

CHAPTER 42

COMMUNITY AESTHETICS; BUILDING DESIGN; LANDSCAPE MANAGEMENT; AND OUR COMMUNITY PARKS

42. 1. AESTHETICS AND DESIGN

42. 1. 1. Introduction

In this, our last chapter, we introduce the two integrated concepts of **aesthetics** (sometimes written as esthetics) and **design**. We discuss these as they relate to our communities' buildings and landscaped areas.

We also discuss the reasons why we establish our parks and conservation areas and the difficulties we commonly have with vandalism, especially graffiti. Finally, we provide some concluding remarks to our book as a whole.

Both design and aesthetics entail one's development of a vision of how things should look. This includes a vision of how various project elements connect together as a unit; how they will fit into a new planned landscape or building in a harmonious way.

Once architects have established such a vision, they maintain it as they detail each exterior and interior element. This is referred to as maintaining design consistency.

Designers apply their knowledge of what goes well together and what does not. They have a good understanding of how different materials can be used to achieve their goals. Designers attempt to make sure that problematic matters, including maintenance requirements and upkeep costs, are kept to a minimum.

When preparing to put a project's first sketches onto blank paper — planners, architects, designers, and engineers in all fields — consider the aesthetic elements of color, texture, pattern, form, and dimension [2-dimension (2D) and 3-dimension (3D)].

42. 1. 2. Defining Aesthetics and Design

Design means envisioning and drawing. Design means turning concepts from one's imagination (images within the mind) into a physical medium that others can understand and work from. Most often the medium is paper. More and more frequently however, designers use computer terminals with an electronic drawing board and a printer/plotter.



Aesthetics and design includes a vision of how various project elements connect together as a unit which is harmonious.

Aesthetics refers to the way we humans perceive the form of things; how we feel about their relative ‘artistry’. If the presented form of something is pleasing to us it is aesthetic; if not, well...then it is not.

Aesthetics is one of the realms of philosophy concerned with valuing. Specifically it searches for the principles governing the creation and appreciation of beautiful things. You may remember our earlier discussions on the economic processes of valuing.

In essence, that which we desire, we value. When we discuss community aesthetics, we focus on the aspects and elements that we desire for our community.

Each day the principles of aesthetics and design are being applied both to our natural environment and to our built environment. Our community’s architects, civil engineers, landscape architects, and community planners do this regularly. This work is a major part of determining the direction of our island’s development. (Recall our earlier definition of development.)

42. 1. 3. Design’s Key Watch Words

(1) Function well (2) Look good! These are the two main watch phrases of aesthetics and design. Yet there is a third, more psychological in nature... (3) feel good.

Architects and planners design new environments people will live and work in. They also re-design landscapes and re-design existing structures that do not function or look the way their financing client desires. These clients include both public agencies and private businesses.

Applying good planning and good design also means not having to redo and reconstruct projects due to design flaws or construction mistakes. Do it right the first time. Avoid waste. These are also design watch-phrases.

Engineers and architects know how important it is to watch over every detail during the development phase of their projects. If they didn’t, what the designer designed might not be what the builder builds.

Most architects, engineers, and builders place a high priority on having frequent meetings. These meetings are well organized and are an effective part of the policy and information transfer process.

Likewise, frequent site inspections are an important part of the quality assurance and quality control process. Such oversight is vital to good A&E (Architectural and Engineering) work.

42. 1. 4. Design Elements

As mentioned, planners, architects, and engineers apply design consistency and other aesthetics principles to projects they are involved with.

Colors and patterns that compliment each other and don’t ‘clash’ - - so to speak — should be incorporated into project designs. Com-



Architects and planners design new environments where people will live...



...and work.

patible textures, form consistency, and the three dimensional concept of depth, should also be incorporated.

More and more commonly, as ‘designers design’ and ‘planners plan’, provisions for energy and water conservation are being considered. These are discussed in more detail below.

42. 1. 5. Our Commonwealth’s Common Architectural Themes

Principles of function, form, and architectural style each help to guide the design of our buildings. Here in the Marianas we often employ the traditional Spanish rancho style to our homes and commercial buildings.

These have the familiar red tile roof and plastered white or simulated adobe-brick walls.

Energy-wise however, red tile roofs do not function well at all. These roofs absorb far too much of our tropical solar rays. Because of our typhoon-protection needs, we often over-seal our houses. This results in our houses functioning more like ovens than homes. (Read more on this below). Aesthetics = good, function = poor.

The high rise glass and steel architectural style of modern buildings is also becoming more and more common. As discussed below, these also have serious energy requirement concerns.

Most of our bulky buildings, such as the major hotels and large commercial buildings, are intentionally ‘softened’ by well-designed, spacious ground floor interiors and garden-like landscapes.

Architects often apply a tropical decor look. Designers include lush soil-planted or container-grown flowering plants, open air courtyards, and both planted bamboo and bamboo fences.

Incorporated into their landscape design are free-flowing ‘stream waters’, within-courtyard pools stocked with tropical fish and tropical vegetation-lined wide walkways. Outdoor ‘Tiki’ torch lights are used to help set the tropical feel for one’s evening enjoyment.

In each case (Spanish, modern, tropical), architects envision how their finished building will appear and how those who would use the facility might desire it to feel for working and recreating in.

42. 1. 6. Considering the Neighborhood

Designers also consider the neighboring community in their designs. As we’ve learned from our previous chapters, communities can have an important say on whether or not proposed buildings will be allowed by our permitting authorities.

Because of this and for other reasons — before putting their pencils to paper — architects consider how proposed buildings should best be designed to fit in with the existing neighborhoods. They do their best, as well, to integrate each project into the natural landscape as a whole.

Following the initial drawing stage, architects present their designs to their financing client — be it a private firm or a public



Here in the Marianas we often employ the familiar red tile roof and plastered white or simulated adobe-brick walls.



Architects often apply a tropical look.

agency. If accepted, designs are incorporated as the key planning element of the project. The whole package is ultimately submitted for review by our government's integrated permitting agencies. As identified earlier, these presently include our Coastal Resources Management Program and our Building Safety Code Program.

42. 2. HOW TO DESIGN BUILDINGS FOR OUR ISLANDS

42. 2. 1. Form Follows Function

The phrase "form follows function" is a common one in engineering and architectural design. It may be interpreted in two ways. First, function (how well it works) is more important than form (what it looks like). A second interpretation is, if you design something to work a certain way, in a certain place, then what it looks like would often be the only way it could look.

That is, what it looks like follows naturally from what you want it to do, and where you want it done. This calls for some further explaining to make the concept more clear.

The Airplane Example

An airplane is an excellent example of the second meaning of form follows function. Perhaps one might think it is a coincidence that, in general form, nearly all aircraft look pretty much alike - two wings, a tail, a long slender fuselage. It is no coincidence.

Most all aircraft are designed to look fundamentally the same because that is what they must look like in order to do their job well. Their job is to fly as efficiently and safely as possible. (There are of course exceptions, such as experimental aircraft, but these are almost never efficient at flying, and usually are not very safe.)

Aircraft designers keep to the same basic design because the conditions an airplane operates in requires that in order to work well it has to have certain features.

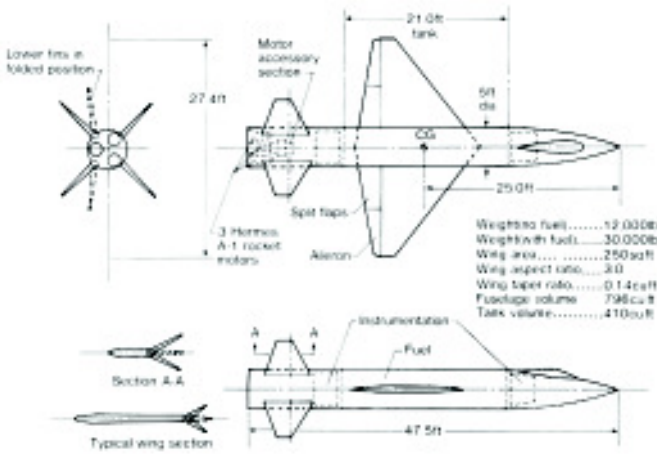
Lessons from Nature

Nature has important lessons to teach us for the engineering and architectural designs of our buildings and other structures. Watch nature. Carefully observe natural designs from a 'functional viewpoint'.

You will find it fascinating to observe nature's designed forms of living things. Both the frigate-bird and the shark were not designed by nature to be beautiful, first and foremost, though they certainly are beautiful. Their forms are the best at doing the jobs they have to do. Their jobs are to survive in their particular habitats, as best they can.

Energy efficiency, conservation of resources, and durability are three fundamental principles in all of nature's designs. Together they help achieve the goal of function. Applied properly, they result in aesthetically pleasing forms.

In designing and building our dwellings and public buildings we can follow these lessons from nature. Nature's principles can be ours in the architecture and landscapes we create as well.



Experimental aircraft are exceptions to the rule of 'form follows function.'



The shark is a clear example of where in nature, form follows function

42. 2. 2. Energy Use; Reduction and Efficiency

To meet our long-term needs, energy use should be the most important consideration for building design. This is often overlooked because we humans, in general, have a completely false notion about energy.

We often think energy is cheap and will always be available for our use in large quantities. Looking back over the past two centuries of industrialization we see, however, that energy prices always rise, sometimes quite fast. We also see that the proportion of our budget that goes to buy energy always increases. So, energy is not cheap.

Sometimes a storm damages a power plant. At other times economic difficulties make it almost impossible to keep power plants operating, which, at the time of this book's writing, is the present situation in CNMI. In such circumstances we learn the hard way that energy is not always available either. As time goes by, paying for energy consumes a larger and larger portion of our personal, business, and governmental budgets.

Most of the industrialized nations made serious mistakes in building designs in the 1950's, 60's and early 70's. It was thought back then that energy would always be cheap and that it was certain to get even cheaper. It was also thought that more and more energy would be available, forever.

Buildings were designed to keep conditioned (cooled) air in. Windows did not open and doors were made with air-locks. Interior spaces needed forced air for ventilation. They were also dependent on artificial sources of lighting.

