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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME: SOCIAL CONNECT & RESPONSIBILITY

COURSE CODE: BSCK307

PART 1

ACTIVITY: Plantation And Adoption Of A Tree

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ACKNOWLEDGEMENT:

An activity work of immense Sheer Size and it cannot be proficient by an individual all by them ultimately, we are gratifying to a number of individuals whose qualified guidance and assistance and encouragement have made it a pleasant venture to undertake this activity work.

We are grateful to our Institution JSSATE with its ideals and inspiration for having provided us with the facilities, which has made this activity work a success.

It is our pleasure to tender our heartfelt thanks to our College Trustees for their vision behind, towards the successful completion of our activity.

We would like to express my profound gratitude to **HOD** of computer science and engineering department, and Dr. Supriya B N ,faculty of SCR for providing me with this wonderful opportunity to work on a project with the topic “**Plantation And Adoption Of A Tree**”

We would like to express our special thanks to our faculty Dr. Supriya B N for her time and efforts she provided. Your useful advice and suggestions were really helpful to us during the project's completion. In this aspect, we are eternally grateful to you.

We would like to acknowledge that this project was completed entirely by our group and not by someone else.

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OBJECTIVES:

The objectives of a tree plantation and adoption program could include: increasing green cover, enhancing biodiversity, mitigating climate change by absorbing carbon dioxide, improving air quality, promoting environmental awareness, educating the community about tree care, creating a sense of ownership and responsibility towards the environment, beautifying the landscape, reducing soil erosion, and providing shade and habitat for wildlife

Environmental Objectives:

- To increase the tree canopy cover in a designated area.
- To improve air quality by absorbing pollutants.
- To reduce greenhouse gas emissions through carbon sequestration.
- To mitigate the effects of climate change.
- To conserve soil by preventing erosion.
- To enhance biodiversity by providing habitat for wildlife.

Community Engagement Objectives:

- To raise awareness about the importance of trees and their ecological benefits.
- To foster a sense of community ownership and responsibility for the environment
- To involve local residents in the tree planting and care process
- To educate individuals on proper tree planting and maintenance techniques
- To promote volunteerism and community participation in environmental initiatives

Aesthetic and Recreational Objectives:

- To enhance the visual appeal of the landscape
- To provide shade and recreational spaces for community use
- To create green corridors and pathways within urban areas

Educational Objectives:

- To integrate tree planting activities into educational programs
- To teach students about the ecological roles of trees and their importance to the environment
- To promote hands-on learning experiences related to environmental stewardship

INTRODUCTION:

In this project, we as a team selected the following plants for plantation and adaptation:

1. rose plant, 2. Chilli plant, 3. Millettia pinnata

1. Rose:



A **rose** is either a woody perennial flowering plant of the genus *Rosa* in the family Rosaceae or the flower it bears. There are over three hundred species and tens of thousands of cultivars. They form a group of plants that can be erect shrubs, climbing, or trailing, with stems that are often armed with sharp prickles. Their flowers vary in size and shape and are usually large and showy, in colours ranging from white through yellows and reds. Most species are native to Asia, with smaller numbers native to Europe, North America, and Northwest Africa. Species, cultivars and hybrids are all widely grown for their beauty and often are fragrant. Roses have acquired cultural significance in many societies. Rose plants range in size from compact, miniature roses to climbers that can reach seven meters in height. Different species hybridize easily, and this has been used in the development of the wide range of garden roses.

2. chilli:



Capsicum annuum, commonly known as paprika, chili pepper, red pepper, sweet pepper, jalapeño, cayenne, or bell pepper, is a fruiting plant from the family Solanaceae (nightshades), within the genus *Capsicum* which is native to the northern regions of South America and to southwestern North America. The plant produces berries of many colors including red, green, and yellow, often with pungent taste. It is also one of the

oldest cultivated crops, with domestication dating back to around 6,000 years ago in regions of Mexico. The genus *Capsicum* has over 30 species but *Capsicum annuum* is the primary species in its genus, as it has been widely cultivated for human consumption for a substantial amount of time and has spread across the world. This species has many uses in culinary applications, medicine, self defense, and can even be ornamental.

3. *millettia pinnata*:



Pongamia pinnata is a species of tree in the pea family, Fabaceae, native to eastern and tropical Asia, Australia, and the Pacific islands. It is the sole species in genus *Pongamia*. It is often known by the synonym *Millettia pinnata*. Its common names include Indian beech and Pongame oiltree. *Pongamia pinnata* is a legume tree that grows to about 15–25 m (50–80 ft) in height with a large canopy that spreads equally wide and creates dense shade. It may be deciduous for short periods. It has a straight or crooked trunk, 50–80 cm (20–30 in) in diameter, with grey-brown bark, which is smooth or vertically fissured. Its wood is white colored. Branches are glabrous with pale stipulate scars. The imparipinnate leaves of the tree alternate and are short-stalked, rounded, or cuneate at the base, ovate or oblong along the length, obtuse-acuminate at the apex, and not toothed on the edges. They are a soft, shiny burgundy when young, and mature to a glossy, deep green as the season progresses, with prominent veins underneath.

