

Inaugural function - **Prof. N. Nandini** (Chairperson, Dept. of Environmental Science, Bangalore University), **Dr. Raje Urs**, (Trustee, BET), **Dr. Venkatasamaiah** (Sri Kalabyraweshwara Ayurvedic Medical College and Research Centre, Bengaluru), **Dr. Sadananda Hegde** (Trustee, BET, Bengaluru), **Mr. Vinay N. Kumar** (General Manager, Akshayapatra Foundation), **Dr. A. N. Yellappa Reddy** (Former Secretary, Dept. of Ecology & Environment and Environmentalist), **Prof. B. Thimme Gowda** (Vice Chancellor, Bangalore University), **Capt. S. Prabhala**, (Chairman, Bangalore Environment Trust, Bengaluru).

A REPORT ON
ECOTHERAPY FOR SPECIAL CHILDREN AT CHARAKAVANA
2014 - 2015

Background

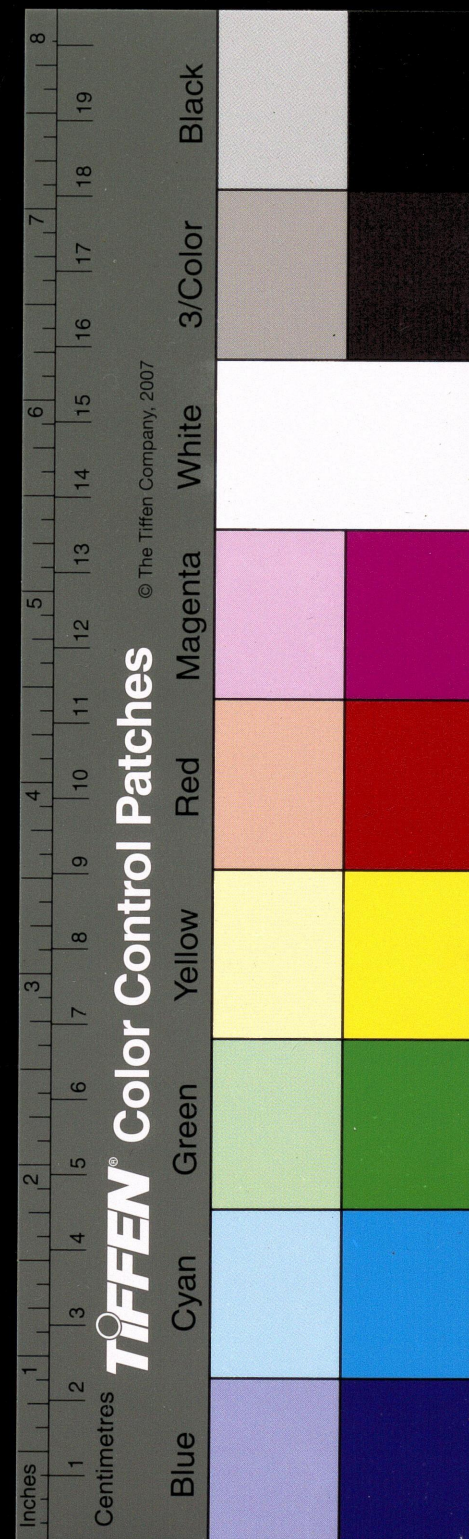
Bangalore City has more than 20,000 mentally challenged children, hereinafter referred to as Special Children, studying in various specialized schools. This is only a fraction of the total since many are ignorant or too poor to afford educating their children. And, their number is increasing day by day.

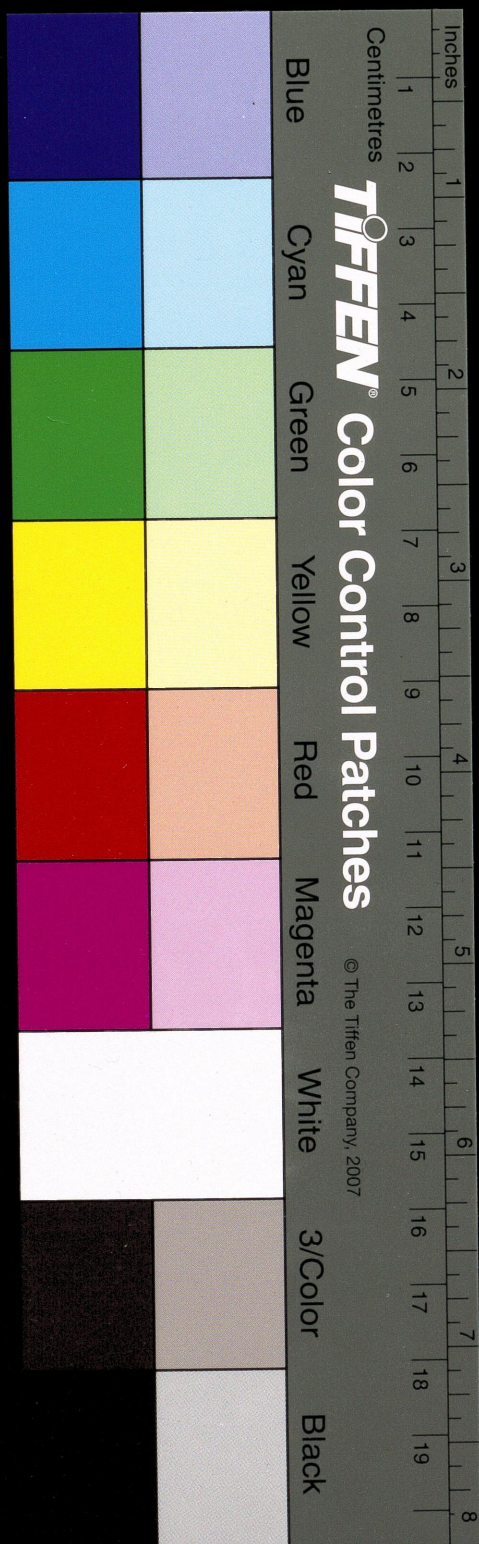
Apart from genetic and birth defects, air and water pollution and unhealthy surroundings are factors which retard mental development of such children. Many children in this city do not get proper exposure to natural green and clean environment where they can walk freely and enjoy nature. In order to improve their intelligence quotient and to encourage them to savour the environment in its natural beauty, Bangalore Environment Trust (BET) initiated a pilot project involving Department of Environmental Sciences, Bangalore University to run a day-long program for the Special Children in the precincts of Charakavana Bio Park in Bangalore University Campus under the expert supervision of Dr. A.N. Yellappa Reddy, the eminent environmentalist and Trustee, Bangalore Environment Trust.

A team consisting of environmental scientists from the Department of Environmental Sciences, Bangalore University, doctors from Sri Kalabyraveshwara Swamy Ayurvedic Medical College & Hospital and yoga therapists from Government Ayurvedic Medical College, Bangalore, besides volunteers was constituted. Akshayapatra Foundation supplied food and refreshments. The once-a-month day-long program ran for an entire year commencing on 15 January 2014 and ending on 17 February 2015.

Special Children

Children who need constant help to lead a normal life are termed as "Special Children". They are also referred to as disabled or differently-abled children. The disability may be physical or mental. Our concern here is mental disability.





Such children suffer from a disorder characterised by impaired social interaction and verbal communication and restricted and unpredictable behaviour. Such symptoms can be recognised at an early age, within two years, by the parents. Autism and Cerebral Palsy are some of the types of mental disorders. Autism is a neuro - developmental disorder in which the cognitive power of the child may be partially hindered, impaired, imbalanced, retarded, suppressed or depressed leading to inability to learn, think, grasp, understand, perceive, express, talk, walk, write, see, recognise, etc. in comparison to a normal person.

