



## IMPACT ASSESSMENT OF CERTIFICATE COURSE IN GARDENING AND NURSERY MANAGEMENT WITH RESPECT TO SOCIO-ECONOMICAL DEVELOPMENT AND BIODIVERSITY MANAGEMENT

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### **Abstract :**

National objectives of India like skill development, cleanliness campaign demands awareness in society and scientific guidance. To achieve the global goals of socio-economical development and biodiversity management academic courses can create effective impact. Case study of Certificate course in Gardening and nursery management which is designed by Community development centre, Shivaji University Kolhapur and conducted at Gopal Krishna Gokhale College since 2004, is systematically done by collecting the data of 250 samples by questionnaire method. It comprised demographic profile of individuals, motivational impact, knowledge, skill, technique assessment, social and economical impact. Global goals like environment management, organic horticulture, biodiversity conservation food security were intentionally considered through assessment method. Exclusively significant impact was judged through the assessment.

### **Significant impact :**

1. Within 10 years 300 green ambassadors were developed with ignited minds to promote society about scientific way of sustainable development.
2. Techniques of landscape designing, kitchen gardening, Waste management, flower arrangements were adopted by 90% of the students in stress free environment.
3. Employment generation and entrepreneurial abilities were achieved by 60% students.
4. Stakeholders were benefited with respect to stress management, creative gardening skill development, in 100% satisfactory way through practical exposure and site visits.
5. Non conventional training practices and applied, project based learning helped to develop trained workforce within less time.
6. Economic development of women and economically weaker people was achieved through training of Scientific kitchen gardening, floral designing and nursery development.
7. Global exposure through International conventions about Bonsai, Floriculture, Flower shows made a confident human resource to train society about environment management. Most of stakeholders have started working through various organizations as well as NGOs to motivate others about food security, organic farming, medicinal plant development and sustainable biodiversity management.

**Keywords :** Impact assessment, Sustainable development, biodiversity, food security. Skill development

### **Introduction :**

Gardening is not only a backyard ornamentation of residences with few plants. Globally it is discussed as an efficient practice for biodiversity management, food security resource as well as sustainable way of stress management and socio-economical development. Horticultural specialist Bernard M. Mabon, author of American gardener's calendar (1804), came from Europe inspired by mission to seize upon opportunities offered by vast new country and promote the kind of good gardening. To support National Wildlife Federation's "Gardens for Wildlife" program, the creation of pollinator habitat through sustainable gardening practices and habitat has been launched. (AHS, Bulletin, 2017). Considering the multifaceted socio-economic benefits community gardens are developed worldwide. National initiatives especially improving nutrition, diet and health. (Patel, 1991). The benefits of

community based gardening projects likely extend beyond food security, as gardens provide fresh vegetables and the process of gardening involves physical exercise. Family and social relationships can be strengthened through community gardening. (Carney, et al., 2009)

In India, gardening is still considered an amateur's activity. Gardening can be redefined with multidisciplinary approach as a beautiful way of land beautification, creative way of waste recycling, sustainable way of biodiversity conservation and magnificent mode for healthy kitchen fragrances as well as scientific project for environment management.

The Livelihood Assessment Tool-kit. (2008), in Rome has mentioned positive impact of kitchen gardens to develop economic status of families which were disturbed due to natural disasters).

Present studies give surprising positive impact was noticed which created trained workforce not only ignited for economic benefits but targeted with aim of sustainable Nation building. The impact assessment can be concluded with Global target of sustainable environment management through waste management and biodiversity conservation.

#### **Methodology :**

Survey of 250 stakeholders who have completed the Gardening course at GKG college using questionnaire with following aspects :

- Demographic profile , economic benefits before and after training(Fig.2 and3) , ecological knowledge, social impact ,biodiversity aspects in garden designs, environmental awareness with respect to organic practices and waste management, biodiversity assessment in the gardens and food security through kitchen gardens, assessment of skills acquired for garden development and related creative aspects, involvement in promotion of knowledge.
- Data was assessed with Millers tool kit for Social impact assessment. (Miller,2012).
- Comparative biodiversity of Censusing was done. ( James,2014)

Designing surveys, evenness, Censusing method-Grid, Transect, Random designs were used The plant species data is categorised in Ornamental plants , medicinal plants ,aquatic species, vegetables. in the gardens. Chart is designed to assess the impact after course completion.(Fig.1)

