- (f) Collecting, hunting or possessing wildlife, their by-products and derivatives;
- (g) Gathering or destroying of active nests, nest trees, host plants and the like;
- (h) Maltreating and/or inflicting other injuries not covered by the preceding paragraph; and
- (i) Transporting of wildlife.

Annex 6 – FPA Banned Pesticides in the Philippines

1. 2, 4, 5-T
2. Aldrin
3. Azinphos Ethyl
4. Chlordane
5. Chlorodimeform
6. Copper Aceto-Arsenic (Paris Green)
7. DBCP
8. DDT
9. Dieldrin
10. EDB
11. Elemental Phosphorus (White and Yellow)
12. Endrin
13. EPN
14. Gophacide
15. HCH/BHC
16. Heptachlor
17. Leptophos
18. Mercuric Fungicides
19. Parathion-Methyl
20. Parathion-Ethyl
21. Naphthylthiourea (ANTU)
22. Nitrofen
23. Organotin
24. Sodium Fluoroacetate
25. Sodium Fluoroacetate (1801)
26. Strychnine
27. Thallium Sulphate
28. Toxaphene

Source: www.fpa.da.gov.ph (please refer to full list)

Annex 7 - Restricted Pesticides in the Philippines

Note: Underlined active ingredients are prohibited in addition to the SAN Prohibited Pesticide List

Active Ingredient	Specifications
Aldicarb	Importation not allowed except in cases of emergency as determined by the Authority
DDT	All users cancelled except for malaria control purposes by the Department of Health
Endosulfan	Not for use in paddy rice culture. Concentration to be lowered to 5% EC or lower for other uses
Inorganic Arsenicals (Arsenic Trioxide)	For use by FPA Accredited wood treatment and wood preserving plants only
Lindane (Gamma / BHC)	The only allowed use to date is on pineapple plantations by soil pre-plant application
<u>Methyl Bromide</u> <u>Carbon Disulfide</u> <u>Phosphine Generating Compounds</u> <u>HCN Generating Materials</u> Carbon Tetrachloride <u>Chloroform</u> <u>Ethylformate</u>	Adequate time for aeration is required after treatment before commodities are processed into food or feed
Monocrotophos	Allowed use is for bean-fly control only
Paraquat	Restricted for institutional use only. Approval of use will be based on strict compliance by the imported / end-user of the requirements act for its use
Pentachlorophenol	For use in wood treatment only by FPA accredited wood treatment plants and institutions
<u>Phenamiphos</u> <u>Entropop</u> <u>Methidation</u>	For use in banana plantations only

Annex 8 – Pesticides restricted both by SAN and FPA

Pesticides restricted both by SAN and FPA	Remarks
2,3,4,5-bis (2-butylene) tetrahydro-2-furaldehyde [repellent-11]	
2,4,5-T	
2,4,5-TCP (potassium 2,4,5- trichlorophenate)	
Acephate	
Aldicarb	Importation is not allowed by the Philippines except in cases of emergency as determined by FPA
Aldrin	POP
Amitraz	
Arsenic Trioxide	Prohibited by SAN since Nov 2005. Philippines allows use by FPA Accredited wood treatment and wood preserving plants only
Atrazine	
Binapacryl	
Bromoxynil	
Butylate	
Cadmium compounds	
Captafol	
Carbon tetrachloride (restricted use in the Philippines)	Prohibited by SAN since Nov 2005. Restricted use in the Philippines. Adequate time for aeration is required after treatment before commodities are processed into food or feed.
Chloranil	
Chlordane	POP
Chlordecone (kepone)	
Chlordimeform	
Chlorfenapyr	
Chlorobenzilate	
Chloromethoxypropylmercuric-acetate (CPMA)	
Chlozolate	
Cyhalothrin (but not lambda isomers of cyhalothrin)	
Daminozide (alar)	
DBCP	
DDT	POP; All uses cancelled except for malaria control purposes by the Department of Health
Di (phenylmercury) dodeceny succinate (PMDS)	
Dicofol containing less than 78% p, p*-Dicofol or 1 g/kg of DDT and DDT related compounds	
Dieldrin	POP
Dinoseb, its acetate and salts	
Dinoterb	