Such structures are very expensive to light, heat, and cool nowadays, since energy prices sky-rocketed in the 80's and 90's. Rents soared in order to pay for the energy needed to keep the buildings functioning. Higher energy costs get passed on to us, the consumers, in the form of a higher cost of living.

Here in our tropical island environment, many design principles can be used to reduce the energy use in our homes, apartment buildings, and public facilities.

Among these are the selection of a moderate building height, the use of high vegetation for shading, and a careful consideration of our methods of roof construction and roof surfacing. Well thought out floor plans and placement of windows and doors are equally important.

In the strong tropical sun, building height has a tremendous impact on how much heat is absorbed by our exterior walls. The taller a building is, the more outside wall area it has. This wall area absorbs heat. If the interior spaces are to be kept usable, this heat must be got rid of.

Removing the heat requires treatment by a large ventilating and cooling system which runs on electricity. This treatment includes our fans, ducts and cooling units of our air conditioning systems. The more heat captured by a building, the more electricity needed to treat it, and the higher the cost.



We often think energy is cheap and will always be available for our use in large quantities.



Buildings have historically been designed to keep conditioned (cooled) air in.

Low-rise buildings absorb less heat than high-rise buildings. This is because they have less outside wall surface area. They are, therefore, less expensive to cool and ventilate.

Low-rise buildings have another advantage. They can be shaded by trees and high growing shrubs. Shading is not possible when buildings are higher than two or three stories.



Low-rise buildings can be shaded by trees and high growing shrubs.

Natural Air-conditioning

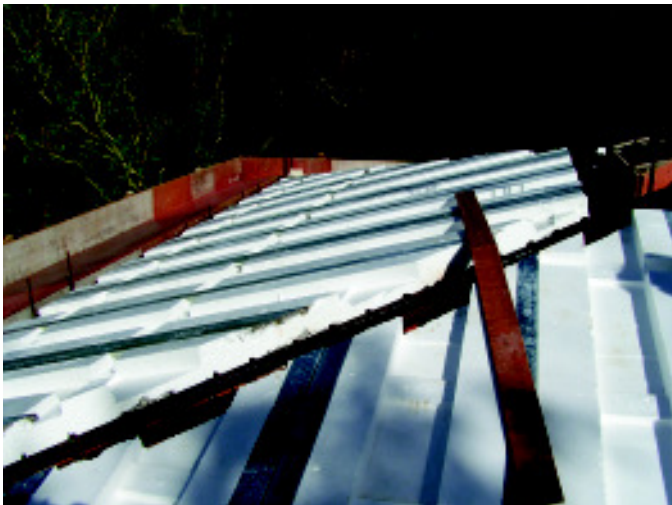
We all know how comfortable the air temperature is in the shade, even on the hottest days. It is direct sun and not air temperature that makes things hot. The cooling effect of shade is especially felt under trees.

You may recall our discussion of the tremendous power that drives our typhoons, the latent heat of evaporation/condensation. Each newly-formed water vapor molecule draws heat from the ocean waters, releasing it to higher atmospheric patterns.

This same heat-transfer process occurs under trees as well. Moisture from the ground evaporates through our tree's leaves during evapo-transpiration.

To accomplish this, heat from the surrounding environment gets absorbed into these water vapor molecules. Under our trees much of the heat of the under-canopy air is constantly being transferred into water vapor molecules, exiting the area as these water vapor molecules rise in the atmosphere. This heat is later released as these molecules rise and condense into our atmosphere's clouds. Tremendous amounts of such rising air and other conditions create our tropical storms, including typhoons.

We humans also have our own air conditioning system. When we are hot we sweat, moving body heat into water molecules. As we do, wind helps evaporate and move these sweat molecules away, causing the same cooling effect. When we gather under trees, we take advantage of the tree's air conditioning system as well as our own, so encourage the planting of more trees, especially on our school grounds and urban areas!



A roof that absorbs very little heat, such as this roof which is constructed with R50 Styrofoam insulation, makes quite a difference in the energy needed for cooling.

Roof Design and Floor Plans and the Use of Natural Light and Wind

Proper roof design is very important in low-rise structures. In high-rise buildings so much heat is absorbed by the walls that the amount absorbed by the roof is only a small portion of the total. Even the best, most efficient roof design would not make much difference there.

In one- or two-story buildings, however, most of the absorbed heat comes through the roof. So a roof that absorbs very little heat, or sheds it, makes quite a difference in the energy needed for cooling.

Concrete roofs absorb and hold a lot of heat. They should always be shaded by trees. Tin roofs absorb a lot of heat too, but they do not hold it. It may be hot under them during the day, but not at night.

A multi-layer roof called an ice-house roof is excellent for the tropics. This roof sheds heat almost as fast as it absorbs it, whether it is made of wood, tin, or concrete. Shading this type of roof makes it even more comfortable for the families living under it.

Floor plans, or the layout of rooms, is very important for reducing the costs of cooling, ventilating and lighting. In buildings with large floor areas, many interior rooms have no windows to the outside so they must be cooled, ventilated, and lighted mechanically. If floor plans are designed so that all or most rooms are on exterior walls with windows, daytime lighting is provided by the sun and cooling by the wind.

On our islands, wind is perhaps the most underutilized cooling source. Trade winds blow for more than half the year, usually with gusto. The southwest monsoon blows for much of the remaining time. Rarely is a night so still that a breeze cannot be felt.

It is important for the student of island ecology to understand and believe that our dwellings and buildings can be built to be comfortable without any air-conditioning at all. Likewise these can be operated at a small fraction of the normal cost for electricity.

Following the principles of design discussed above requires some knowledge of science, especially math, physics, and geography. It is an excellent reason to study them. You may have the opportunity to apply them directly if you choose to be your own home's architect and engineer someday.

42. 2. 3. Structures Resistant to Winds, Earthquakes, and Flooding

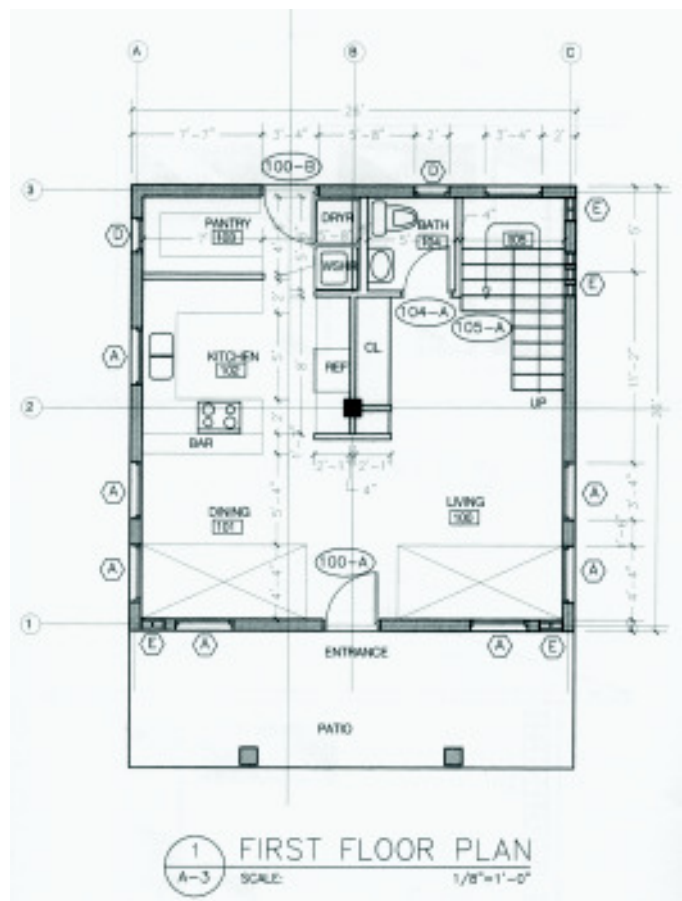
In addition to being energy efficient and comfortable, our buildings must be resistant to the many storms and earthquakes so common here in the Marianas. Planning against flooding is equally important.

Low-rise buildings are again most favorable. They are much better suited to withstand strong wind and ground shaking. During an earthquake, movement and forces from within the earth increase as the height above the ground increases, as in tall buildings.

You can see this effect by holding a fishing rod and shaking it gently by the handle. A slight movement at the handle produces a lot of movement at the tip. The same thing happens in a tall building during an earthquake. The only way to protect tall structures is to reinforce them heavily with concrete and steel. This is extremely expensive and not guaranteed to work.

Low-rise buildings have the forces reduced and naturally spread over a larger area. There is less chance of damage, and small, low buildings often escape damage entirely, even from the most powerful quakes.

Tall buildings are usually in more danger from storm winds than are short ones. There is more surface area for the wind to blow against in tall buildings, and they usually have many windows that can be broken by the forces of the wind and flying objects.



If floor plans are designed so that all or most rooms are on exterior walls with windows, daytime lighting is provided by the sun and cooling by the wind.

This is not to say that tall buildings cannot be built to withstand some storms or quakes. They can. They are very expensive to build however, and even more expensive to repair once damaged.

Floods

The best practice to protect buildings from floods is to build them away from our flood-prone areas. This sounds like simple common sense. It is, but history shows us that it is usually hard for us humans to understand it.

We tend to think of time in the short-term; five, ten, or twenty year periods. Forces in nature often reveal themselves over very long periods; 100, 500, or 1000 years.

For example an area may be flooded only every 200 years on average. Maybe it is 300 years for one cycle, then 150 years for another, then 175 years for another.

In between floods there could be five or six generations of families building towns and cities on a **flood plain**. When the waters finally come, and wash away the work of our grandfathers and great-grandfathers, it is a cultural tragedy.

Unfortunately, it is usually an unnecessary and avoidable one. Even today, we humans continue to build and live in areas known to experience long-term flooding. While such practices continue, such tragedies will as well. Designing buildings for flood protection is rarely successful. If a building escapes damage in a flood it is usually by chance alone.