#### **Results and Discussions:**

**Social impact:** Toolkit is designed to help community gardens to assess their social impact. Social impact is defined as the benefits and resources that are created or shared because of relationships with in and around a community garden. Community gardens help build different kinds of relationships(Miller,2012).Social media groups of trained students exchanged the scientific knowledge about environment management. This is an example of motivating society towards positive energy. Increased access of fresh vegetables not only fulfilled food availability but also made them cheerful which finally resulted in starting “Green shoppee” to share organic green produce with society. “Gardens for health” concept was launched very effectively. It is said that fifteen minutes gardening is equivalent to one hour meditation. Mental health is also important factor of healthy society. Gardening is effective activity to break the social barriers of caste,-religions, gender as well as economical strata. Groups of gardeners

with creamy layered participants enjoyed and exchanged the ideas and material in friendly way. Stress releasing factor was effectively significant. Course students trained others through workshops, seminars, visits and also through local television serial “Chand hirawaicha” which became popular in city and encouraged with positive impact to thousands of viewers about gardening. This was remarkable impact to reach maximum people and success of the course objectives.

**Economic impact:** Greater Philadelphia Gardens report, 2016 shows the economic impact of greater Philadelphia garden by providing employment, tourism, as well as community gardening and skill development workshops, to increase the city per capita income. Same way economic impact is assessed in our case in comparative way. The economic benefits are tested in two ways. Reduction in cost of garden management is effectively reduced after training about organic fertilizer development, bio pesticide use and water recycling ideas as well as mulching technique (Fig :2). Expenses are reduced more than 60%. in all aspects.90% cost is cut as fertilizers purchase is stopped and students are trained to recycle their own gardens garbage and kitchen waste . After acquiring skills like floral designing, landscape designing, bonsai making, terrarium making, bouquet making around 85% students created their own ways as green entrepreneurs (Fig.3). Visits to China and Japan were organized to get International exposure by participating in World Bonsai conventions. Global exposure is thus given.

**Biodiversity impact:** Western Ghats is hotspot of biodiversity. Urban biodiversity is mostly accumulated in gardens. Course made the students aware of its importance. Fig. 1 shows comparative analysis of gardens. Variety in gardens increased with cultivation of many species of medicinal plants, vegetables, fruit vegetables, climbers. The reduction in ornamental plants and lawn area was remarkable. Kitchen gardening training helped and encouraged stakeholders as most of them are women participants. It indirectly invited birds, butterflies and soil microbe diversity.

**Environmental management impact:** Waste management is Global problem. In India it is a National objective through **Swacchha Bharat** mission. Training of kitchen waste recycling was given by various designs development at micro-level. Effective impact of kitchen gardening and waste recycling for garden management proved most successful. Economic development and cost reduction in daily vegetable requirement along

with fresh and organic vegetables availability motivated other part of society by organizing small informal demonstrations and also through T.V. shows.85% participants are working as Green ambassadors to educate society about carbon credits, global warming , organic farming ,biodiversity management as well as endemic plant and vegetable conservations.

**Techniques and skill development: 95** stakeholders are fully trained and working as repited garden designers, writers, green shoppee managers, floral design masters, bonsai artist , organic vegetable sellers, biogas project

consultants, biofertilizer and biopesticides consultantants, nursery men. They are leading the major NGOs like Gardens club Kolhapur and/Kolhapur Bonsai club. Various groups like Palavi, Vasundhara are organizing eco-friendly activities in the city and around.

**Conclusion :**

Effective Socio-economic Impact of Gardening and nursery management course has created a trained work force: Green Army, in the city which is helping society for economical as well as ecological uplifting in stress free and sustainable way which is role model project.