IMPORTANCE IN DAILY LIFE:

Rose:

Ornamental plants

The majority of ornamental roses are hybrids that were bred for their flowers. A few, mostly species roses are grown for attractive or scented foliage (such as *Rosa glauca* and *Rosa rubiginosa*), ornamental thorns (such as *Rosa sericea*) or for their showy fruit (such as *Rosa moyesii*).

Perfume

Rose perfumes are made from rose oil (also called attar of roses), which is a mixture of volatile essential oils obtained by steam distilling the crushed petals of roses. An associated product is rose water which is used for cooking, cosmetics, medicine and religious practices.

As a food ingredient

The rose hip, usually from *R. canina*, is used as a minor source of vitamin C. Diarrhodon is a name given to various compounds in which red roses are an ingredient.

Chilli:

Culinary

There are multiple ways this species can be used in food, this includes fresh, dried, pickled, and powdered. It is widely used in traditional Mexican cuisine to create dishes such as Oaxacan black mole. It's added to many dishes worldwide for spice and flavor; it's used as a colorant for aesthetics

traditional medicine

In old civilizations such as the Mayan and Aztec, capsicum species including *C. Annuum*. were used to treat many illnesses including asthma, toothaches, coughs, and sores. Today these practices still exist in developing countries, using them for their antioxidant, antimicrobial, antifungal, and antiviral properties. There have also been studies linking the consumption of capsaicinoids and a decreased risk of cardiovascular disease and cancer

Ornamental

Some cultivars grown specifically for their aesthetic value include the U.S. National Arboretum's "Black Pearl" and the "Bolivian Rainbow". Ornamental varieties tend to have unusually colored fruit and foliage with colors such as black and purple being notable. All are edible, and most (like "Royal Black") are hot. Certain cultivars of the New Mexico chile are commonly dried in ornamental arrangements known as ristras.

Millettia Pinnata:

Pongamia pinnata is well-adapted to arid zones, and has many traditional uses. It is often used for landscaping as a windbreak or for shade due to the large canopy and showy, fragrant flowers. The flowers are used by gardeners as compost for plants. The bark may be used to make twine or rope, and it also yields a black gum that has historically been used to treat wounds caused by poisonous fish. The wood is said to be beautifully grained, but splits easily when sawn, thus relegating it to firewood, posts, and tool handles. The tree's deep taproot and drought tolerance makes this tree ideal for controlling soil erosion and binding sand dunes

It can be grown in rainwater harvesting ponds up to 6 m (20 ft) in water depth without losing its greenery and remaining useful for biodiesel production. The seed oil has been found to be useful in diesel generators, and along with *Jatropha* and castor, it is being explored in hundreds of projects throughout India and the third world as feedstock for biodiesel. *P. pinnata* as a biofuel is commercially valuable to the rural populations of places such as India and Bangladesh, where the plant grows abundantly, because it can support the socioeconomic development of these areas.

APPEARANCE IN FOLKLORE AND LITERATURE:

Rose:

The rose is a popular flower that has been featured in many works of literature and folklore, and has been used to represent a variety of meanings:

- **Love:** In ancient Greek mythology, Aphrodite, the goddess of love, created roses. Red roses are a classic symbol of love, and the number of roses given can have specific meanings.
- **Beauty:** In Roman mythology, the goddess of flowers and spring, Flora, asked the other gods to transform her nymph into a rose after she found her dead. The rose has been a symbol of pure beauty, rebirth, and splendor ever since.
- **Power and victory:** In medieval times, roses were associated with power and victory in battle.
- **Homosexuality:** In Japan, the rose is a symbol for homosexuality.
- **Allegory:** In literature, roses have been used as symbols for many things, including love, passion, and a woman as the object of a lover's attention.
- **The Scarlet Letter:** Hawthorne's *The Scarlet Letter* features a rose bush.
- **The Proud Rose Story:** A short story with the moral of not judging people by their appearance.

Chilli:

Chilli peppers, though originally native to the Americas, have become deeply embedded in the folklore and literature of various cultures, especially after their introduction to Asia, Africa, and Europe following the Columbian Exchange. The spice and heat of chillies have led to their symbolic and cultural significance across many regions.