Moving water has tremendous power. It presses against the walls of buildings with many hundreds of times more force than the strongest typhoon winds. It scours and digs away the earth and then rips buildings off their foundations and carries them away. The force of a crashing wave has even more power than an equivalent amount of smooth flowing water, because it has the increased energy of motion.

Throughout the world even the best designed and most expensive flood control projects fail, resulting in damage in the hundreds of billions of dollars, and great loss of life. It is important, therefore, to plan land use wisely. All buildings should be set back from coastlines, flood zones, and earthquake faults.

42. 3. LANDSCAPE MANAGEMENT

42. 3. 1. Introduction

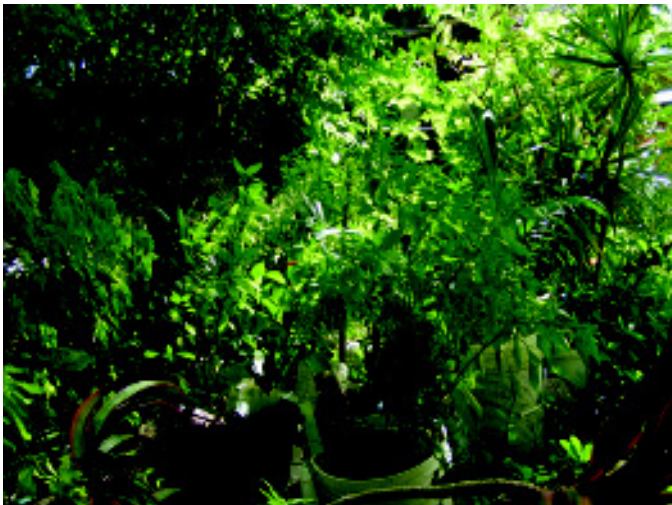
We switch now from the design of our built-up features (our buildings), to the design of our landscape or landscape architecture.

42. 3. 2. Gardening

Gardening is the attending of a piece of ground for the growing of fruits, flowers, or vegetables, usually close to one's house. A person who does such tending is a gardener. Many homeowners and their family's children often work as part-time gardeners. Get into gardening; its productive and its fun! As you recall we've covered vegetable farming and gardening in our earlier chapters. Now we fo-



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cus on some aspects of managing our landscapes other than vegetable gardening.

42. 3. 3. The Landscape Architecture Profession

Landscape architecture is the art and profession of planning or changing the natural scenery of a site for a desired purpose or effect.

Landscape architecture is a professional field. Licenses are issued to landscape architects by our Board of Professional Licensing. A masters degree or a similar level of certification in this field is usually required to qualify.

Landscape architects are experts in the disciplines of environmental planning, horticulture, soil conservation, site surveying, and aesthetic design. These professionals plan the location and construction of aesthetically pleasing and functional approaches to private and public structures, roadways, and walkways. They often are given high levels of responsibility regarding the preservation and enhancement of our land uses and natural land features.

Landscape architects are experts at researching soils, particularly their suitability for planting. Likewise they research plant tolerances for each potential planting sites' microclimate conditions.

Landscape architects often serve as consultants. These professionals oversee the work of landscaping firms and other general contractors. They prepare engineering-quality landscape plans, designs, and drawings.

Landscape architects often specify requirements for plant purchasing, planting methods and plant care regimes. They are called upon to supervise projects that include landscape grading and the placement of irrigation and area lighting.

Landscape architects often work with civil engineers to plan and carry out major land rehabilitation projects, such as for reclaiming quarries and strip mines. They serve as planners for parks and major walkway projects, including the American Memorial Park and the Saipan Beach Road Pathway.

Golf course managers consult with landscape architects before, during, and after each course's construction. This helps to insure top golfing conditions for the landscapes, fairways, and greens.

42. 3. 4. Greenhouses and Shade Houses

If one wishes to grow tropical plants in temperate climates, to prevent the winter's cold from killing them the use of a greenhouse is necessary. Here in the tropics, the necessity of greenhouses and shade houses is not as obvious.

Greenhouses

A greenhouse is a tightly enclosed structure. Its walls and ceiling are constructed of glass or a similar material. This allows for a maximum amount of light into the structure. The floor is usually gravel or dirt or mulch. Size is not important, but ventilation is a must. This is to reduce heat on sunny summer days and allow air flow over the plants growing inside.



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Golf course managers consult with landscape architects to insure top golfing conditions for the landscapes, fairways, and greens.



Shadehouses are useful to protect seedlings and small cuttings from the sun's intense heat while early roots and leaves are forming.



The best performing plants are grown with the correct amount of fertilizer and are planted in a good growing medium.

Very sophisticated greenhouses come equipped with temperature controls. These activate heaters and air conditioners to maintain a constant temperature. Simpler greenhouse models can be dug down into the ground, or built with one wall being shared with a house or other building.

Shadehouses

Having a shadehouse (a type of greenhouse) is useful for pest control, for insuring successful plant propagation, and for other situations when microclimate control is required.

Shade houses have either screened ceilings and walls, or they have wood lattice works. These control the amount of light allowed to fall on one's plants.

Shadehouses are useful to protect seedlings and small cuttings from the sun's intense heat while early roots and leaves are forming. Horticulturists use them to grow exotic flowering plants where conditions don't allow for them being planted out-of-doors.

42. 3. 5. Visiting a Commercial Nursery and Selecting Good Plants

An important consideration in choosing plants is to understand one's site conditions. One should only buy plants that would thrive under such conditions. Choose plant varieties that suit the planting site. After deciding which plant varieties to grow, the next most important aspect of choosing plants is to select vigorous and healthy individuals.

The best performing plants have a healthy and robust appearance. These plants were grown with the correct amount of fertilizer and were planted in a good growing medium. Their leaf color is rich green (unless they have a genetically variegated leaf), and they show no pest infection or damage.

Take care to purchase plants at the correct stage of growth. Too young plants will be weak and easily killed. Too old plants may have been in their pots too long. They might not recover from **planting shock**.

Plants should be well established in their pots, grown in appropriately-sized containers, and have an overall appearance of vigor.

Each plant should be established well beyond its seedling stage. We suggest a minimum pot size of 3 inches. Foliage should be full and green (see earlier variegated note). Stems should be firm and strong. Leaves should be upright and undamaged.

As mentioned, no infestation or damage by disease or insects should be evident. Pick each plant up for a close inspection. Depending on the plant variety, mottled leaves could be a sign of an infestation or disease. Yellowish stripes or stunted, distorted shapes could be a sign of fungal or bacterial wilt or even a virus. If little white flies are hovering near, discard this plant. You certainly don't want to bring an infestation back to your home or project's landscape.

A plant with many yellow leaves at its bottom, or many roots growing out the bottom of the pot, can indicate the plant is *pot-bound*.

This problem is more severe with woody plants. Hard roots might be impossible to separate and redirect when planting.

42. 3. 6. Composting Revisited

Although we discussed composting before (remember George Washington's experiments?), here we re-visit the technique because it is so easy, so important, yet so under-utilized. Our gardens and landscapes would be so much healthier with additional compost. Try it, you'll like it!

Definition: compost (kahm-post) A mixture consisting largely of decayed organic matter used for fertilizing and conditioning land.

Definition: decompose (de-kahm-pos) To undergo chemical breakdown; decay, rot.

Composting is an excellent way to use vegetative kitchen scraps and yard and garden wastes. Decomposition is a natural and ongoing process. With no human intervention, leaves and dead grass naturally turn into compost. With human intervention this process is speeded up. Compost gives the gardener and landscape manager valuable organic matter and nutrients.

Building a compost pile is just a matter of managing this process. In addition to the obvious benefits of improving the soil, composting greatly reduces the amount of material added to our solid waste dumps and landfills. Remember the difference between these two terms (dump vs. landfill) from our solid waste management chapter? If not, go back and re-check... it's important. Composting is a great way to *not waste space with solid waste*.

Siting and Starting a Compost Pile

Your compost pile should be easy to reach with a wheelbarrow or a garden cart. Bringing waste material to it should be made as easy as possible. It should also be within easy reach of a garden hose. This is to keep the pile wet during dry weather.

OK, with a garden fork or shovel, loosen the soil where your compost pile will sit. This encourages upward migration of beneficial soil fungi and bacteria into the organic waste. The fungi and bacteria improve decomposition. Try to keep your pile out of extremely wet conditions, and away from roof drainage areas.

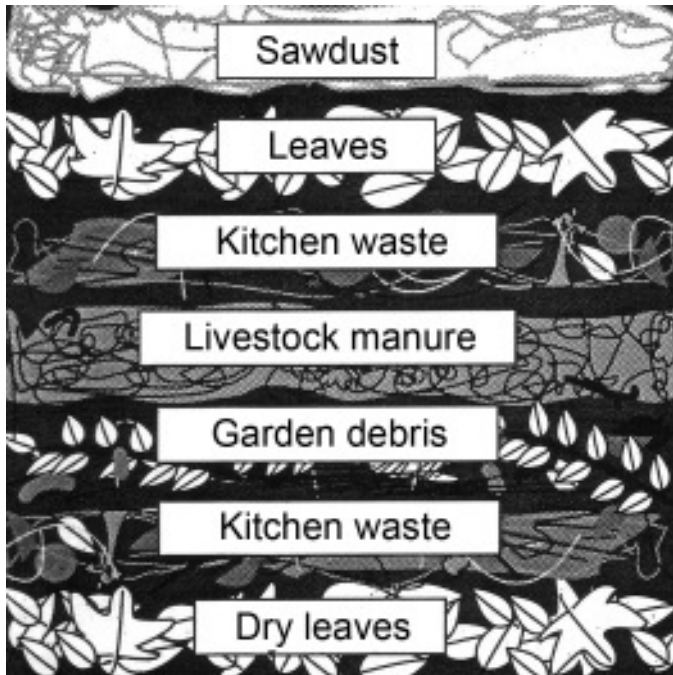
The organisms that cause organic matter to decay thrive best in an environment of equal parts of carbon-rich materials, which we will call "browns", and high-nitrogen materials, which we will call "greens".