Such children require special attention and special kind of education under specially trained teachers who can empathise with them and identify their latent abilities. It is therefore important to create an environment where such children feel safe, supportive, loved and able to express themselves, play and be active. "Kindness is one language that a deaf can hear and blind can see" (Mark Twain) should be the criterion in dealing with Special Children.

It is also important that parents of Special Children, who are generally depressed by their misfortune and at a loss as to how deal with them, are given proper counselling.

Ecotherapy

Ecotherapy is an umbrella term for treatment modalities that include the natural world in relationship of mutual healing and growth of human beings, and as such is a form of applied ecopsychology (Buzzell & Chalquist, 2009). Ecotherapy is the name given to a wide range of outdoor activities in a green environment that aim to promote mental and physical wellbeing. Being able to connect with nature has positive mental health benefits. It has been shown that being active in a green environment can benefit one's mental state and self-esteem. Ecotherapy sessions may include varying amounts of physical activity depending on the type of programme.

Ecotherapy is usually a group activity and is run by trained professionals. For many, it can be used to help in alleviating an existing mental health problem. For others, it can be beneficial in preventing the onset of mental illness, e.g. an episode of depression. Ecotherapy is thus "a readily available process for building environmentally responsible inner peace, social

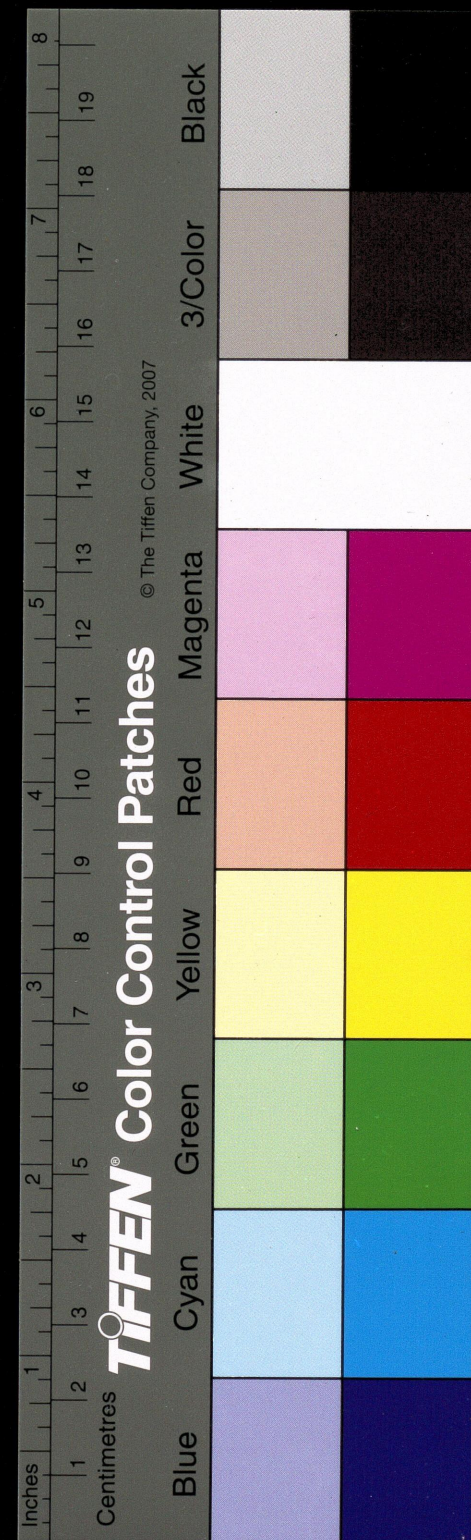
relationships and global unity, environmentally sound self-improvement and social justice” (Cohen, 1995).

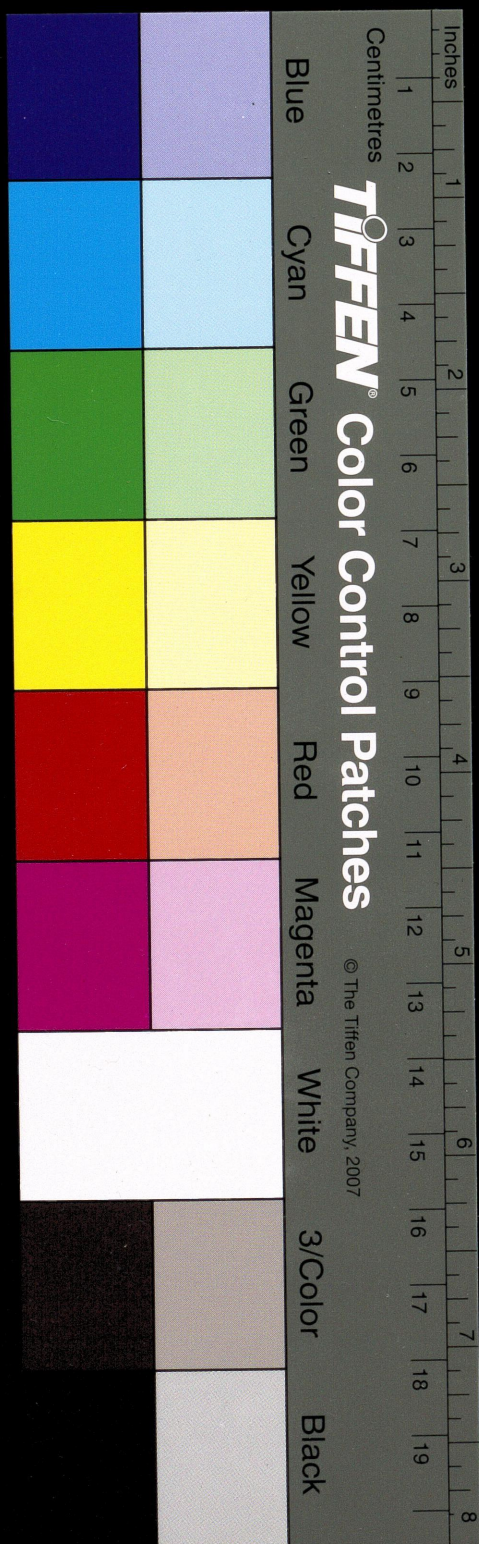
According to Dr. Yellappa Reddy (2015), Ecotherapy may also called Mind Charity. Charity means giving aid to those in need. Special children have a special need, not food or money or clothes, but nourishment for impaired minds. Ecotherapy creates a bio-charity landscape which provides invisible services to activate neurons which enhance cognition and other mental reactions.

Ecotherapy can help children and adults with mental problems. It is common that many doctors prescribe outdoor activities, especially a walk in a natural landscape, as an effective alternative to chemical anti-depression drugs. Researchers from University of Essex, England studied the effect of 30-minute walk in a natural landscape with one in an indoor shopping centre on a sample of 20 people with health problems. It was found that 71% reported decreased levels of depression and anxiety after an outdoor walk and 90% said that their self-esteem increased. A second study with 108 people with mental problem suggested nearly 94% found green exercise boosted their state of mind.

Nature has been used by many therapists in differing ways, based on their recognition that the natural environment has a particular potency in the delivery of health outcomes. Ecotherapy is achieved through interactional and integrated elements of nature - human relationship (Burns, 1998). Ecotherapy is based on the theory that nature has healing power. Patients recovering from surgery heal faster when they have a window with view of a tree or garden. Downcast senior citizens brighten instantly when a baby or puppy come to visit them. Even violent offenders have been seen to behave less aggressively when they are given a window with a view of the great outdoors (Roszak et al., 1995).

Ecotherapy activities are intimately tied to nature and the world in its organic state. Long walks in green environment are encouraged for people suffering from depression. Gardening or fishing can help relieve stress and tension. Help to revitalize or restore a common area in one’s community can create a feeling of purpose and hopefulness. Finding a quiet place to observe the beauty of the living world around allows one to forget his troubles and realize one’s deep connection to all forms of life. Ecotherapy is a fluid approach that offers a wide variety of activities to fit one’s lifestyle and goals.