- **In India,** where chillies were introduced by Portuguese traders in the 16th century, they quickly became central to cuisine and folk traditions. Chillies are often used in rituals for protection against the "evil eye" (Nazar). In some villages, dried chillies are hung at doorways, sometimes with lemons, to ward off bad luck and evil forces.
- **Chillies** have found their way into Indian literature and poetry, often symbolizing intensity, passion, and sharpness. In some poetic traditions, the heat of a chilli is compared to the intensity of love or anger. In modern Indian novels, particularly those that focus on rural life or food culture, chillies are frequently used as a symbol of vibrancy and everyday life in the kitchen.
- **Passion and Heat:** Across different cultures and literary traditions, chillies are often symbolic of intense emotions—whether it be love, anger, or desire. Their fiery nature makes them a frequent metaphor for passion, both in relationships and in life.
- **Protection and Purification:** In folklore, chillies are seen as a powerful tool for protection against evil and misfortune, their sharpness warding off negative forces.

Millettia Pinnata:

Millettia pinnata, also known as Pongamia, is a leguminous tree native to the Indian subcontinent and Southeast Asia. It appears under various names in folklore and literature across the regions where it grows, especially in India, where it has symbolic and cultural significance.

- In Indian folklore, the Pongamia tree is often associated with strength, resilience, and utility. It grows in tough, arid conditions, symbolizing perseverance and endurance. Its ability to provide shade, oil, and medicinal uses has led to its presence in stories where nature is depicted as nurturing and protective.
- In some Southeast Asian cultures, particularly those influenced by Buddhism, Pongamia trees are sometimes planted near temples or monasteries. The shade and calm provided by the tree are symbolic of the spiritual shelter and peace found through meditation and mindfulness.
- In ancient Sanskrit texts, such as the *Vrikshayurveda* (The Science of Trees), which discusses the medicinal and environmental uses of various trees, *Millettia pinnata* is mentioned for its healing properties and its oil, which is often used in lamps.
- In some contemporary ecological literature, the Pongamia tree is highlighted for its role in sustainable agriculture, biofuel production, and reforestation efforts. It symbolizes hope for future sustainability and environmental care in narratives concerning climate change and human stewardship of nature.

DISCRIPTION OF ACTIVITY:

Our group has four members, each of us discussed about plantation and concluded to plant two rose plants, one chilli and milletia pinnata. We brought the plants from nearby nursery and planted in the college campus and some parks



OUTCOMES:

The "Plantation and Adoption" project typically refers to environmental initiatives aimed at tree planting and their long-term care through community involvement. These projects are often designed to improve environmental sustainability, combat deforestation, and mitigate the effects of climate change.

Increased Green Cover:

- One of the most immediate and visible outcomes is an increase in green cover. The project helps in reforesting barren or degraded lands, improving biodiversity, and restoring natural ecosystems.

Soil and Water Conservation:

- Tree plantations can help prevent soil erosion, particularly in areas prone to desertification or where agriculture has degraded the land. The roots of trees hold the soil together and prevent it from being washed away by rain or wind.

Improved Air Quality:

- By absorbing pollutants like carbon dioxide, sulfur dioxide, and nitrogen oxides, trees planted through the project can help improve air quality in both urban and rural areas. This can lead to a reduction in respiratory diseases and better overall public health.

Community Engagement and Awareness:

- One of the goals of "Plantation and Adoption" projects is to foster a sense of responsibility toward the environment among participants. Local communities, schools, and organizations are often involved in planting and caring for the trees.
- Adoption ensures that trees are cared for beyond the initial planting phase, with individuals or groups taking responsibility for watering, protecting, and monitoring the growth of the trees, thereby instilling long-term environmental stewardship.

Economic Benefits:

- The project can generate economic benefits for local communities, especially in rural areas. Trees such as fruit-bearing species can provide food and income. Other species might offer timber or non-timber forest products, contributing to the livelihoods of local people.
- Additionally, it can provide employment opportunities in the form of tree nurseries, caretakers, and forest management roles.

Educational and Social Impact:

- By involving schools, universities, and other institutions, the project can serve as an educational tool, teaching children and young people about the importance of trees, ecosystems, and environmental sustainability.
- The social impact of the project can be significant as well, promoting teamwork, cooperation, and a shared sense of purpose in improving the environment.

CONCLUSION:

In conclusion, the "Plantation and Adoption" project serves as a multifaceted approach to addressing environmental, social, and economic challenges. The primary outcomes, such as increased green cover, carbon sequestration, improved air quality, and enhanced biodiversity, directly contribute to combating climate change and restoring degraded ecosystems. Furthermore, the project's focus on community engagement, long-term tree care, and environmental stewardship fosters a deep sense of responsibility toward nature among participants, ensuring the sustainability of the initiative.

The project also offers significant social and economic benefits, such as livelihood opportunities, educational awareness, and improved public health. By strengthening the resilience of communities to climate impacts and fostering a connection with nature, it lays a foundation for future generations to prioritize and protect the environment.

Overall, the "Plantation and Adoption" project emerges as a holistic and sustainable model for environmental conservation, with lasting benefits for ecosystems and societies alike.

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