Fallen leaves, shredded paper, straw, and old grass are all examples of browns. Fresh, green leaves, grass clippings, kitchen scraps and freshly pulled weeds are examples of greens. Manure from farm animals (cows, goats, chickens, pigs) can also be used as greens, but are not necessary.

Cat or dog manure should not be used since it might contain harmful pathogens. Also, kitchen scraps should only be vegetative in nature. Do not include meat, bones or dairy products. These would attract rodents and other pests.



Composting is an excellent way to use vegetative kitchen scraps and yard and garden wastes.



One should build their compost pile somewhat like a layer cake, alternating a layer of brown with a layer of green.



The compost is ready when it no longer develops heat and when the center and bottom parts are brown and crumbly.

While not required, chopping or shredding the ingredients will speed up the composting process.

Building the Pile

As the organic matter decomposes, the compost pile will reach high temperatures. The higher the temperature, the faster the decomposition process and the more harmful weed seeds and roots will be killed. Temperatures of 150 - 160 degrees Fahrenheit can be expected.

One should build their compost pile somewhat like a layer cake, alternating a layer of brown with a layer of green. Each layer should be about 4 - 6 inches thick. If the green matter isn't very wet, water the pile as you build it up. Keep it about as damp as a wrung out sponge. Top the pile with a final brown layer.

To retain dampness, cover the pile with a tarp or piece of plastic. Remove the tarp when it rains to help flush out accumulated sodium salts. (Remove the tarp also when watering the pile!) Be sure to replace it. Tarps are not necessary during the rainy season.

Compost Pile Maintenance

In a few days your compost pile will heat up dramatically. You may even see some steam on cool mornings. If you were to stick your hand into the middle of the pile you would feel the warmth.

If you do nothing, the pile will eventually decompose on its own. Stirring the pile will speed up the process considerably. Use a pitchfork, hoe, or even a shovel. Redistribute the ingredients so that material which was on the outside gets moved to the center and vice-versa.

If the pile seems dry, add more water. Water the compost pile at least as often as you water the garden, at least once or twice a week. The more you turn the pile, the faster the material will decompose. Turning it every few days will maximize the yield of compost.

Harvesting One's Compost

The compost is ready when it no longer develops heat and when the center and bottom parts are brown and crumbly. Finished compost has a pleasant, earthy odor and resembles soil.

Sieve (or sift) your compost through a ½ inch hardware wire mesh screen to separate the finished compost from the still-decomposing material. Unfinished compost can be used to build another pile.

Liberal place the finished compost in your flower and vegetable gardens. Your plants will love it. Compost greatly improves the moisture retentiveness of both clay and sandy soils. It also adds valuable nutrients to every kind of soil.

42. 3. 7. Growing Lawns

Most of the lawns here in the CNMI are developed using natural seed sources. After areas are cleared for building construction, the land around it gets an occasional brush cut as weeds grow. We remove the rocks, and then we regularly mow the new lawn area.

Seeds of local grasses and other weedy herbs come to the cleared site from the natural background environment (see our Disturbed Ground chapter). Mowing keeps woody plants such as TANGANTANGAN (*Leucaena sp.*) from getting a start.

Such lawns, with many hardy grass species, are well represented here. Each has proven itself to be adapted to our local area. Some of our lawns are actually planted using either seeds or start bunches, called sprigs. *Zoysia* (more commonly known as Japanese or Temple grass) is highly preferred. *Zoysia* is usually planted from sprigs. It grows lush, uniform, and only to a certain height so it doesn't need to be mowed near as often. If you have *Zoysia* growing, do mow it every once in a while to prevent clumps from forming. You will need a good strong mower to do this.

Bermuda grass is commonly grown from seed in our tropical and subtropical areas. So too is St. Augustine grass, though this type requires more water than is usually applied here. For a recommendation of a good grass species for your site, check with the Natural Resources Conservation Service or the NMC Agricultural Extension office at CREES.

All lawns must be regularly mowed, more frequently during our rainy seasons than our dry. During the dry season we are usually too frugal with our precious water resources to water our lawns. They usually get pretty brown. To stay green, high care lawns such as golf courses must be watered, often twice a week during the dry season.

Our more well-cared-for lawns also benefit from de-thatching. This is the removal of excess grass clippings and accumulated mulch gathered between the grass shoots. The opened spaces allow new grass stolons and later, new shoots to develop. This makes for a fuller looking lawn coverage. De-thatching is done by hand using a special rake or by using a special machine.

Although not a common practice here, our lawns can benefit greatly by the application of balanced fertilizers. Due to our high rainfall and our geology, many of our soils are nutrient poor. Some agronomists feel an application of chemicals to kill weeds (called **herbicides**) by a certified pesticide applicator can also improve the condition of one's lawn.

Professionals know how to mix these solutions properly. They are also trained to avoid wind-caused spillover that would unintentionally kill our other garden plants (or worse yet, a neighbor's). Many of these chemicals can be very hazardous. Such poisons should be only applied by certified professionals. Special clothing and masks are sometimes required.

Old bare spots of lawns can be rehabilitated by first digging the soil to improve drainage and then applying a 2-inch topping of peat moss or vermiculite (better). Then add grass seeds (or sprig seedlings). Water the area every 2 - 3 days until grown in. Be careful not to let the peat moss or vermiculite dry out completely. Water more often if necessary. Shading the temporary area somewhat can help.



Mowing keeps woody plants such as Tangantangan (*Leucaena sp.*, shown) from getting a start.



Mixed lawns with many hardy grass species are well represented here in the CNMI.

Lawns with clearly lined and marked edges for walkways and other features improve the beauty of lawns. Use lawn edging materials. Curves are more attractive than straight lines and squared corners.

42. 3. 8. Vines and Ground Covers

Vines are plants that have the ability to climb when given suitable support. A ground cover is a plant that will spread rapidly and fill in to cover a ground area completely.

Ground Covers

Ground covers ease yard work by minimizing weed growth. They are especially good at covering slopes and areas under trees where the ground is particularly hard. If you wish to plant a ground cover, the most difficult part is getting your plants quickly established before the weeds take over. Be prepared to do some hand weeding.

To maximize speedy growth of young ground cover plants, thoroughly cultivate the top 6 inches of soil. Then mix in a good supply of compost. Add 1 pound of balanced fertilizer for every 100 square feet to be planted. Cover the surface of the area to be planted with an organic mulch. Make holes for small ground cover starter plants. Choose smaller plants planted closely together. Water well after planting. This should keep invasive weeds to a minimum.

Suggested Ground Covers Are:

Peperomia obtusifolia

Moses in the cradle - *Rhoeo spathacea*

Wedelia trilobata

Rose moss - *Portulaca grandiflora*

Vines

Vines are very effective for providing a vertical wall of flowers and foliage in the garden and for covering unsightly places. Wire fences, lattice work, chicken wire, rock walls or other property dividers make excellent frames for growing vines.

Vines cling by means of twining stems, by leaves that wind their **petioles** around the support, by **tendrils**, or by aerial roots.

Suggested Vining Plants are:

Allamanda cathartica

Bougainvillea spectabilis

Stephanotis floribunda

Creeping Fig (*Ficus pumila*)

Hoya carnososa

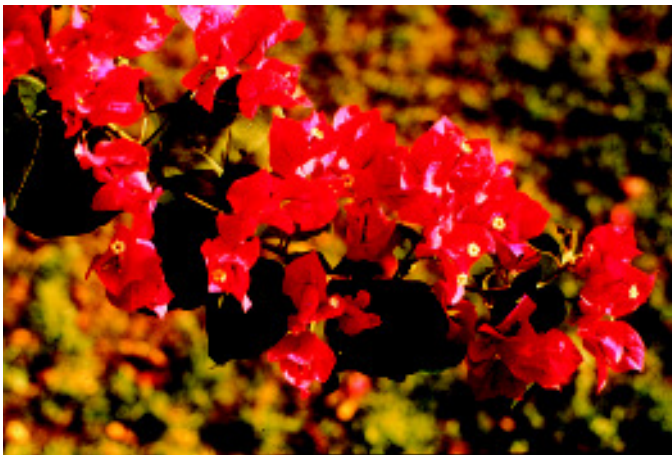
Training a Tropical Vine

Vines will flower and fruit better when they are trained. The structure upon which you grow your vine must be strong enough to hold a mature plant. It should not require painting if at all possible.

Horizontal cross bars should be placed at 8 to 12 inch intervals. These support the vine's weight and relieve stress on the anchored vertical branches. Crossbars are also useful for training horizontal branches to help cover a wider area.



Ground covers such as this *Rhoeo spathacea* ease yard work by minimizing weed growth.



Vines, such as this *Bougainvillea*, are very effective for providing a vertical wall of flowers and foliage in the garden and for covering unsightly places.

To encourage the vine to climb, you may have to secure it to support at places with any string-like material. Cut strips of old nylon stockings work well since these stretch with a plant's growth. If the vine does not have a way of clinging to the support itself, eyescrews or cup hooks can be inserted into the support for tying.

42. 3. 9. Planting and Maintaining Hedges

Woody hedge plantings are popular here in the tropics. They are often used as property dividers and as backdrops for our flowering plants. Woody hedges require less frequent division, less replanting and are more permanent than herbaceous perennials. However, they will not grow well or flower profusely without good care.

Hedges are often planted and cared for as home security borders. The use of a thorny hedge is beneficial in deterring unwanted "guests". Side and backyard hedges can be grown very high. Hedges planted along the roadside should be kept lower than about 3 1/2 feet, however. This allows neighborhood patrolling police to have a clear vision of one's property.

Most shrubs can be used as hedges if given proper spacing and suitable growing conditions. Hedges often need a quick trimming every few months, but will only need a rejuvenating pruning every 2 or 3 years. Rejuvenating prunings cut off all the branches higher than one to two feet above the ground. Flowering shrubs will be more prolific if sheared immediately after flowering.

Before planting your hedge, carefully dig the soil to a depth of 8 - 10 inches. Add compost or other organic material and mix it well with the soil. Plant dwarf shrubs in two rows, 6 inches apart and in 6 inch intervals. Increase the distances for larger shrubs to 8 or 10 inches. Water well after planting. Water during dry spells as well for the first year.