In the belief that exposure of special children to a bio-geo-hydro setting can be similarly beneficial, Bangalore Environment Trust launched the Ecotherapy programme for special children in the year 2014 - 15 in association with the Department of Environmental Sciences, Bangalore University and Sri Kalabyraweshwara Swamy Medical College & Hospital Bangalore.

Charakavana

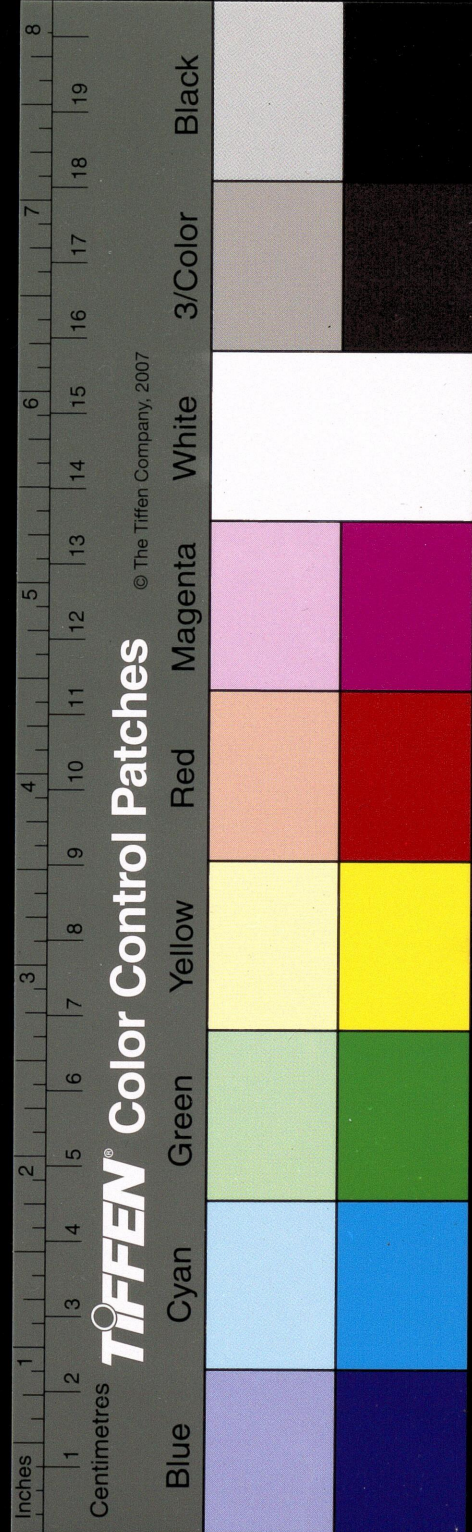
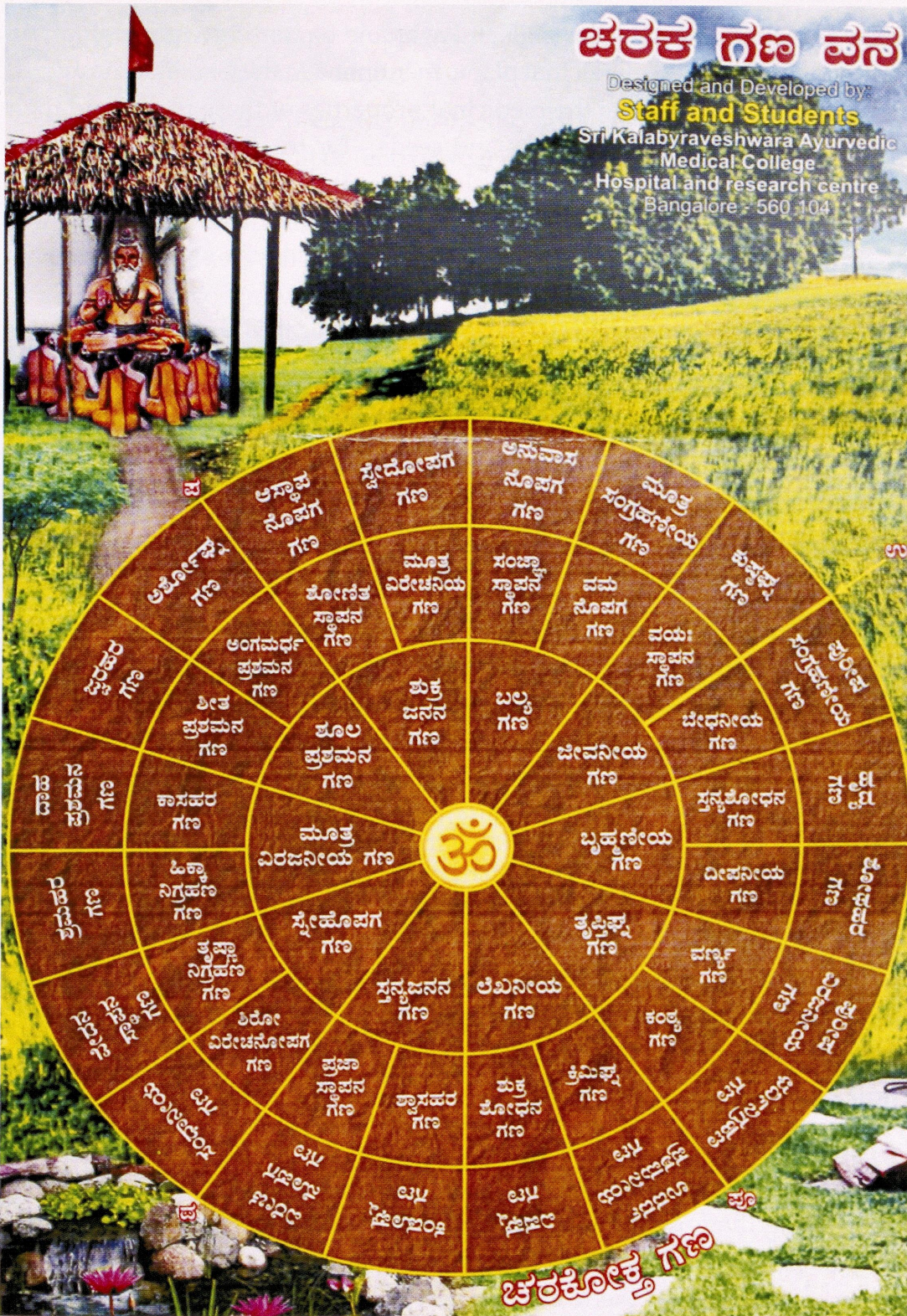
Charakavana is a part of Bio Park in the sprawling campus of 1200 acres of Jnana Bharathi, Bangalore University. It is spread over 12 acres and was developed over the last 15 years starting from the year 2000 - 2001 under the patronage of successive Vice Chancellors and under the expert guidance of Dr. A.N. Yellappa Reddy. Dr. T. Venkataswami, noted Ayurveda doctor from Sri Kalabyraveshwara Ayurvedic Medical College, Bangalore, also played a role in its design and development.

