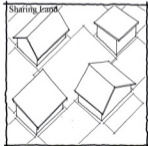


Cluster Level: Patterns

What are Benefits of Cluster Gardening?

There are often within an existing settlement shared open spaces that can be converted into communal productive areas. This section presents the concept of Cluster Gardening in order to develop open spaces for Urban Agriculture. Cluster Gardening can have multiple benefits in the form of sharing resources and supplies. Small parcels of land can be combined to create larger production areas, while working together can maximize profit opportunities.

The pattern section is developed to guide individuals interested in setting up Cluster Garden within their neighbourhoods. Each pattern addresses a question that residents may have in their minds regarding Urban Agriculture in a vacant space near their houses. The aim is to identify open and under utilized spaces present in the existing settlements in order to maximize access to productive land for those who do not have private gardens.



What Can I Do With My Produce?



Personal Consumption



Food Exchange



Additional Income

Food Processing:

There are many things that can be done with what is produced in the garden. It can be consumed by the growers and their family, it can be traded for other required goods or it can be sold for money.



Food that is processed can often be sold for more money than one that is not. Consider ways that you can transform your excess crops into processed food, like relishes and dried spices. In addition strategies like canning and drying can greatly extend the useable life of various foods.

What Types Of Spaces Exist?



Public



Semi - Public



Private

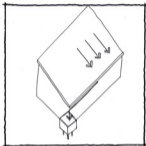
Find A Place:

Survey your area by walking around and looking at it with growing in mind. Look for places where there is unused land: small corners, strips or larger plots. Next, determine who owns the land, and whether it is private, semi-private or public.



Analyzing the type of space will also determine the kind of activity most suited for that place. In the case of a public space, there needs to be a mutual consent among the residents on the nature of the activity as compared to more private individual space.

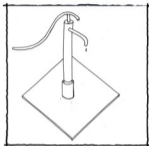
Where Can Water Be Collected?



Rooftop Collection



Water Bodies



Tap Or Well Source

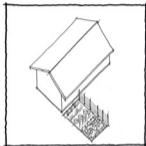
Identify A Water Source:

Look around your home and your community in order to determine where you are going to get water for growing. The closer to the garden, the better, however if you have to transport it from a nearby river, that's alright. You can also collect water from your roof, or from the dishes that you wash.

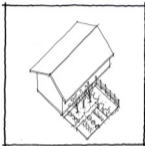


Care needs to be taken that untreated water from toilets and washrooms is not used for irrigation purposes. These types of waste often contain contaminants that can make people sick, especially when used on food that will be eaten raw.

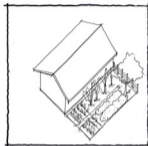
What Size Of Plot Is Needed?



Small



Medium



Large

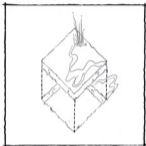
Plot Size And Space:

See how much space is available and decide if it is a small, medium or large plot size. Look at the shape of the plot as well; is it regular or irregular? This will help you determine what is best suited to grow in this area and how much of a yield you should expect.



Production in small spaces can be increased by growing plants which do not require much space, as well as using vertical structures to grow on two levels.

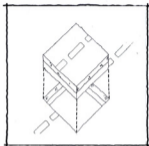
What Is The Ground Like?



Wet



Dry



Paved

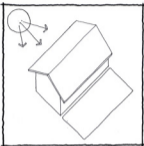
Ground Condition:

Determine what sort of soil you have and whether it is wet or dry, sandy or clayey. You can add animal waste or compost to the soil in order to make it more productive. If you don't have any soil at all, for example in the case of a paved surface, you can fill containers with soil for growing.

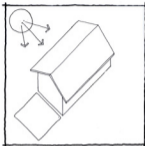


Grasses grow well in clayey soils and help keep dust down during dry periods. Grasses can be as fodder for animals or to hand-weave bags and accessories that could be sold for profit.

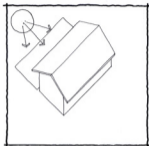
Where Should The Garden Plot Be?



Shaded



Semi - Sun



Full Sun

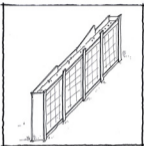
Plot Orientation:

Look up and determine where the sun is in relation to your plot. Depending on the time of year, this will change slightly. By knowing where the sun is and how much exposure your plot gets, you can better choose the plants that will grow well.

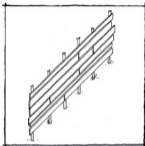


For example, tomatoes are popular plants and require a full sun position. It is important to ensure that they receive water daily in order to produce the best fruit.

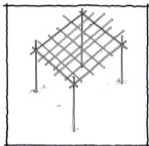
How Can Spaces Be Defined?



Growing Wall



Fences



Trellis

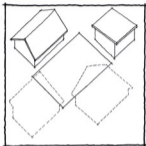
Garden Structures:

Plants grow at different heights and in a variety of manners. Some require trellises to climb up, fences to lean on, or baskets to hang from. Others can be separated by dividers made of earth, which can serve as growing structures as well.

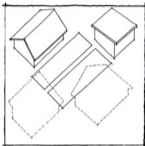


Using trellis for growing can also serve as a semi-covered outdoor room for sitting, selling, or socializing.

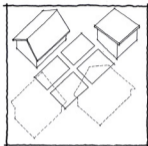
How Does Circulation Change The Plot?