Suggested Shrubs for Hedges Include:

Croton (*Codiaeum variegatum*)

Hibiscus (*Hibiscus rosa-sinensis*)

Ixora (*Ixora chinensis*)

Mock Orange (*Murraya paniculata*)

Panax (*Polyscias spp.*)

42. 3. 10. Planting Trees

When to Plant a Tree

There is an old saying that goes "the best time to plant a tree on this spot was 20 years ago. The second best time to plant is today".

It is so true. If the tree we want at a particular place were planted years before, we would be enjoying its shade, it would be holding the soil firmly, birds and other wildlife would be feeding amongst its branches, etc.

Here in our islands, our best planting season is just before and during the early part of our rainy season. It's best to plant trees from mid-June through the end of September. Natural rainfall does most of the tree root watering for us. If planted during other times of the year, we must water our new trees on a regular basis. Water-



Hedges are often planted and cared for as home security borders. The use of a thorny hedge is beneficial in deterring unwanted "guests".

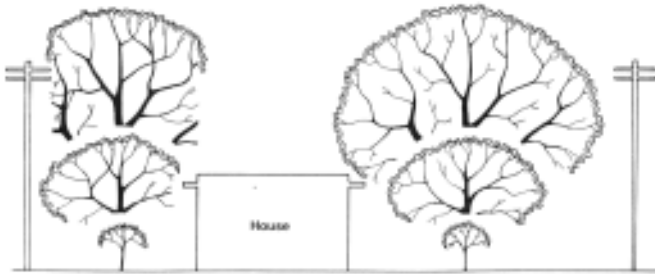


Woody hedges from plants such as *Hibiscus rosa-sinensis* are often used as property dividers and as backdrops for our flowering plants.

ing trees is not hard to do, but can be a little time consuming. Some feel that it's time well spent, however, as it gives one a chance to study their trees more carefully.

Where to Plant a Tree

It is very important to learn about the characteristics of a tree species before planting it at any particular site. Be sure that a large tree will have plenty of room. Medium and smaller trees require less growing space.



Be sure that a large tree will have plenty of room. Medium and smaller trees require less growing space.

You will recall we stated earlier how beneficial it was to build our buildings up to one or two stories to allow for their shading by trees. Still one must use caution in planting too tall trees too close to a building.

The roots of a tree often spread as far out as the edge of the tree's crown. Tree roots can damage foundations, driveways, plumbing, and other built features. Use good sense and provide an appropriate setback space between a building and your tree. Again learn about the particular nature of your tree species before planting it.

How to Plant a Tree

It is wise to begin one's tree-planting experience by first looking very carefully at the tree you are about to plant. "Become one with the tree", in good Zen-Buddhist fashion.

When handling your young tree, the root mass should always be supported with one hand beneath it. This is to insure that the heavy weight of its root ball does not drop down and bend the tree trunk. Worse still is to cause a separation of the root ball and the tree trunk. Both disasters happen easily and both can mean a quick death to your previously living plant. Prevent these disasters. Hold your tree with respect.

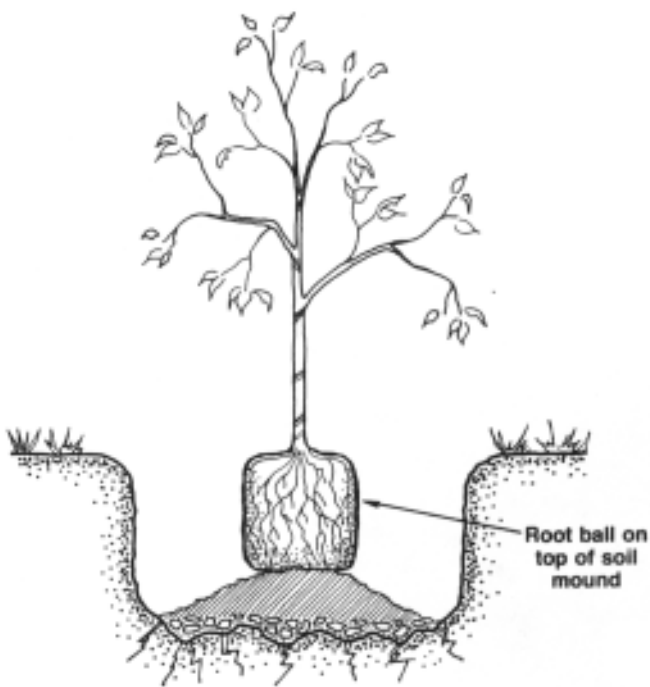
If something happens and you lose the root ball or over-bend a tree seedling, plant it anyway but stake it well and treat it extra specially. It may recover.

Looking at your tree, appreciate your tree's three main living parts. These are, its roots at the bottom, its trunk in the middle, and its branches with leaves at its top. Recall how trees move moisture and nutrient molecules upwards, and energy-rich sugar molecules downwards and inwards.

Take a moment to truly appreciate that the tree you hold is alive. Understand that if you mistreat any of its major components (some branch and root trimming allowed), or you do not give it enough room to develop — or don't water it well after planting — your tree will die prematurely.

OK, enough of becoming one with the tree, now on to developing its new home, the planting hole.

Be advised, do not begin any digging without first pre-planning the width and depth of the planting hole. Do not just dig until you're tired, plop the tree seedling in, cover around it and go. Plan well, (remember you are one with your tree now.)



Be careful to ensure that the root ball of the young tree stays intact.

If the area you are planting in is natural soil, plan to make your planting hole about 2 feet wider and 6 inches deeper than the seedling's root ball. If the area is coral fill, plan to dig much, much deeper. This is because you will have to dig all the way down to below the bottom of the coral fill. Your tree's roots will head downwards but most often they will not struggle to go through compacted coral fill. They will instead become rootbound (not good).

Often coral fill is two feet or more deep. A back hoe or an auger is very helpful in such cases. Digging can be done by hand (hopefully many hands). Picks and heavy metal-shaft pikes help, along with good shovels, if you plan to take the project on with hand tools.

Begin by clearing all vegetation in a circle at least 6 inches wider than the diameter of your planting hole. OK, start digging.

Again, if the area you are planting is natural soil, save the soil you remove at a convenient spot nearby. If it is coral fill, do your best to discard it to a remote location; preferably some place far away that needs fill material. If you put this coral fill material back into your plant's hole, all is lost. After discarding the coral fill, find a good source of replacement topsoil in an equal amount to what you discarded.

Mix any removed natural soil with compost, peat moss, or other organic material. Call this your now-improved soil and have it standing by. To make it, mix in one shovelful of organic material for each shovelful of natural soil. This improvement will make it easy for your tree's new roots to grow out from its original root mass.

When digging, keep in mind that a larger planting hole gives your tree's roots more good soil for their initial growth. When the hole is dug to the depth necessary, (remember below all coral fill and six inches deeper than the tree's root ball), put a good amount of your now-improved soil back into the hole. Add along with it any topsoil you had to transfer to your site to replace the former coral fill.

Fill it up to a depth so that your tree's root ball, resting on the pile, will have its former soil level height located at the exact same level that its new soil height will be. Do not bury any of your tree's formerly exposed trunk. Likewise do not leave any roots exposed to the air. A straight stick or tool handle placed across the top of the hole will make it easy to determine the proper planting depth.

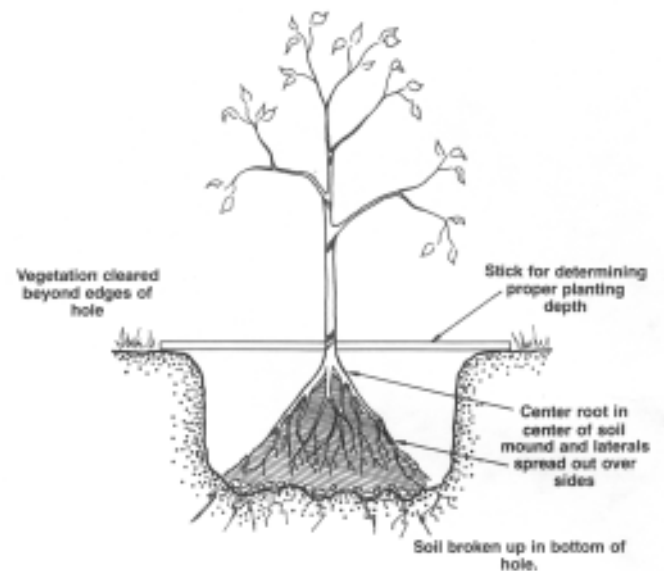
Now, carefully remove the container without disturbing the mass of soil and roots. If the container is tapered (wider at the top), the root mass should slide out easily. If it is straight-edged, such as in a tin can, or a plastic bag, the outside container will have to be cut away.

Use tin snips for cans and be careful, the cut edges will be very sharp. For bags, cut them away with a knife. While cutting off the container, always remember to keep holding the plant with one hand supporting the rootball.

When the tree's container is removed, you may find that its main roots are spiraling around the outside or bottom of the root mass. If



Do not begin any digging without first pre-planning the width and depth of the planting hole.



A straight stick or tool handle placed across the top of the hole will make it easy to determine the proper planting depth.



Carefully remove the container without disturbing the mass of soil and roots.

so, carefully tease them and spread them outwards in the planting hole. Try to have each main root going to a separate direction.

You may have to cut some roots if they are too entangled to be separated. If you did not cut them, they would continue their spiral growth instead of spreading out into your improved surrounding soil. Such a condition is called **root-bound**. It is to be avoided at all cost since it will stunt upwards and outwards growth of the stems and branches as well.

Remember you are now one with your tree. Your roots must be allowed to grow straight and free. If they must be cut to prevent spiraling, and this would allow for new straight-growing roots to develop, it is a necessary sacrifice. Fortunately trees don't have brains or any nerves at all for that matter. They are alive but they don't "hurt" when they're cut (trimmed). In this case you can have full knowledge that you are doing your tree a great favor.