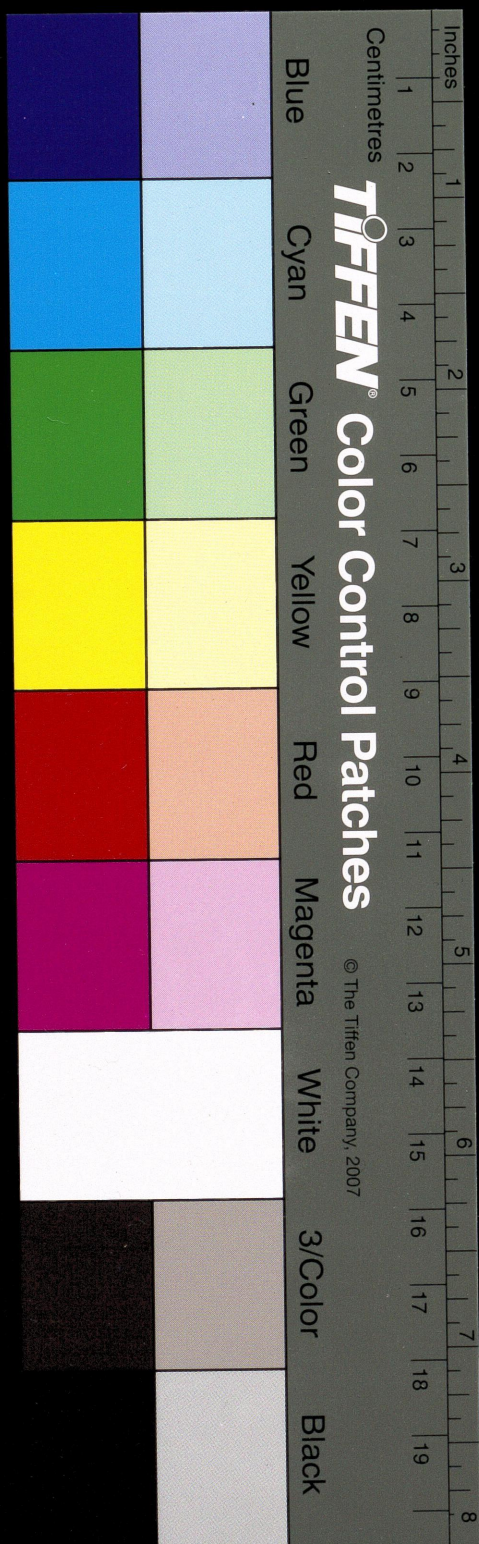
Charaka, one of the renowned founders of Ayurveda in ancient times, was the author of "Charaka Samhita", an authoritative treatise on Ayurveda. He identified about 7000 plants which are useful for treating various diseases. He classified herbs based on their therapeutic uses into 50 ganas or groups, each containing ten native medicinal plants to treat a particular disease or disorder. In Charakavana, entire 12 acre land has been divided into 50 ganas in a pattern of three rings of increasing diameters - outer, middle and inner/core rings with footpaths for access to the ganas. A walk through Charakavana in fresh cool air is not only refreshing and energising but educative. Chirping birds, humming bees and dancing butterflies over the lovely blooms of medicinal and aromatic herbs, shrubs and trees is an unforgettable experience. It is a good exercise for both body and mind.

Ayurveda, the science of life, teaches us how to live a healthy and happy life in harmony with nature. Its approach is holistic - it is not just a science of medicine, but a total approach for a happy, healthy and long life.

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Designed and Developed by
Staff and Students
 Sri Kalabyraveswara Ayurvedic
 Medical College
 Hospital and research centre
 Bangalore - 560 104





The objective of establishing Charakavana is to conserve, propagate and carry out studies on the medicinal plants mentioned in the Charaka Samhita. It is also intended to validate the medicinal properties of these plants and their parts - roots, stem, leaves flowers and seeds - for treating various ailments prescribed in Ayurveda. Besides, it is hoped to study the soil dynamics of the area that would get enriched with the decaying organic material shed by these medicinal plants and other plants already existing in the area and their impact on the medicinal properties of plants that are growing over the years in Charaka Vana.

Based on these objectives, Charakavana was established and about 80 species of medicinal & aromatic plants have been grown. It is planned to enrich the variety with medicinal plants found in other parts of India such as the Himalayas, North East, Central India and South India.

Pilot Project Design

The Ecotherapy Pilot Project was designed to be participatory and is aimed at studying the impact of Ecotherapy on mentally challenged children through exposure to nature and other related activities. Accordingly, all programmes have been organized under the open sky of Charakavana starting with refreshments on arrival followed by a walk in the garden under the supervision of trained volunteers; yoga, music, dance, mudras, sketching/painting, planting medicinal plants, brain teasing, entertainment, etc. followed by lunch.

After relaxation for a while, each child would be given a seedling of a medicinal herb to plant in their home or in the school premises and to tend and water it and watch it grow. They would be asked to report their experience in the next visit. Some of the important medicinal/aromatic plants/herbs to be planted were Tulsi, Ondelaga, Baje, Patchouli and lemon grass, besides seeds of seasonal ornamental plants.

Objectives of the Program

The objective of the Pilot Programme is to test the theory that exposure to nature in all its variety and beauty has therapeutic value for Special Children. Acquainting them with the ecosystem of plants and trees, allowing them to enjoy nature by wandering around, planting and watching the plants grow, tending and caring for them, etc. is expected to have a beneficial effect. Yoga,

dance and aroma therapy supplement Ecotherapy. All these are to be conducted under expert guidance.

Accordingly, in the present pilot study, an assessment of the impact of Ecotherapy will be made at the end of year. Specifically:

- impact of Ecotherapy on the psychomotor and social development.
- to evaluate whether children participating in this program have been benefited by an improvement in self-esteem, interpersonal relationships, attitude towards society and stress management.

Participants

100 mentally challenged children of different age groups and varying mental disability from four Special Schools, 25 from each, along with their parents and teachers participated in this year-long Ecotherapy programme. The four special schools were from HSR Layout, Shankarmutt (Basavangudi), Tata Silk Farm and Vijayanagar. The programme and its objectives were explained to the parents and teachers and only those who agreed to participate were chosen.

Training of Teachers of Special Schools and Volunteers

Training was conducted prior to the programme in which teachers and volunteers were trained in aspects of eco-therapy by different experts.

Training/Program Schedule

BMTC buses were hired to bring the special children, their parents and teachers to Charakavana at 0900 hrs. The day-long program was as follows:

Names of Special Schools & Dates:

Deepika Special School & Nachiketa Manovikasa Kendra

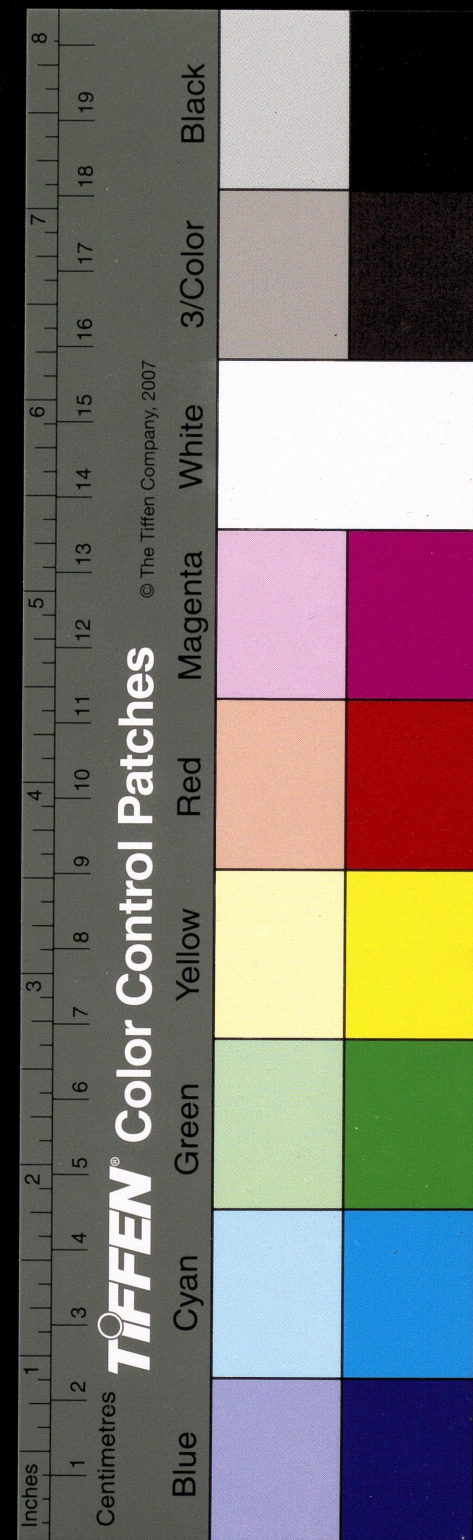
22 February, 22 March, 26 April, 24 May, 28 June, 26 July, 30 August,

