

TREES ROLE IN NUTURING HUMANS

Gurkirpal Singh

Ikgptu Jalandhar

Abstract— Tree cover is decreasing fast in India, little attention is being paid to the depleting number of urban trees. Instead in the name of development rampant felling of trees for one reason or other is being done like for example, widening of roads, laying new roads, setting up of institutes, industries, airports etc., But hardly any attention is being paid to address the depleting tree cover. This paper is an attempt to bring about awareness about the role of trees in healthy human existence on earth.

Keywords— trees, economics, benefits, environment, existence

I. INTRODUCTION

Humans had existed on this earth since long, they are programmed to exist in sync with natural environment, nature is essential for their existence, but in recent years in the name of development we have turned blind eye to dwindling tree cover. As a result lot of problems had Cropped up in recent times like rise in temperature, air pollution, water pollution, land pollution etc.

II. DISCUSSION

Overall energy use in buildings can be reduced by trees and shrubs. The quantum of energy saved also depends on building type, choice of species of trees, position of trees and shrubs around the building and climate of the area. For example, on west side of building, planting of deciduous trees protects trees from wind and cools building from shade of the trees. Beneficial impacts of planned planting of trees can save energy costs. It has been found that 25 per cent (6) energy can be saved over one year, for a conventional house. Trees act as good interceptors of solar reflection and radiation from buildings. Single full grown tree transpiring 450 litres per day from the leaves has been estimated to give cooling effect equivalent to 5 average size room air conditioners running 20 hours per day(14). Planting trees improves air quality thus giving environmental benefit . Trees reduce airborne particulate matter by about 75 per cent (14) and emit oxygen during photosynthesis. For example, Sufficient oxygen for 10 people to breath (1) can be produced by a 24m tall beech tree with crown diameter of 15m.

The advantages of green spaces have been summarised in a literature review undertaken by Swanwick et al (2001)(16). In the research, Swanwick (2001) found that green space contributed to several environmental impacts, such as, air quality by 17 per cent, climate amelioration by reducing the negative effects that close buildings have on wind and heat anomalies in urban areas, habitat and biodiversity gains, water management, and reduction in noise levels. The findings are inconclusive but supported by other research in this area(22).

Research in the UK has found similar results. Whitford's (2001) study showed that places with greatest number of trees have better carbon-storage capacity and lower level of surface water running off into drains, which allow sewers to cope better with water-flow and minimising flood problems. The research also found that the temperature is 7°C cooler where the vegetation cover is 50 per cent compared to areas where the vegetation cover is only 15 per cent(20).

Another advantages of planting trees is, it helps to reduce pollutants in the air. Trees cleanse the air of both particulate and gaseous air pollutants. For example, a tree-lined street has 10 – 15 per cent less pollutants in the air than none tree-lined streets (7).

- Forest cover in urban area can reduce annual storm water runoff by 2–7 percent, and a mature tree can store 50 to 100 gallons of water during large storms. (11)

Trees also help to reduce noise pollution by absorbing sounds. A area of trees 98 feet wide and 49 feet tall can reduce vehicular noise by 6 to 10 decibels. (3)

- Planting big enough trees on earth berms can cut traffic noise by up to half.(22)
- Trees absorb high decibel noise which are most distressing to people. 35
- Planting planned “noise buffers” composed of trees and shrubs helps reduce 50% of noise. (18)
- The average annual net profit of a mature large tree is \$85 in a yard and \$113 on public land.(11)

Net profits for a yard and public tree calculated over 40-year period (9):

o Large Tree: \$4,320 (yard) and \$3,880 (public)

o Medium Tree: \$1,040 (yard) and \$760 (public)

o Small Tree: \$280 (yard) and \$40 (public)

o Conifer: \$2,040 (yard) and \$1,640 (public)

- Trees clean the air by absorbing carbon dioxide, sulphur dioxide, nitrous oxides and other pollutants, and also provide shade to cars and parking lots, they reduce ozone emission from vehicles.(9)
- On an average, Mature trees absorb 120-240 lbs of particulate pollution each year.(14)
- A big tree removes 60 to 70 times more pollution than a small tree. (2)

Trees divert rainwater into the soil, where bacteria and other microorganisms filter out impurities. This reduces soil runoff and the amount of sediment, pollutants, and organic matter that reach streams. (3)

- Tree shade helps to reduce pavement fatigue, cracking rutting, showing and other distress, thus saving on repair costs.(8)
- Planting 100 million trees in urban areas can store and avoid up to 357 billion tons of carbon over the next 50 years. (13)
- Each year trees in an acre, absorbs carbon produced by driving a car for 26,000 miles. (12)
- Individual trees in urban areas contain about four times more carbon than individual trees in forests.(14) This is because more open structure of the urban environment allows individual trees to intercept more light and grow faster. (14)

Research in Tel Aviv, Israel, similarly points to the benefits of trees. It was shown that, presence of trees results in cooling of air temperature between 1°C, in a heavily trafficked street, to 4°C in the smallest garden. The study also found that shape of the green area has an impact on cooling, and that cooling effect can be felt up to 100 metres from the area³⁰³. This has been supported by Swedish research they found that small parks up to two hectares help in cooling the surrounding areas by two degrees (17).

III. CONCLUSIONS

Need of the hour is to urgently take stock of the situation of depleting trees by increasing awareness among the masses regarding the important benefits of trees in human data to day existence. Quantification of benefits should be done both health wise, economically, socially/so that all round effort is made to increase tree cover in urban areas to optimum prescribed level, so that harmful effects of human existence/development are taken care of. Future research should be done to detail out the quantification of benefits of trees in human existence at micro level.

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