OK, now your tree is in the ground with its exposed roots oriented in several directions. Now pack more of your improved-soil firmly around the root mass to make sure that no large air pockets remain. Do not compact it so hard, however, that percolating water (or air molecules) can't reach the roots. Each must do so.

Finally, make a surrounding berm (encircling small hill) with any remaining soil to hold in the water you are about to apply. Now water the tree well, immediately after planting. This helps prevent **planting shock**. Do so again for each of the next seven days at approximately the same time each day. After this, skip a day between waterings, and after two weeks, skip about three days between waterings.

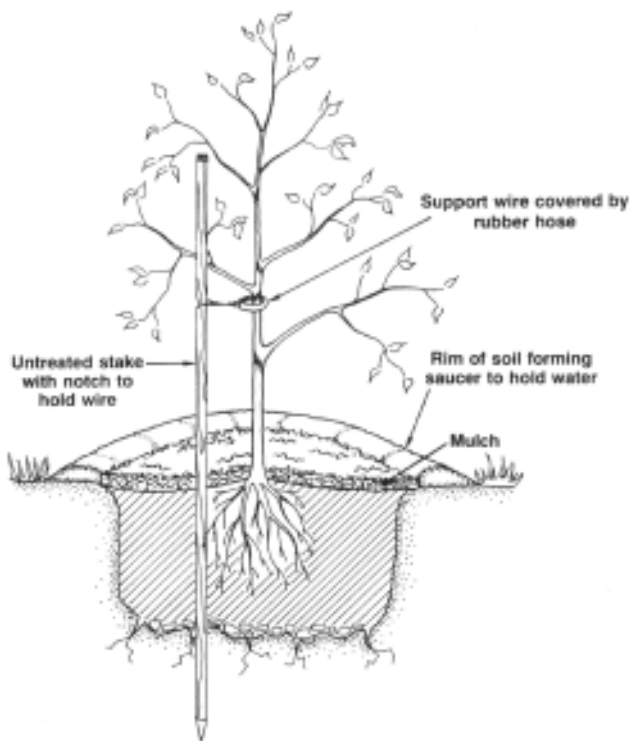
If you are fortunate and planted your tree in the rainy season, after the first two weeks of hand watering, just let nature do its thing from then on. Only water if the surrounding soil feels very, very dry.

If you are not so fortunate and it's the dry season, plan to continue watering your tree with thorough soakings twice each week. You can stop when its roots seem to have found groundwater on its own (its leaves will perk up and show you), or until the next rainy season arrives.

Adding some mulch to the ground surrounding the new tree, right up to its trunk, is a very good thing to do. Mulch covers the soil preventing direct sun exposure, thus retaining more soil moisture.

OK, that's about it. Tree's happy, you're tired.

But remember, if someone had done what you just did twenty years ago at that same spot, you'd be sitting under their tree, relaxing in its shade. Make a date with your tree for the same month, same day, twenty years into the future to do just this.



Make a surrounding berm with any remaining soil to hold in the water you are about to apply.

Temporary Wind Firming

If planting a young but somewhat tall tree (about 6 feet tall or more) it should be staked in to prevent its being toppled by either our trade or our storm-generated winds. The trunk should be tied to a stake with plastic-covered wire. Three evenly placed guy wires, fastened to stakes set two to four feet from the tree's trunk will do. Mark them well with flagging to avoid tripping over them.

Keep old garden hoses and cut these into short sections for your tree staking needs. Slip the guy wire through the hose section to protect the tree trunk at the place where the wire wraps around it.

Be certain to remove all guy wires when your tree's roots are set well into the ground. At the time of this book's writing there are a large number of publicly-planted trees on Saipan being strangled by former guy wires.

42. 3. 11. Suggested Flowering Trees to Plant

Flame Tree (*Delonix regia*)

Plumeria Tree (*Plumeria obtusa*)

Ylang Yland Tree (*Cananga odorata*)

Pink Tacoma Tree (*Tabebuia roseo-alba*)

Norfolk Pine Tree (*Araucaria heterophylla*)

42. 3. 12. Using Poisonous Plants

Poisonous plants can be a valuable part of your garden plan. You should be aware, however, which plants are poisonous. You should warn others about them, especially children. Learn how to deal with any injuries which may result from contact with these plants.

Some vegetables have poisonous parts, usually those parts not normally eaten. Even some parts which are eaten can require special preparation; examples include Taro and Cassava. (See our Farming and Gardening chapter for a description.)

Landscape plants which adversely affect humans include:

Yellow Oleander or Be-Still-Tree (*Thevetia peruviana*)

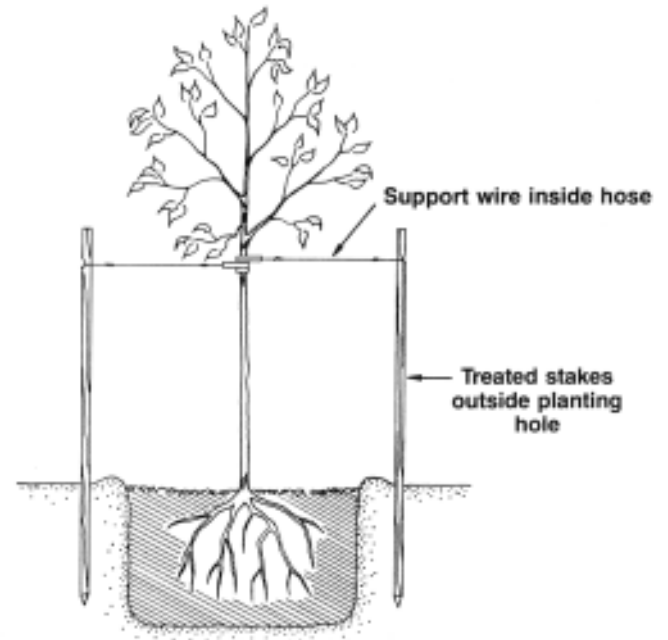
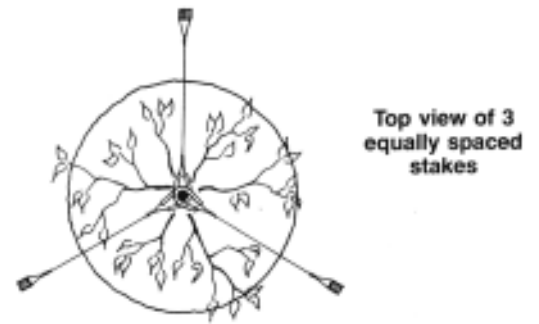
Thevetia is almost always in bloom with bright yellow flowers. The leaves are long, thin, and spirally arranged. The Be-Still-Tree has milky sap which is poisonous, likely inspiring its name.

Common Oleander (*Nerium oleander*)

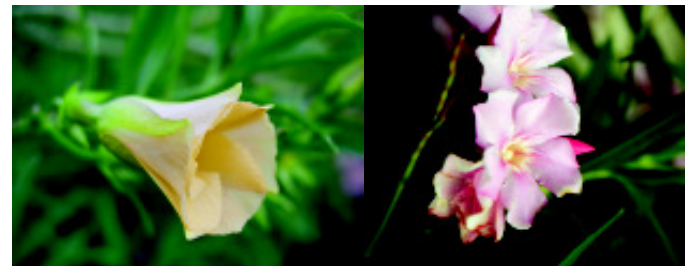
The oleander is poisonous in all parts of the plant. It should be kept away from children and pets. Its abundant flowers are white, pink, or red. Never burn the clippings from pruning this plant as the smoke is highly toxic. Compost these instead.

Corazon de Santa Maria; Caladium (*Caladium bicolor*)

This is a small to large terrestrial herb with arrow-shaped leaves that point downward. It has pretty green, pink, and white leaves, sometimes with interesting blotchy mottling. Toxic if ingested and sometimes causes irritation to the skin.



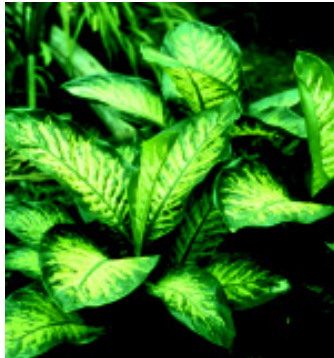
The trunk should be tied to a stake with plastic-covered wire which is attached to three evenly placed guy wires, fastened to stakes set two to four feet from the tree's trunk.



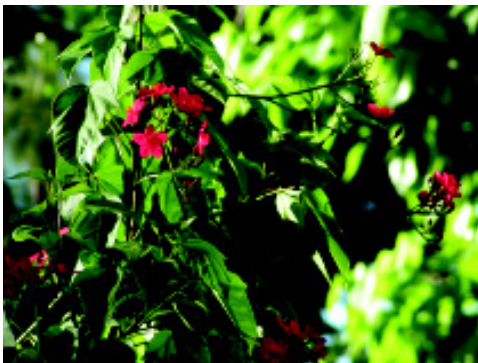
Yellow Oleander (left) has milky sap which is poisonous, likely inspiring the name Be-Still-Tree, while Common Oleander (right) is poisonous in all parts of the plant.



Rhoeo can cause an allergic reaction if the juice contacts the skin, and itchy welts can result.



Dumb-cane refers to the paralyzing effect to one's tongue if the plant is chewed.



All parts of the Rose-flowered Jatropha are poisonous, especially the fruit.



The sap of the euphorb "cactus" is poisonous and is particularly irritating if rubbed into one's eyes.

Moses in the Cradle (*Rhoeo spathacea*)

Moses in the Cradle is commonly used for ground coverings. *Rhoeo* can cause an allergic reaction if the juice contacts the skin. Itchy welts can result.

Dumb Cane (*Dieffenbachia maculata*)

This large terrestrial herb has variously mottled green and white leaves and thick ringed stems. The name dumb-cane refers to the paralyzing effect to one's tongue if the plant is chewed.

Rose-flowered Jatropha (*Jatropha integerrima*)

This is a small, richly branched tree. The flowers grow in small bunches, each flower with five bright red petals. The fruit is a green, ridged capsule. All parts are poisonous, especially the fruits.