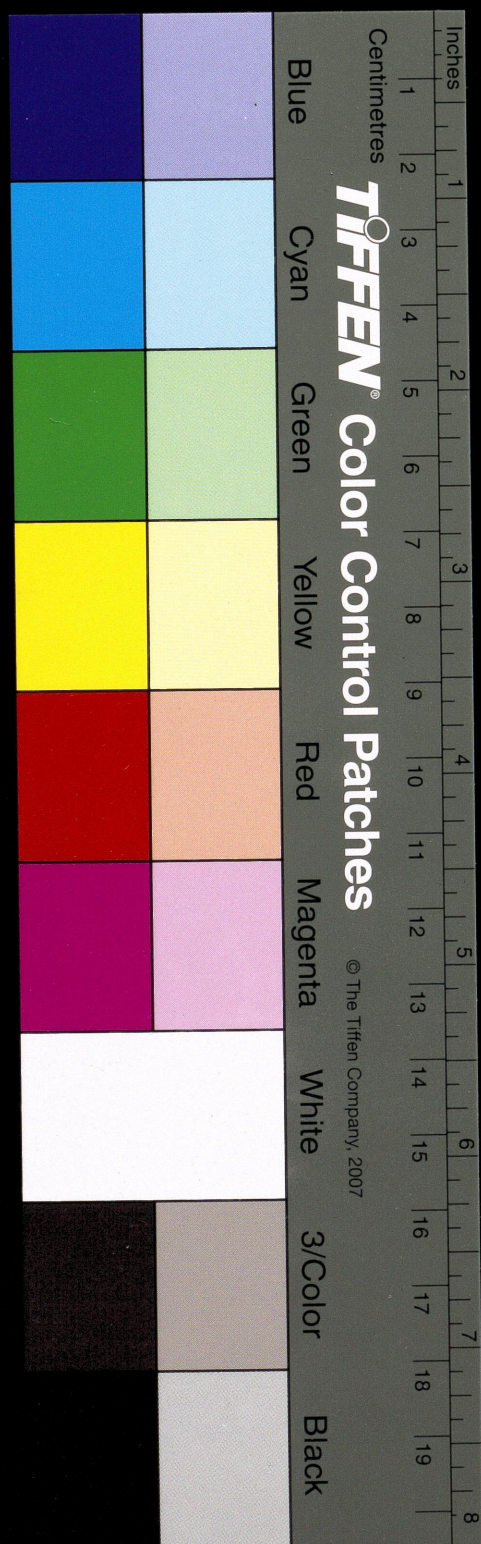
27 September, 25 October, 22 December, 27 December 2014.

Samarthanam Trust & Manonandana Kendra

15 March, 19 April, 17 May, 21 June, 19 July, 23 August, 20 September,

18 October, 15 November, 20 December 2014.





Training Schedule:

9.30am - 10.30am	Yoga and Music Therapy
10.30am - 11.00am	Tea Break
11.00am - 12.30pm	Green Exercises
12.30pm - 1.30pm	Lunch
1.30pm - 3.00pm	Music, Dance & Meditation Therapies and parents counseling

Components of Ecotherapy Programme

Ecotherapy is about building a relationship with nature, so that personal wellbeing and environmental health go hand in hand. Ecotherapy aims to break down the disconnection between self and other (Footprint Consulting, 2006).

The following are its constituents:

1. Green exercise therapy - physical activities in green spaces, e.g. walking, running, yoga, gardening, singing, dancing and playing.
2. Environmental conservation - taking part in the conservation and protection of natural spaces by planting, watering and weeding.
3. Social and therapeutic horticulture (STH) - spending time in gardening, growing food or medicinal plants in gardens or at home.

Sessions usually include some type of formal therapy, such as cognitive behaviour therapy (CBT) or counselling - counselling parents of special children to overcome despondency and provide positive environment at home and to build their confidence.

Inaugural Session

The Ecotherapy program was formally inaugurated on 15 February 2014 by Prof. Thimme Gowda, Vice Chancellor, Bangalore University. Medicinal plants such as, brahmi, vondelaga, shankhapushpi, vacha/baje, jyothishmati, shatavari, ashwagandha, ficus religiosa, etc. were planted and watered by the Vice Chancellor, dignitaries and Special Children. Excitement and joy of watering these plants by the children was indeed a sight to see and an indication of the good outcome of the Ecotherapy program.

As many as 89 special children, 39 parents and 8 teachers from all the selected schools enthusiastically participated in all the programmes of the day.

As a part of the Ecotherapy program following therapies were also conducted during the year.

Colour Therapy

The use of Colour as a therapy is an ancient practice. It is truly holistic, non-invasive and powerful. Colour Therapy aims to balance and enhance our body's energy centres (chakras) which can help to stimulate our body's own healing power. Colour energy can be the catalyst for our healing process and encourages normal and healthy working of the body. It is also a therapy to help relaxation.



While it is common knowledge that light enters through our eyes, it should be noted that light can also enter through our skin. The different frequencies and vibrations of various colours activate hormones causing chemical reactions within the body and influence emotion enabling the body to heal.

Yellow is the brightest colour and represents youth, fun, happiness, warmth and other playful feelings. It is a cheerful, energetic colour which can create positive energy for the Special Children. Therefore, yellow-coloured shirts were worn by the trainers and yellow caps were provided to the children.