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Pesticides restricted both by SAN and FPA	Remarks
DNOC (dinithro-ortho-cresol) and its salts (ammonium, potassium, sodium)	
Dustable powder formulations containing a combination of: benomyl at or above 7%, carbofuran at or above 10%, thiram at or above 5% (PIC: 15%)	
Endosulfan	SAN allows for a 3-year phase out until June 30, 2011. In the Philippines, not allowed for use in paddy rice culture. Concentration should be lowered to 5% EC or lower for other uses.
Endrin	POP
EPN	
Ethyl hexyleneglycol	
Ethylene dibromide (1,2-dibromoethane)	
Ethylene dichloride (1,2-dichloroethane)	
Ethylene oxide (oxirane)	
Fenthion	
Fentin Acetate	
Fentin hydroxide	
Fenvalerate	
Ferbam	
Fluoroacetamide	
HCH	
Heptachlor	POP
Hexachlorobenzene (HCB)	POP
Leptophos	
Lindane (gamma-HCH)	Prohibited by SAN since Nov 2005. In the Philippines, the only allowed use is on pineapple plantations by soil pre-plant application.
Malathion	
Maleic hydrazine and its salts, other than choline, potassium and sodium salts; maleic hydrazide containing more than 1 mg/kg of free hydrazine expressed on the basis of the acid equivalent	
Mercury compounds (including mercuric oxide, mercurous chloride (calomel), phenylmercury acetate (PMA), phenylmercuric oleate (PMO), other inorganic mercury compounds: alkyl mercury, alkoxyalkyl and aryl mercury compounds)	Only mercuric fungicide is banned in the Philippines
Methamidophos	
Methyl Parathion (parathion methyl)	
Mevinphos	
Mirex	POP
Monocrotophos	Prohibited by SAN since Nov 2005. In the Philippines, allowed use is for bean-fly control only.

SAN Indicators for Sustainable Banana and Pineapple Production in the Philippines

Pesticides restricted both by SAN and FPA	Remarks
Monolinuron	
Monuron	
Nitrofen	
OMPA (octamethylpyrophosphoramidate)	
Paraquat	Prohibited by SAN since Nov 2005. In the Philippines, restricted for institutional use only. Approval of use will be based on strict compliance by the imported / end-user of the requirements act for its use.
Parathion	Both methyl and ethyl is banned in the Philippines.
Pentachlorophenol and its compounds	Prohibited by SAN since Nov 2005. In the Philippines, usage is allowed in wood treatment only by FPA accredited wood treatment plants and institutions.
Permethrin	
Phosphamidon	
Polychlorinated biphenyls PCB (except mono and dichlorinated)	PCBs are unregulated in the Philippines.
Propham	
Pyrazophos	
Pyriminil (vacor)	
Quintozene	
Safrole	
Silvex	
Simazine	
TDE	
Tecnazene	
Terpene polychlorinates	
Thallium sulphate	
Toxaphene (camphechlor)	POP
Triorganostannic compounds (tributyltin compounds)	
Vinyl chloride	
Zineb	

Annex 9 – Active ingredients unrestricted by FPA to be eliminated until June 30, 2011 (as regulated by SAN)

- | | |
|-----------------------|----------------------------|
| 1. Alachlor | 8. Nonylphenol ethoxylates |
| 2. Cadasufos (ebufos) | 9. Oxydemeton-methyl |
| 3. Carbaryl | 10. Phosalone |
| 4. Carbofuran | 11. Thiodicarb |
| 5. Carbosulfan | 12. Triazophos |
| 6. Dimethenamid | 13. Trichlorfon |
| 7. Haloxyfop-R | |

Annex 10 - Republic Act 9003: Ecological Solid Waste Management Act of 2000

Section 37: Prohibition against the Use of Open Dumps for Solid Waste. No open dumps shall be established and operated, nor any practice or disposal of solid waste by any person, including LGUs, which constitutes the use of open dumps for solid waste, be allowed after the effectiveness of this Act: Provided, That within three (3) years after the effectiveness of this Act, every LGU shall convert its open dumps into controlled dumps, in accordance with the guidelines set in Section 41 of this Act: Provided, further, That no controlled dumps shall be allowed five (5) years following effectiveness of this Act.

Section 39: Guidelines for Controlled Dumps. - The following shall be the minimum considerations for the establishment of controlled dumps:

- (a) Regular inert cover;
- (b) Surface water and peripheral site drainage control;
- (c) Provision for aerobic and anaerobic decomposition;
- (d) Restriction of waste deposition to small working areas;
- (e) Fence, including provision for litter control;
- (f) Basic record-keeping;
- (g) Provision of maintained access road;
- (h) Controlled waste picking and trading;
- (i) Post-closure site cover and vegetation; and
- (j) Hydrogeological siting.