Euphorb "cactuses" (*Euphorbia sp.*)

Members of this genus serve the ecological role of the cactus. Many look like cactuses, too, with prickly spines and swollen stems. The sap is poisonous and is particularly irritating if rubbed into one's eyes. When pruning euphorbs and other poisonous plants, wear protective goggles and wash your hands often.)

42. 3. 13. First Aid for Poisonous Plants

If the poison has been ingested, inhaled (as from burning leaves), or gets into one's eyes, immediately call your doctor or medical center for further instructions on how to proceed. It is often recommended to induce vomiting if ingested and to flush eyes if irritated with fresh flowing water — holding the eyelids open — for at least five minutes. If inhaled from burning — and in all cases of internal contact above — transport the patient to the hospital as quickly as possible.

Note: The 24 hour emergency room at the Commonwealth Health Center is our area's principal point of contact for poisonings. Call them via emergency 911 phoneline if necessary. Bring a sample of the plant to show the doctor. For those on Rota and Tinian go to these island's respective health clinics.

If the poison from a plant only results in medium to mild skin discomfort, flush thoroughly with soap and water and apply a soothing lotion regularly to negate the effects. Consult your doctor if any rash or welt does not go away in a few days. In severe cases of course, go the hospital immediately.

42. 4. KEEPING OUR ISLANDS BEAUTIFUL

42. 4. 1. Introduction

Now we switch our focus to our chapter's third element, community aesthetics. We begin with an extended discussion of **graffiti**.

42. 4. 2. Dealing with Graffiti

One of our most difficult community aesthetic concerns to deal with is graffiti. Graffiti includes words and drawings on a community's walls and signs that are not aesthetic. Graffiti images portray one or more messages by an individual or group expressing themselves at our community's expense. Graffiti is ugly.

Graffiti is mostly done by rebellious youth who do not understand that their expressions are in bad taste and they violate our community standards. Too often they just do not understand that there are other, more appropriate ways of telling their community who they are, that they are alive, and that they want to be recognized.

Graffiti lowers neighboring economic property values. Remember such values are based on supply and demand. Demand can be drastically lowered by graffiti. Who would want to buy or lease an area of land or rent a house in an ugly neighborhood? Graffiti is often associated with youth and even adult gangs. Graffiti symbols are sometimes used to stake out and proclaim a gang's territory.

Spray paint is the most commonly used tools for graffiti "artists". Permanent markers and more commonly, white out markers are used as well.

Graffiti is done by those who think it's cool. Peer pressure is a very strong influence among our youth. The common human desire to show off to others and demonstrate one's mettle is likewise a strong influence. Communities can fight graffiti using several approaches.

Begin with Well-Painted Walls

Graffiti is often done in areas where the graffiti artists think their work is an improvement. Court judges are told this all the time by persons who are caught doing the graffiti. Occasionally, as part of the trial (or on their own later), judges visit the scene of the crime. Too often many of them walk away feeling, "sure enough the kids were right, this place is disgusting,, their work was an improvement". Our communities must maintain well-painted walls and community signs.

Graffiti, Like a Disease, is Catching: Quickly Cover It if Spotted
Homeowners, store keepers, and our public works departments should have a backup anti-graffiti system, including extra cans of the original paint.

Alternatively we can keep a set of small pieces of wood painted with the same color originally used. These are called 'paint chips'. Most of our local hardware stores can now quickly match a paint color exactly using modern equipment to scan a paint chip right in their stores. Bring in any sample and these stores can quickly mix colors to match the original.

Quick is the watchword. Do not allow a graffiti artist to show off their work to others for any length of time. Quickly painted over, there is nothing to show off or spread around, so to speak. Clean it up or paint over it as quickly as possible to avoid the graffiti infection syndrome. Homeowners, businesses, and public works departments should be ready for graffiti and paint it over quickly.

Strongly Support Our School Art Classes

Too often when budgets are tight, schools cut back in art class offerings or they just never offer them in the first place. Budgets exist for photocopy paper, filing cabinets, and for office supplies, but if an art teacher needs funding for the student's supplies, "sorry that's too expensive" is often the reply.



Graffiti is mostly done by ignorant youth who do not understand their expressions are in bad taste and they violate our community standards.



Graffiti is often done in areas where the graffiti artists think their work is an improvement. Our communities must maintain well-painted walls and community signs.

The above, of course, is a somewhat unfair and over-simplified statement of the case. Many of our principals and other administrators work extremely hard to find adequate funding for school art programs. So too does our very active Commonwealth Arts Council, part of our Community and Cultural Affairs Department. It is just that these die-hard education professionals need to be supported by our communities to a much greater extent. It's in our own business interest to do so.

Why? - one might ask. In our schools' art classes, trained teachers work each day with our youth. They teach their students appropriate ways to express themselves, plan their work well, not to rush, and to always consider colors, forms, scale, details, etc. Hopefully, students who take these courses will learn to appreciate art and disdain graffiti.

Recognize and Reward Promising Young Artists

By sponsoring art shows, holding art contests, and buying the artwork of our young artists, business firms and agencies are helping to support aesthetic art and thereby combat graffiti.

Agencies and groups, like our several Chambers of Commerce and other non-governmental professional organizations, can even commission (pay) promising young artists to be responsible for the design and rendering of community art works in all of its many forms (mural paintings, community display sculptures, etc.)

For those who best express themselves through their writings, these students can likewise be rewarded through essay contests, particularly those in which sponsors insure that everyone is a winner.

Encourage a business to become a sponsor for a community mural on an appropriate community wall, with a visible (but not too-visible) label indicating — mural sponsored by such-and-such a company.

Likewise, encourage businesses to sponsor good artwork on one or more of our school system's bus shelters (our most common graffiti-prone sites). Our bus shelters should not contribute towards making a neighborhood look trashy. They should instead help make our communities 'look good'.

One effective approach is to include bus users, and the neighborhood in general, in these projects and to gather business financial support. Clearly our communities appreciate good art; clearly we abhor graffiti. Please help give our promising young artists a rewarding outlet.

Support Competitive Sports

Earlier we discussed the human psychological concept of showing off and expressing one's mettle through graffiti. On each school day, there are some students who show off by carrying out their graffiti in front of others. Many of these others are of much younger ages, as each gathers around the shelter waiting for the bus.

Through sponsoring youth sports activities, our island businesses and government agencies help provide appropriate outlets for the



Mural paintings are an effective means of sponsoring community artists and dissuading graffiti.

social need for competition and to just show off. Social workers, principals, and counselors know that students who pursue these sports and recreation outlets are much less inclined to become members of gangs. Instead they become members of teams.

Sports and recreation facilities need to be developed and maintained. Sports achievements need more community recognition. Play hard, have fun. "Better than writing on some wall, dude."

The above are all part of the carrot solution, one very familiar to our civic leaders. These leaders know it is by far the preferable change of behavior method. There is another.

The Last Resort; "The Stick"

The last resort in controlling graffiti is to adopt stern punitive methods. These measures are also effective in fighting crime. Hawaii recently adopted a stringent anti-graffiti law. Offenders pay an appropriate fine and perform supervised work to help clean up their communities. The idea is to make repeat graffiti artists pay a stiffer fine, sit in a youth detention center for a period of time, and then clean up their communities.

Judges do well when they order convicted graffiti artists to clean up, not only their mess but that of others. Judges should always impose a low but reasonable fine at first. These should escalate if and whenever such crimes are repeated. This fine should be used in part to pay for the necessary paint, rollers, and clean up supplies. Fines should also pay for the cost of the mandatory adult supervision.

To the extent allowable by law, judges should directly involve parents in their rulings whenever the matter involves a repeated offense. This helps make parents of repeat offenders more responsible parents. Parental supervision of court-ordered clean ups by their children should be encouraged. Laws mandating attendance of parenting classes are now commonly-employed youth crime deterrence measures.

Requiring people to pay the true cost of their destructive actions, including irresponsible parenting, is a necessary part of our modern society. Far too often, young people are overly-sheltered from the real world; from having to pay the price of doing wrong to themselves, their families, and their communities.

Along the same lines of the law and order approach, passing laws that ban sales of spray paint to adolescents is a recognizably harsh but often a necessary step many communities adopt to combat graffiti. Spray paint is considered a hazardous material. It should be kept in locked cabinets along with all other hazardous household chemicals.

Communicate More Often

[Ed. Note: As a parent of two teenagers at the present time, I can attest that we parents need to have heart-to-heart talks more often, especially with our teenagers. Teenagers in turn, must learn to invite such talks from their parents, not just when they are caught doing something wrong, but at other, more congenial times.



Sports and recreation facilities need to be developed and maintained.



Passing laws that ban sales of spray paint cans to adolescents is a recognizably harsh but often a necessary step many communities adopt to combat graffiti.



The shoreline and inland parks we enjoy are mostly in their natural condition and are only slightly developed.

This promotes parental bonding and reinforces parental responsibility. Likewise, our youth learn that, sometimes, parents do in fact, understand them and their needs.

The old saying goes that when every teenager returns from college as adults, each has a sense of amazement at how much their parents, their grandparents, and most all of their relatives had learned in such a short span of a few years,,,

We need to recognize that our teenagers are struggling to cope with our rapidly changing society and the rapidly changing world community. If they do not get support from those who love them, they will quickly find support from others, elsewhere; others who may only want to take advantage of them. Such is the way of things in our modern age.]

42. 4. 3. Our Scenic Areas, Parks, and Conservation Areas

Staying on the subject of community aesthetics, we now change our focus from the bad (graffiti) to the good (parks, scenic areas, recreational facilities, etc.)

To begin, we should emphasize that scenic areas are not merely an aesthetic concept. These locations represent our true *recreation* areas. It is here that we modern humans return to, whenever we can, from our lives increasingly dominated by technology. We do this to re-create our balance with nature, to re-create our peace of mind.

It is here also, in the presence of our unchanging dominant physical island features (mountains, forests, beaches, streams, etc.) that we make our true identification with our islands' natural heritage.