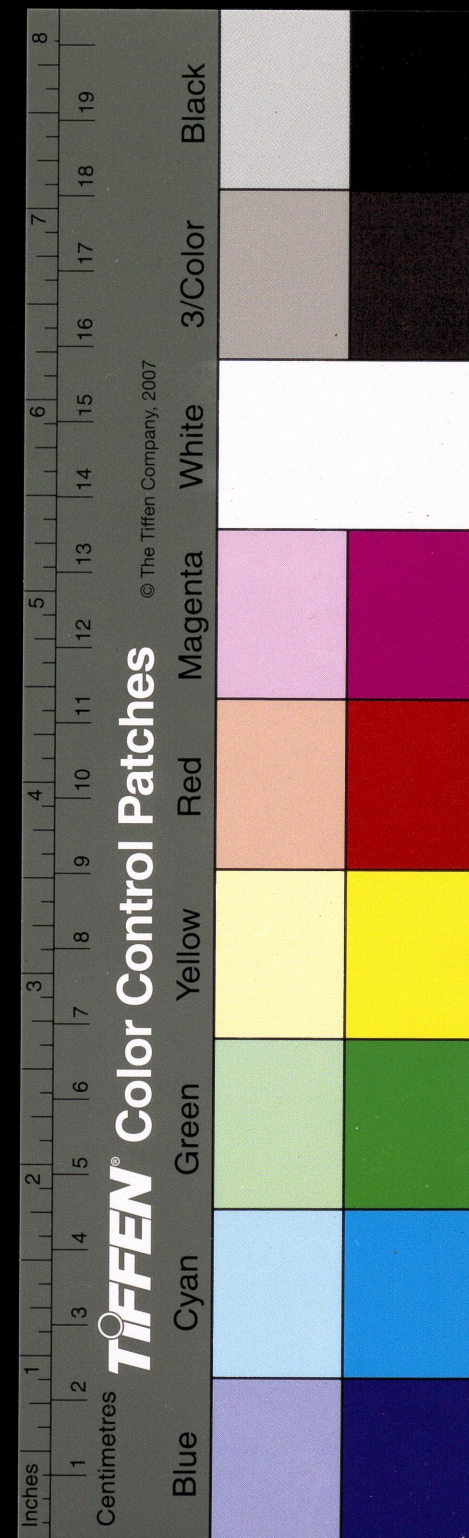


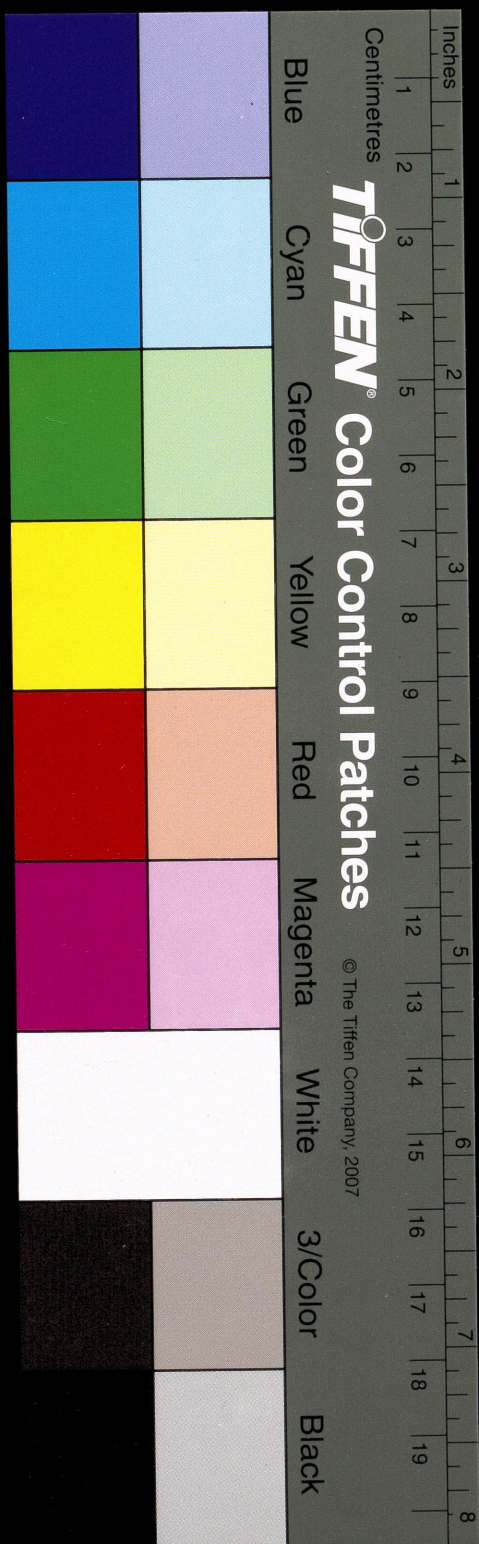
Coloured pebbles

Gardening therapy

Gardening can bring profound change, from improvement in physical or psychological health to transformation of attitude, behaviour, skills, knowledge and abilities. Gardening can have many health benefits for people with disabilities and can provide a source for exercise, friendship, stimulation and relaxation.

Some hospitals and care-homes have 'healing' gardens designed to alleviate stress of patients, visitors and staff. Whitehouse *et al.*, (2001) surveyed users of a





garden in a children's hospital in California. 54% stated that they felt more relaxed and less stressed after visiting the garden; 24% refreshed and rejuvenated; 18% more positive and able to cope. Only 10% experienced no difference in mood. Nearly half of the visitors observed spent less than five minutes in the garden - even very short visits were beneficial. Visitors to the garden wanted to "escape the stresses of the hospital and enjoy the relaxing and restorative elements of nature."



Gardening therapy for Special children: Nisha, Sabiha, Rashmi, Veenashree - MSc Environmental Science Students, Bangalore University. Dr. Sadananda Hegde, Prof. Nandini and Mr. Raghavendra guiding the children.

Gardening can also help with the development of social and intellectual skills, including those needed for social inclusion or rehabilitation. Gardening provides a workout for the respiratory and cardiovascular systems and can improve strength, endurance and flexibility, helping to prevent problems such as heart disease, diabetes, obesity and osteoporosis.

In addition, physical exercise releases endorphins, which help to alleviate stress and its negative effects. Studies have shown that simply spending time in a garden can help lower blood pressure. Gardening can also stimulate appetite and foster a good night's sleep.

Dance therapy

Dance therapy is the psychotherapeutic use of movement for emotional, cognitive, social, behavioural and physical conditions. It is a form of "expression therapy". Dance therapy is founded on the premise that the body and mind are an interrelated continuum that the state of the body can affect mental and emotional wellbeing in manifold ways. In contrast to dance as an

art form which symbolises various rasas through movement of hands, feet and eyes, dance therapy involves free movement of limbs. Through observing and altering the kinesthetic movements of a person, dance therapists diagnose and help solve various psychosomatic problems.



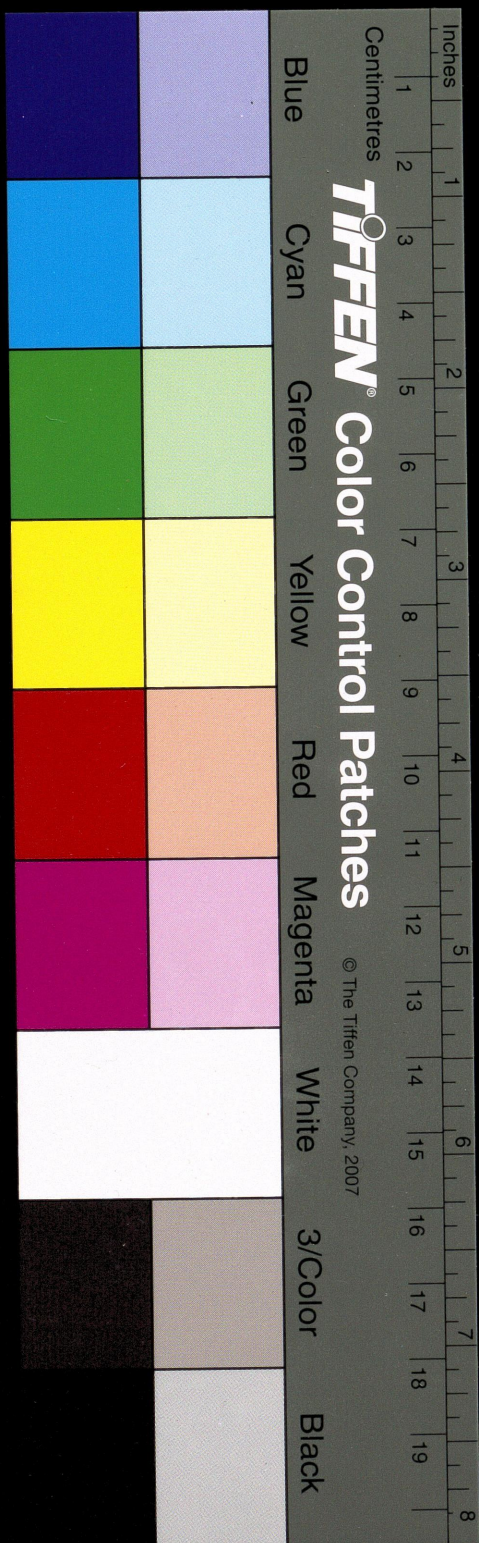
Bharatanatyam and modern dance for mentally challenged children

Dance Movement Therapy (DMT), also referred to as dance therapy, furthers the emotional, cognitive, physical and social integration of the individual according to the American Dance Therapy Association (2011).