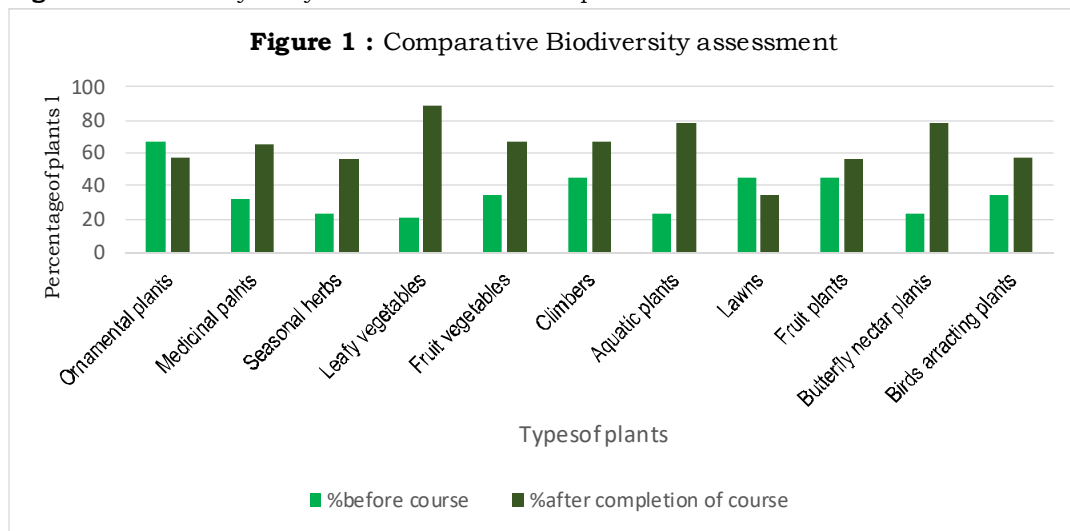
**Table : 1:** Demographic profile

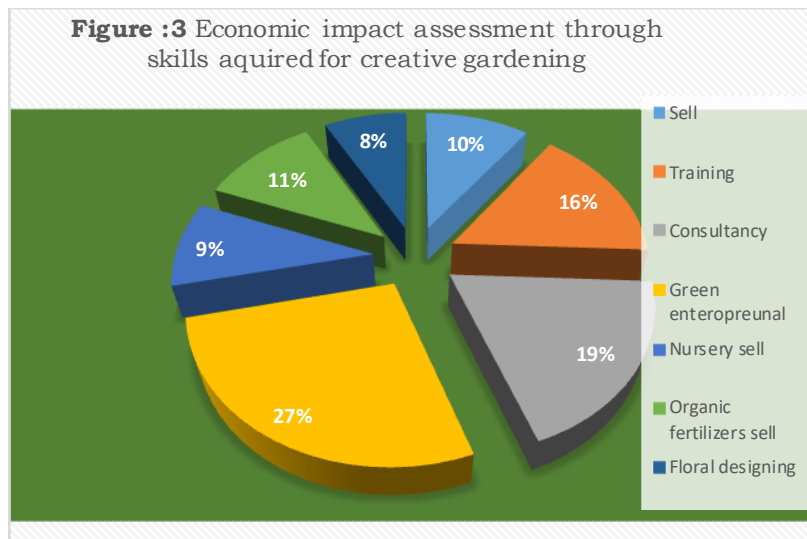
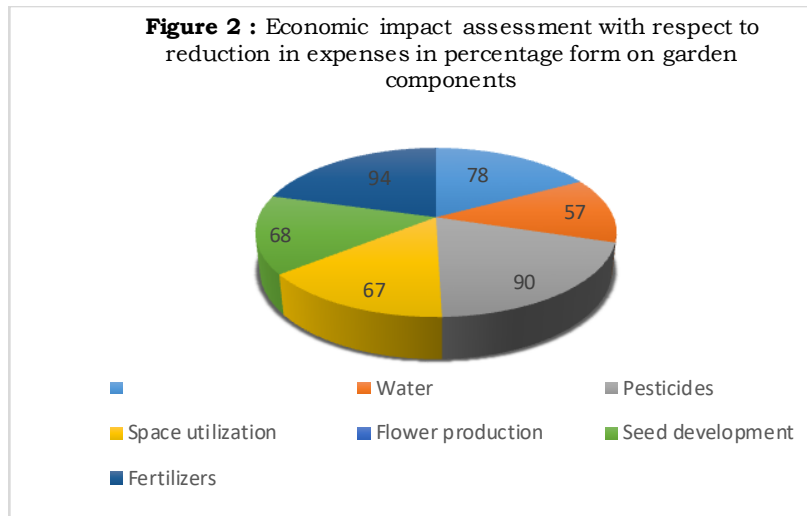
| Characteristics         | Responses  |
|-------------------------|--|
| Mean age of interviewee | <b>14to 72 ( 38.15)</b>                                |
| Education               | Educated 89%   |
| Work status             | House wives: 67%                                       |
| Economic status         | Improved   |
| Marrietal status        | Married:68%, widows: 21%, singles : 12%,Divorcee: 16%  |
| Residential status      | Urban  |
| Type of house           | Bungalows and apartments                               |
| Type of garden          | Residential, Terrace , Balcony with 100% organic base. |

**Table 2 :** Social impact assessment : (Tool kit, Keith Miller,2012 ,

|   |     |
|---|-----|
| • Beautify neighbour hoods,                   | ++  |
| • Provide opportunities for exercise,         | +++ |
| • Increase access to fresh and healthy food : | +++ |
| • Reduce crime,                               | +   |
| • Break down barriers                         | +++ |
| • Teach people new skills and hobbies :       | +++ |
| • Build and strengthen relationships.         | +++ |

**Figure 1 :** Biodiversity analysis before and after completion of course





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