When we legally establish our parks and scenic areas, we do so — not only for ourselves now — but for our future generations to come. We know that like ourselves, our future generations will also continue to seek these same parks as the temporary refuges from their developed environments. They will probably use them mostly on weekends, just as we do today.

The shoreline and inland parks we enjoy are mostly in their natural condition and are only slightly developed. Wise island leaders set them aside by law, in a sense taking them away from the land-grab-and-develop-at-all-costers.

On Saipan, legislators have established several spots of our island's shoreline as public parks. Inland areas near the Sugar King monument and at Marpi were also established as parks and forests. On Tinian, the land adjacent to Taga and Tatchonya beaches are protected, along with an inland shrine area on Mt. Lasu. On Rota, several shoreline locations are protected both as public parks and conservation areas.

The amenities at some of our public parks exist because planners and park employees foresaw ours' and our future generation's need to rest comfortably, be sheltered from downpours, hold barbecue picnics, etc.

Our parks are especially sought with great joy by our island's visitors. Many tourists come here as temporary escapees from the massively built-up areas of Tokyo, Seoul, Hong Kong, Sydney, and other cities. Large grassy areas with trees and picnic tables are found only at a premium price in such urban environments. Why do so many people travel to our islands? Our shoreline parks and beautiful scenic areas are certainly one of the reasons.

As in the case of our infrastructure, (discussed in an earlier chapter), it is easy for us to take our parks for granted. Unfortunately, there are some who just do not fully value or appreciate them.

Many of us have felt the frustration of seeking out a picnic table and palapala, only to find them all occupied by earlier arriving picnickers.

When we do find a suitable area, too often we first feel disgusted when we find graffiti and litter. Then, pretty soon, we **acclimate** (get used to) the site. Eventually we begin to just ignore the graffiti and litter. We then, often unconsciously, even add some litter and even graffiti of our own.

After our picnic, most of us would be willing to clean up after ourselves. Doing so sometimes quickly becomes a burden, however, as we instantly recall that this same area was bad when we arrived.

We would be happy to clean up after ourselves but now our litter has mixed in with that of others. For their trash we are quite certain that we are not responsible. We get frustrated. We stop cleaning up. Some of our own litter is then left behind, adding to that of others' before us. Our parks and recreation area's litter piles grow.

Certainly this is not what the planners and park employees originally secured public funds for and provided to us, the public. At the time of the ribbon-cutting and picture-taking opening ceremony, these parks were clean and beautiful.

It is an unfortunate truth that we tend to value our parks and scenic areas through a reverse-logic process. Most often we find that we sorely miss these resources when they are lost to vandalism, real estate developers, poor park area management, etc. How can we reverse this trend?

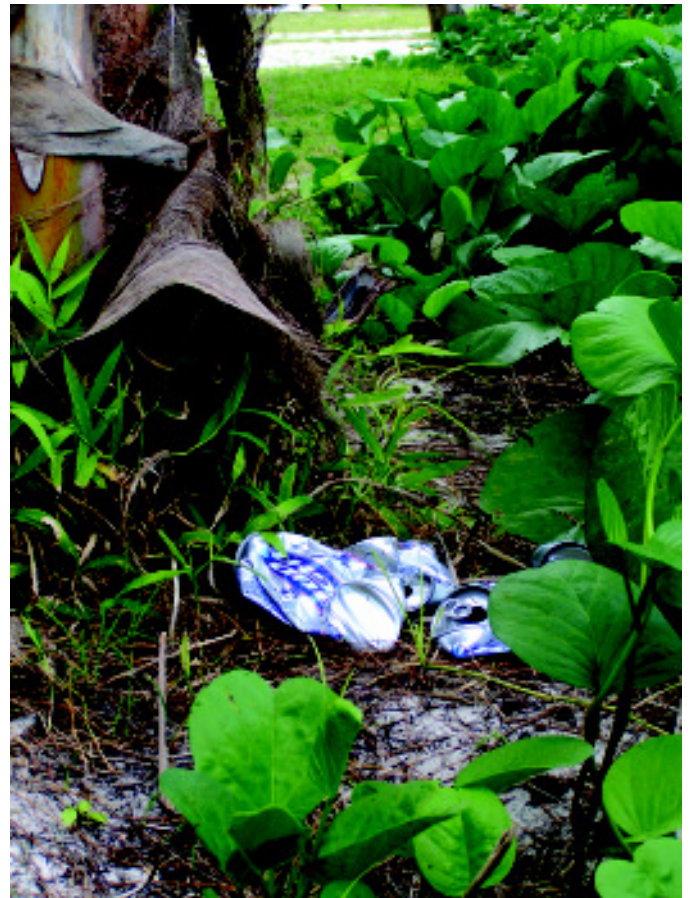
Land Title Counts

At the time of this book's writing, one important needed action is to insure that the legal title to our protected lands and submerged aquatic areas, is placed into the hands of the public agencies responsible for their management. Agency land and aquatic resource managers need clear title control to properly enforce use rules, prohibitions, plan and manage amenity developments, etc.

Too often we legally maintain our exposed and submerged public lands as just "public lands", under the auspices of our public lands program. Having land and sub-marine legal titles authorizes our resource management agencies to fully control all uses within these locations.



Our parks are especially sought with great joy by our island's visitors. Many tourists come here as temporary escapees from the massively built-up areas of Tokyo, Seoul, Hong Kong, Sydney, and other cities.



Everyone feels disgusted when they find graffiti and litter.



During periods of high use, additional portable restroom facilities may be required.



American Memorial Park, one of our most heavily visited parks, is also our best-funded park.

Full Funding

A second needed action is for us, via our Legislature, to fully pay for the costs of our needed park rehabilitation and proper management efforts. For the most part we have not done so.

Instead of paying \$5,000 in tax monies to repair a rest room that originally cost \$50,000 to build, we just simply close the restroom and place a padlock on it. If we do repair it, we often do so with the same, cheap, vandal-prone facilities. We then apply the same ineffective monitoring and enforcement regimes as existed before. Yet, park planners and engineers have found ways to build restrooms and other park amenities to function well under high stress situations.

Parks must be closed to the general public at night, when vandals most often strike. Night-time surveillance by park rangers and police patrols could and should be expected at our parks. Fully deputized rangers should be able to issue after-hours trespassing citations, make arrests, and call for any necessary back up to protect public lives and property.

Use Fees

In many places throughout the world the privilege to visit a park is purchased by paying an entrance fee or a daily use fee. Such fees instill a value that has a dual-edged sword effect on park visitors and park managers alike.

Visitors who've paid the fee demand a high quality recreational experience from the park's managers. Park managers, in turn, work that much harder to insure that park users enjoy their stay and return for future visits. This is because the visitor's fees help fund their salaries and pay for the materials and supplies they use to keep the park in good order. Professional park maintenance personnel and deputized park rangers are employed to see to each park's constant upkeep. They also provide visitors with their law enforcement services and resource interpretation desires as well.

At the time of this book's writing here in the Marianas, we have never applied park use fees. Neither, have we dedicated enough of our tax resources to their care and upkeep. Our parks and grounds programs continue to be one of the least supported areas of our government in terms of funding professional staffing, adequate equipment, training, supplies, and other needs. We just don't value or support our parks to the extent to which they serve us.

42. 4. 4. Saving Our Public's Soil for Our Landscaping Projects

As a final thought on the topics of community aesthetics and landscaping, we add a final observance and recommendation; save our public's topsoil.

In our early chapters, and throughout this book, we have stressed the importance of appreciating and caring for our natural soil resources. Workers always need soil for our public parks and landscape projects. They need good soil with plenty of organic matter mixed into it.

Many municipalities around the globe maintain soil, mulch, and compost piles for their civic improvement needs. Soil from each

road widening, school construction, or other government public works project is saved, screened, and then stockpiled.

Tree branches are shredded by chipping machines. The resulting mulch is stockpiled as well. This is then readily available for use when needed.

Such stockpiles should have large cover tarps to protect them from being washed away by a large downpour. Several medium-sized tarps tied at the grommets work well. It's best if these are kept behind locked fences.

Civil engineers and landscape architects can then use this topsoil for their projects. A soil-spreading machine, one that is specially designed for the task, would be very helpful here. A top layer of mulch afterwards, along with appropriate landscape seedlings, should also be provided.

42. 5. OUR CLOSING AND OUR CONCLUSION

Here, at the end of this, our last chapter, it is fitting that we reflect for just a bit on what we set out to do,,, and where we should go from here.

Someone once wrote that, in truth –

“a person cannot ‘own’ a patch of land (in our case a bit of an island, a patch of a reef area),, etc.,, they can only ‘borrow’ it from their children and their children’s children.“

In this one statement is summarized humankind’s responsibility to care for the ecology of the only life-supporting planet known, our earth.

‘Think globally, act locally’,,,. ‘How does one solve all of the problems of the world?,,, one at a time.’

These are some of the feelings and thoughts each of us involved with this project were inspired by, as we worked to bring this book together.

Herein we’ve included a good number of current hypotheses and working principles from several key scientific and resource management disciplines. We believe they are applicable, here and now, in our good Commonwealth.

We hope that these are understood, accepted and applied,,, or that they are challenged, re-tested, re-analyzed, and improved upon. In either case we the writers would feel our goals of sharing ideas and stimulating considered thought and appropriate actions, would be met.

We also hope that you, our reader, might feel inspired to pursue one or more of the several science and resource management fields we’ve introduced.

We hope as well that teachers, doctors, resource managers, scientists, and students of other island jurisdictions will re-write this



Workers always need soil for our public parks and landscape projects. They need good soil with plenty of organic matter mixed into it.

book into the principles and languages appropriate for your island's people. We trust you would use examples and descriptions of your local flora and fauna (if different from ours), your local weather patterns, your local geology, your local resource management programs, etc.

Perhaps yours has the same information-need ours has (had!!!). As indicated in our Preface, permission to cut and paste from our work, as is applicable to your island's jurisdiction, is expressly given.

So, from us, to you our good reader, 'Peace'.