Dance is a holistic experience because it integrates mind, body, and soul (Barlin, 1979; Murray, 1975; Stinson, 1982). Through dance it is possible to transcend the self. The child may be able to forget the limitations of self-consciousness and momentarily become someone or something else. Dance and movement exploration programs have been conducted for handicapped as well as non-handicapped children.

At a time a group of 15 children in the age group of 6 to 15 and above with various disabilities were trained under the Dance therapy program. A trained dancer in Bharatanatyam and modern dance forms was the Therapist. The students were trained in techniques that help them gain better posture, balance and coordination. Simple bodily movements and group activities helped the children gain immense confidence which was evident in the public performances in which they participated.





Mudra Therapy

Mudra in yoga is the combination of subtle physical movements which alter mood, attitude and perception, and deepens awareness and concentration. In scientific terms, Mudra provides a means to access and influence the unconscious reflexes and primal, instinctive habit patterns that originate in the primitive areas of the brain around the brain stem.

Each mudra sets up a different link and has a correspondingly different effect on the body and mind. The aim is to create fixed, repetitive postures and gestures which can snap the practitioner out of instinctive habit patterns and establish a more refined consciousness.

Mudra is joining fingers and thumb in various postures. This simple measure surprisingly produces a state of balance in the body and raises the level of the performer's resistance and immunity to disease. There is no time limit for holding fingers in a Mudra. It has a positive effect on the muscles and brain, increasing mental activity and curing mental or nervous disorders. It is useful to



Demonstration of Mudra Therapy by MSc students: Chethana, Veenashree and Mamatha of the Dept of Environmental Science, Bangalore University.

free one of anger, excitement and stress, and promotes concentration, increases memory and sharpens intelligence. Insomnia can be cured by the regular practice of prescribed Mudra.

Yoga Therapy

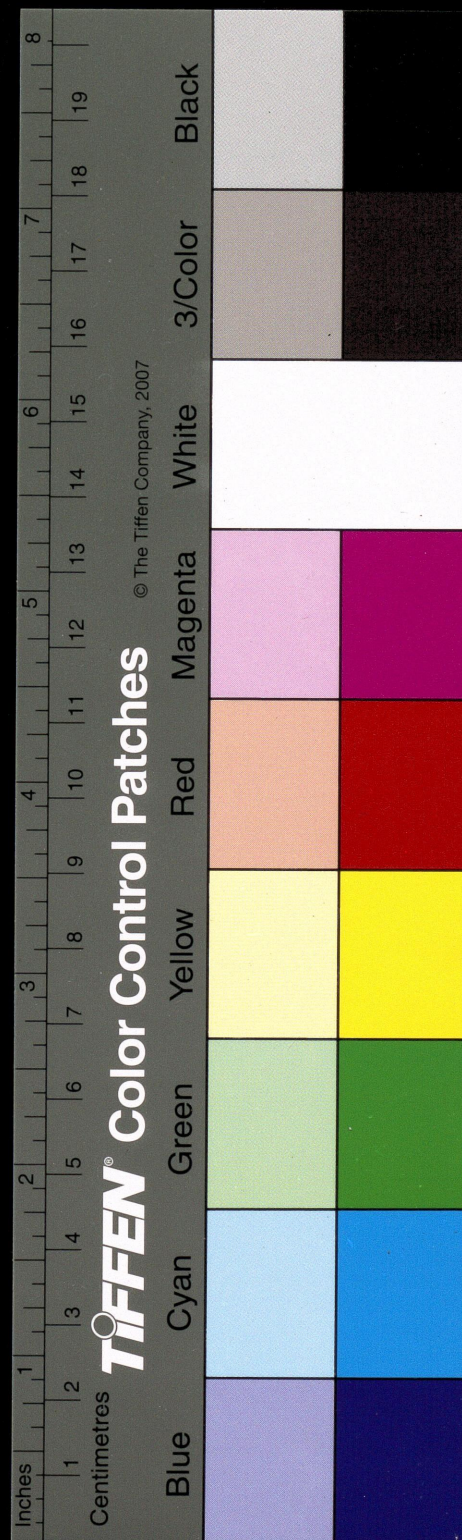
Yoga is an age-old scientific system of physical and mental practice. Its purpose is to help each one of us achieve our highest potential and to experience enduring health and happiness. The greatest benefit from practicing *asanas* comes when we learn how to relax in a given pose. Contrary to common belief, real relaxation results from a state of deep concentration, in which the mind is totally focused on a single object. During the practice of *asanas* in a green environment like Charakavana, the object of concentration is the body. Children focus their mind on the incoming and outgoing breaths, steady motion and extension of different muscle groups or other bodily sensations.

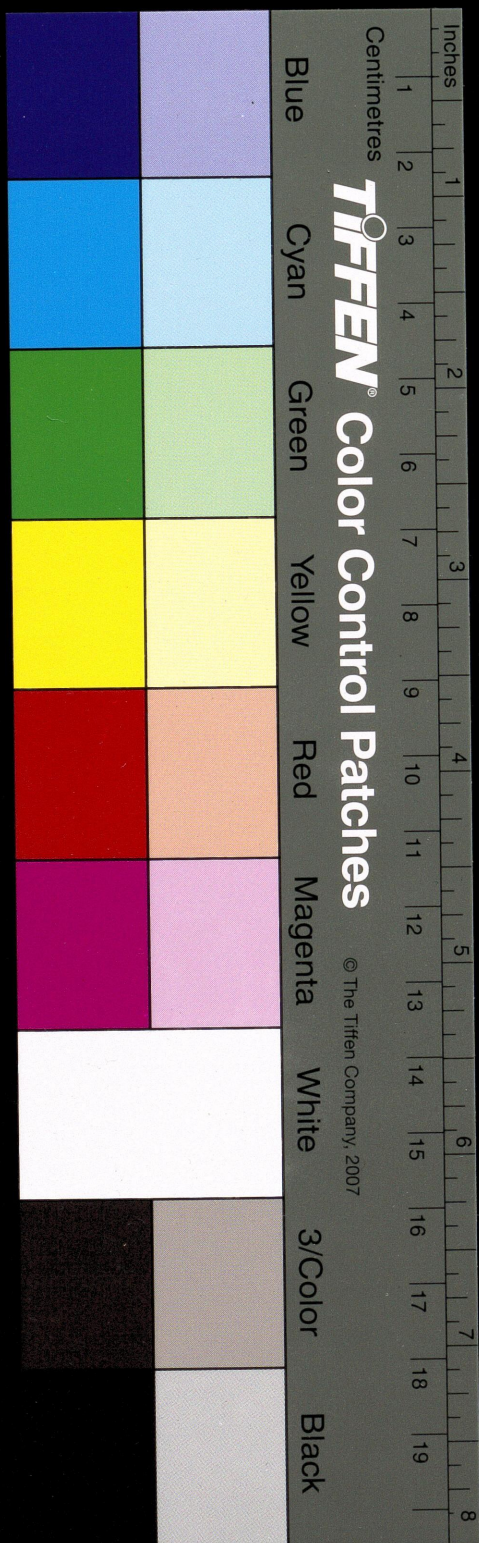


Demonstration of Yoga by Dr. Lalitha Shankar.

Although modern medical approaches are being used to cure the mentally retarded, they have achieved only small success. In comparison, yoga therapy has been found to be beneficial, because the mode of action of many psychiatric drugs is not fully clear. It is probable that this is because the role of neurotransmitter agents themselves in mental disorder is poorly understood. Tranquilisers, antidepressants and anti-convulsives are given to children with mental disorders, but many of them have considerable side effects.

Certain yogic techniques e.g., specified *asanas*, some of the *shatkarmas* – such as *trataka*, *kapalbhati* may be useful for the development of mentally handicapped people and they have no side-effects. They act quickly as tranquilisers; each and every mentally retarded child can benefit.