Outer Edges



Single Division



Multiple Divisions

Plot Circulation:

If you have a large, shared gardening plot, look at ways of planning the circulation through and around the plot. Try to maximize the growing area and make the circulation the most convenient for everyone. Think about how wide you need your path to be: will it just be for walking or will there be vehicles going through the area?

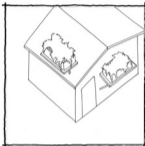


By avoiding multiple subdivisions, more space can be used for urban agriculture.

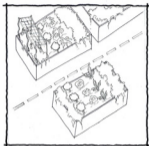
How Growing Can Happen In Difficult Locations?



Small Containers



Medium Containers



Large Containers

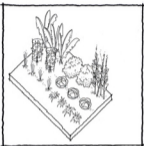
Containers:

You can use a container if you don't have any available soil or if you want to elevate your plants off the ground. This is particularly good for people who may not be able to bend over to tend to the garden. Small pots can be easily moved around while the growing surface area can be increased by using containers on roof-tops or on wall-shelves.

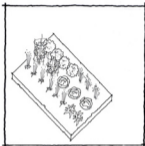


Certain plants like herbs require small space and are more manageable in small containers. However, it must be taken into account that only those plants which do not need a lot of water should be planted in containers, which tend to lose moisture quickly.

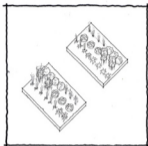
How Can Production Be Maximized?



Plant Orientation



Plant Variation



Plant Rotation

Plot Organization:

Tall plants should not shade the smaller plants. A mix of trees, bushes, shrubs, herbs, vines, hanging plants and root vegetables should be planted. This helps produce a healthy variety of food for consumption and improves the overall biodiversity of the area.

After every growing season, rotating the location of these plants will help them grow better from year to year.

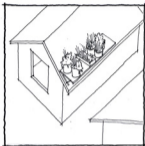


It is important to regularly use fertilizers to replenish the soil with essential nutrients necessary for the healthy nurturing of plants. Consider composting organic waste materials generated within the settlement which produces free high-quality organic fertilizer while taking care of the garbage.

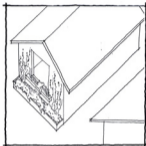
The patterns are applied to an open space present within a cluster of houses in Colombo's Halgaha Kambura settlement as a conclusion to this section. This is to present to the residents the concept of Cluster Gardening in an existing familiar space within their settlement.



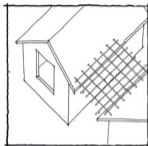
How Can Buildings Be Used For Growing?



Roof Structures



Walls And Planter Boxes



Bridging With Trellis

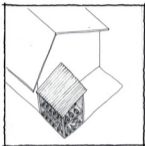
Using Buildings:

You can use your home or any other building to grow on. The roof, the walls, window ledges, etc. are great places where extra space can be found. Ensure that the structure is strong enough to support the weight of planters, plants and earth. Shaded spaces can be created between buildings by bridging the roofs with vined trellis.

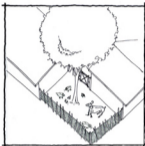


Plant selection is very important when growing in containers. Those plants which do not require much soil or water should be grown in pots and planter boxes. Use vines, creepers or other climbing plants for growing along walls or over trellis.

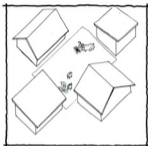
How Can Animals Be Kept In Varied Spaces?



Confined



Semi - Confined



Free Range

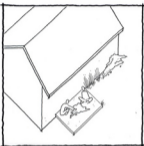
Animals:

You can benefit from animals in your neighborhood by eating them, using their hides, eating their eggs and using their waste for fertilizer. You have to decide if the animals will be kept in private, semi-private or public spaces. Either they can roam free or be kept in a confined area.

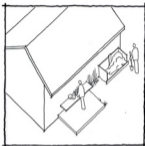


Hens begin laying eggs at 18 to 20 weeks of age and a healthy chicken will lay about one egg per day. A hen does not need a rooster to lay eggs, which are produced in response to daylight patterns.

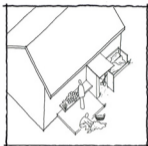
What Types Of Support Spaces Can Aid Growing?



Work Area



Compost



Storage

Accessory Spaces And Structures:

Consider having some shared spaces like a shed, a selling stand or seating benches. A safe place to work, compost, store tools and seeds, and nice places to sit and gather will help make your community garden a productive place.



Consider a micro-credit loan from a source such as the Janashakti Bank Society or Samurthi to purchase seeds and equipment to start a garden.

How Can I Use My Waste?



Composting Materials



Pile Composting



Bag Composting

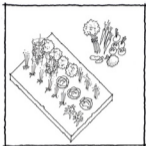
Compost:

Compost is made from decomposing organic waste, such as fruit, vegetables, cuttings and animal waste. By having a few families pile their waste together in an out of the way corner of a lot, the waste will decompose quickly and can be returned to the garden to enrich the soil.



While organic waste can be composted and used as fertilizer, inorganic waste (plastics, metals, etc) can be recycled and sold for money or reused for other purposes like construction, growing, etc

What Types Of Plants Can I Grow?



Edible Plants



Sellable Plants



Building Materials

Agriculture Types:

There are many other things that you can grow besides food. Flowers, herbs, medicinal plants, wood and vines can be sold, used for construction or for separating plots. Think diversely and creatively.

Edible Landscape Tools



31

Not every person can grow all the plant types due to lack of space and resources. Exchange of produce among the growers can allow access to different varieties of plants at no cost.

Part 1: Cluster Level