Section 40: Criteria for Siting a Sanitary Landfill. - The following shall be the minimum criteria for the siting of sanitary landfills:

- (a) The site selected must be consistent with the overall land use plan of the LGU;
- (b) The site must be accessible from major roadways or thoroughfares;
- (c) The site should have an adequate quantity of earth cover material that is easily handled and compacted;
- (d) The site must be chosen with regard for the sensitivities of the community's residents;
- (e) The size must be located in an area where the landfill's operation will not detrimentally affect environmentally sensitive resources such as aquifer, groundwater reservoir or watershed area;
- (f) The site should be large enough to accommodate the community's wastes for a period of five (5) years during which people must internalize the value of environmentally sound and sustainable solid waste disposal;
- (g) The site chosen should facilitate developing a landfill that will satisfy budgetary constraints, including site development, operation for many years, closure, post-closure care and possible remediation costs;
- (h) Operating plans must include provisions for coordinating with recycling and resource recovery projects; and
- (i) Designation of a separate containment area for household hazardous wastes.

Section 41: Criteria for Establishment of Sanitary Landfill. – The following shall be the minimum criteria for the establishment of sanitary landfills:

- (a) Liners – a system of clay layers and/or geosynthetic membranes used to contain leachate and reduce or prevent contaminant flow to groundwater;

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- (b) Leachate collection and treatment system – Installation of pipes at the low areas of the liner to collect leachate for storage and eventual treatment and discharge;
- (c) Gas control recovery system – a series of vertical wells or horizontal trenches containing permeable materials and perforated piping placed in the landfill to collect gas for treatment or productive use as an energy source;
- (d) Ground water monitoring well system – wells placed at an appropriate location and depth for taking water samples that are representative of groundwater quality;
- (e) Cover – two (2) forms of cover consisting of soil and geosynthetic materials to protect the waste from long-term contact with the environment:
 - (i) A daily cover place over the waste at the close of each day's operations, and;
 - (ii) A final cover, or cap, which is the material placed over the completed landfill to control infiltration of water, gas emission to the atmosphere, and erosion.
- (f) Closure procedure – with the objectives of establishing low maintenance cover systems and final cover that minimizes the infiltration of precipitation into the waste. Installation of the final cover must be completed within six (6) months of the least receipt of wastes; and
- (g) Post-closure care procedure – During this period, the landfill owner shall be responsible for providing for the general upkeep of the landfill, maintaining all of the landfill's environmental protection features, operating monitoring equipment, remediating groundwater should it become contaminated and controlling landfill gas migration or emission.

Section 42: Operating Criteria for Sanitary Landfills. – In the operation of a sanitary landfill, each site operator shall maintain the following minimum operating requirements:

- (a) Disposal site records of, but not limited to:
 - (1) Records of weights or volumes accepted in a form and manner approved by the Department. Such records shall be submitted to the Department upon request, accurate to within ten percent (10 %) and adequate for overall planning purposes and forecasting the rate of site filling;
 - (2) Records of excavations which may affect the safe and proper operation of the site or cause damage to adjoining properties;
 - (3) Daily log book or file of the following information: fires, landslides, earthquake damage, unusual and sudden settlement, injury and property damage, accidents, explosions, receipt or rejection of unpermitted wastes, flooding, and other unusual occurrences;
 - (4) Record of personnel training; and
 - (5) Copy of written notification to the Department, local health agency, and fire authority of names, addresses and telephone numbers of the operator or responsible party of the site;
- (b) Water quality monitoring of surface and ground waters and effluent, and gas emissions;
- (c) Documentation of approvals, determinations and other requirements by the Department;
- (d) Signs –
 - (1) Each point of access from a public road shall be posted with an easily visible sign indicating the facility name and other pertinent information as required by the Department;
 - (2) If the site is open to the public, there shall be an easily visible sign at the primary entrance of the site indicating the name of the site operator, the operator's telephone number, and hours of operation; an easily visible sign at an appropriate point shall indicate the schedule of charges and the general types of materials which will be accepted or not;

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(3) If the site is open to the public, there shall be an easily visible road sign and/or traffic control measures which direct traffic to the active face and other areas where wastes or recyclable materials will be deposited; and (4) Additional signs and/or measures may be required at a disposal site by the Department to protect personnel and public health and safety

- (e) Monitoring of quality of surface, ground and effluent waters, and gas emissions;
- (f) The site shall be designed to discourage unauthorized access by persons and vehicles by using a perimeter barrier or topographic constraints. Areas within the site where open storage or ponding of hazardous materials occurs shall be separately fenced or otherwise secured as determined by the Department. The Department may also require that other areas of the site be fenced to create an appropriate level of security;
- (g) Roads within the permitted facility boundary shall be designed to minimize the generation of dust and the tracking of materials onto adjacent public roads. Such roads shall be kept in safe condition and maintained such that vehicle access and unloading can be conducted during inclement weather;
- (h) Sanitary facilities consisting of adequate number of toilets and hand washing facilities, shall be available to personnel at or in the immediate vicinity of the site;
- (i) Safe and adequate drinking water supply for the site personnel shall be available;
- (j) The site shall have communication facilities available to site personnel to allow quick response to emergencies;
- (k) Where operations are conducted during hours of darkness, the site and/or equipment shall be equipped with adequate lighting as approved by the Department to ensure safety and to monitor the effectiveness of operations;
- (l) Operating and maintenance personnel shall wear and use appropriate safety equipment as required by the Department;
- (m) Personnel assigned to operate the site shall be adequately trained in subject pertinent to the site operation and maintenance, hazardous materials recognition and screening and heavy equipment operations, with emphasis on safety, health, environmental controls and emergency procedures. A record of such training shall be placed in the operating record;
- (n) The site operator shall provide adequate supervision of a sufficient number of qualified personnel to ensure proper operation of the site in compliance with all applicable laws, regulations, permit conditions and other requirements. The operator shall notify the Department and local health agency in writing of the names, addresses, and telephone number of the operator or responsible party. A copy of the written notification shall be placed in the operating record;
- (o) Any disposal site open to the public shall have an attendant present during public operating hours or the site shall be inspected by the operator on a regularly scheduled basis, as determined by the Department;
- (p) Unloading of solid wastes shall be confined to a small area as possible to accommodate the number of vehicles using the area without resulting in traffic, personnel, or public safety hazards. Waste materials shall normally be deposited at the toe of the fill, or as otherwise approved by the Department;
- (q) Solid waste shall be spread and compacted in layers with repeated passages of the landfill equipment to minimize voids within the cell and maximize compaction. The loose layer shall not exceed a depth approximately two feet before compaction. Spreading and compacting shall be accomplished as rapidly as practicable, unless otherwise approved by the Department;

SAN Indicators for Sustainable Banana and Pineapple Production in the Philippines

- (r) Covered surfaces of the disposal area shall be graded to promote lateral runoff of precipitation and to prevent ponding. Grades shall be established of sufficient slopes to account for future settlement of the fill surface. Other effective maintenance methods may be allowed by the Department; and
- (s) Cover material or native material unsuitable for cover, stockpiled on the site for use or removal, shall be placed so as not to cause problems or interfere with unloading, spreading, compacting, access, safety, drainage, or other operations.

Section 48: Prohibited Acts. – The following acts are prohibited:

- (1) Littering, throwing, dumping of waste matters in public places, such as roads, sidewalks, canals, esteros or parks, and establishment, or causing or permitting the same;
- (2) Undertaking activities or operating, collecting or transporting equipment in violation of sanitation operation and other requirements or permits set forth in or established pursuant to this Act;
- (3) The open burning of solid waste;
- (4) Causing or permitting the collection of non-segregated or unsorted waste;
- (5) Squatting in open dumps and landfills;
- (6) Open dumping, burying of biodegradable or non-biodegradable materials in flood-prone areas;
- (7) Unauthorized removal of recyclable material intended for collection by authorized persons;
- (8) The mixing of source-separated recyclable material with other solid waste in any vehicle, box, container or receptacle used in solid waste collection or disposal;
- (9) Establishment or operation of open dumps as enjoined in this Act, or closure of said dumps in violation of Sec. 37;
- (10) The manufacture, distribution or use of non-environmentally acceptable packaging materials;
- (11) Importation of consumer products packaged in non-environmentally acceptable materials;
- (12) Importation of toxic wastes misrepresented as “recyclable” or “with recyclable content”;
- (13) Transport and dumping in bulk of collected domestic, industrial, commercial and institutional wastes in areas other than centers of facilities prescribed under this Act;
- (14) Site preparation, construction, expansion or operation of waste management facilities without an Environmental Compliance Certificate required pursuant to Presidential Decree No. 1586 and this Act and not conforming with the land use plan of the LGU;
- (15) The construction of any establishment within two hundred (200) meters from open dumps or controlled dumps or sanitary landfills; and
- (16) The construction or operation of landfills or any waste disposal facility on any aquifer, groundwater reservoir or watershed area and or any portions thereof.