Homa Therapy

Homa therapy is the science of bio-energy. It is a Sanskrit word used here synonymously with *Yagnya*. *Yagnya* is the technical term from the Vedic science of bio-energy denoting the process of removing toxics in the atmosphere through the agency of fire – healing and purifying the atmosphere with fire as the medium.

It is believed that the atmosphere can be purified by putting certain materials such as medicinal herbs into specially prepared fire, accompanied by chanting certain word combinations. That purification then gets passed on to all life-forms which are sustained by that atmosphere. It is based on the practice of bio-energetic fires tuned to the circadian rhythm of sunrise and sunset.

During *Homa*, the micro ingredients in the fire reach the body cells through breath. Moreover, the sound vibrations produced by different *mantras* for different diseases stimulate the body cells and benefit the body. It is holistic in that it treats both the environment and the individual. Our mind is dependent upon a harmonious flow of *Prana* energy which connects us with the cosmos.



Homa therapy by Prof. Jogin at Charakavana

Music therapy

Research has shown that music has a profound effect on one's body and psyche. In fact, there's a growing field of healthcare known as music therapy, which uses music to heal.

Those who practice music therapy find benefit in using music to help with pain management, to ward off depression, to calm patients, to ease muscle tension and for many other benefits. This is not surprising, as music affects the body and mind in many powerful ways.

Research has shown that music with a strong beat can stimulate brainwaves to resonate in sync with the beat, with faster beats bringing sharper concentration and more alert thinking and a slower tempo promoting a calm, meditative state. Also, research has found that the change in brainwave activity levels that music can bring can also enable the brain to shift speeds more easily on its own as needed, which indicates that music can bring lasting benefits to one's state of mind ie, even after listening stopped.

With alterations in brainwaves come changes in other bodily functions. Those governed by the autonomic nervous system, such as breathing and heart rate can also be altered by the changes music can bring. This can mean slower breathing, slower heart rate and an activation of the relaxation response, among other things. This is why music and music therapy can help counteract or prevent the damaging effects of chronic stress, greatly promoting not only relaxation but health.

Music can also be used to bring about a more positive state of mind helping to keep depression and anxiety at bay. This can help prevent the stress response from wreaking havoc on the body and can help keep creativity and optimism levels higher, in turn bringing many other benefits.

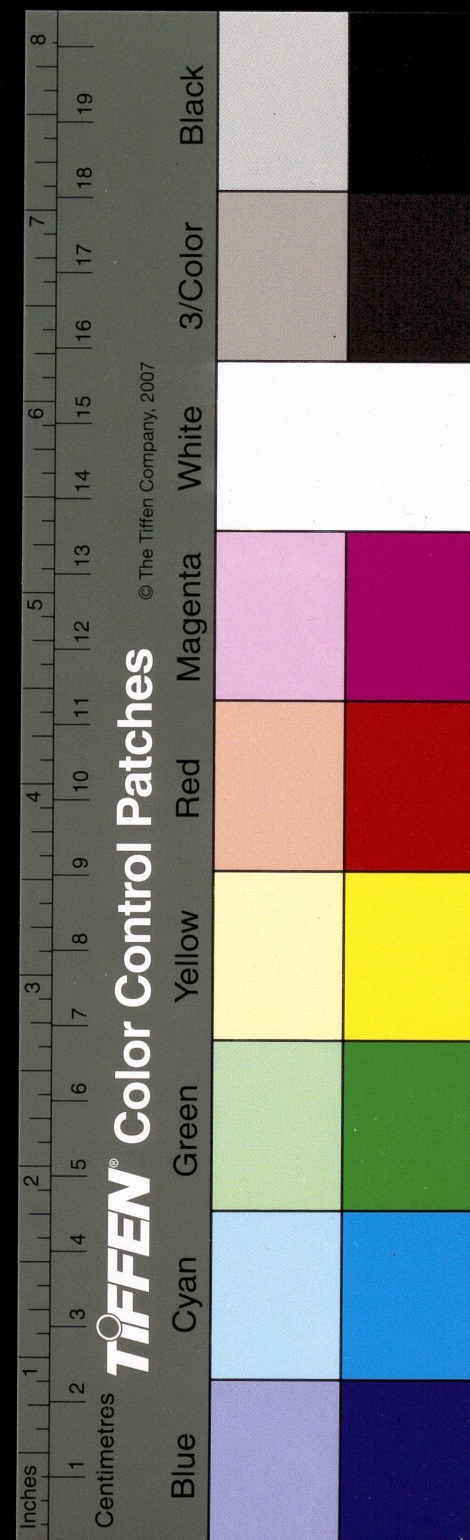
Music has also been found to bring many other benefits, such as lowering blood pressure, boost immunity, ease muscle tension and more.

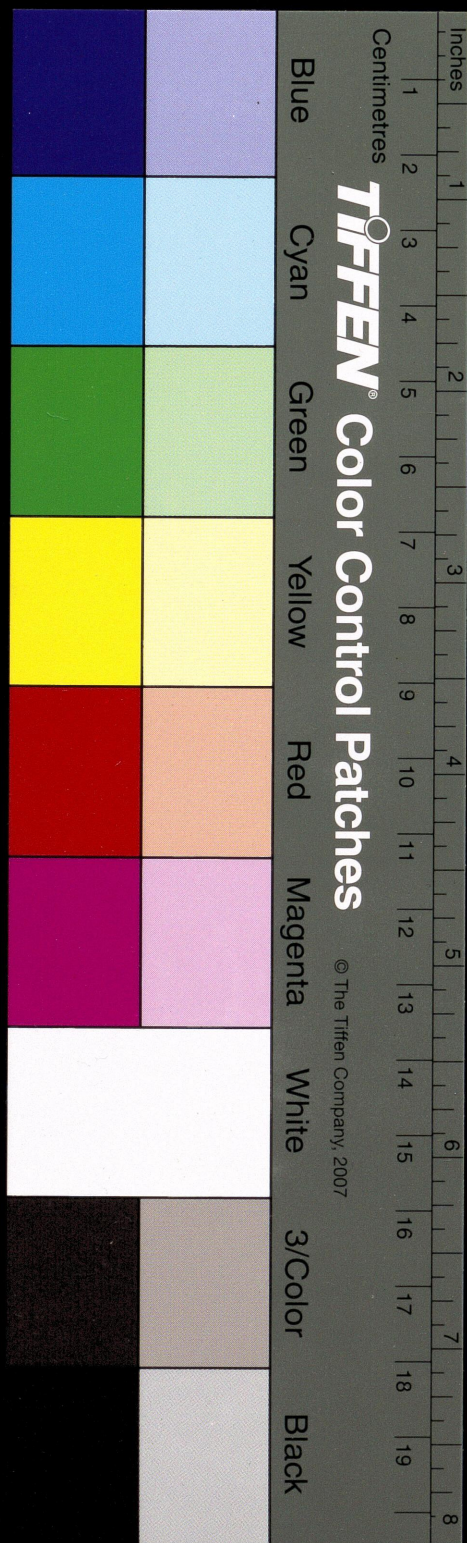
Music Therapy was guided by Mr. Goutham Reddy, Undergraduate Student, Department of Environmental Science, St. Joseph College, Bengaluru.

Eco Deepavali

Deepavali, the festival of light, joy and happiness was celebrated on 23 October, 2014. The organisers joined the Special Children to celebrate Eco Deepavali. No crackers were used to bring awareness to the public about the ill-effects of noise and smoke from the bursts. Only oil lamps were used.

Light symbolises knowledge - illuminating and "enlightening" - removing darkness, ignorance and evil. The light of an oil lamp is believed to bring prosperity, as knowledge is ultimate wealth. The wick is a symbol of energy and its light drives out ignorance.





We all know that many events and functions in our country start with lighting an oil lamp. It is an invitation to the Divine to come and bless us. In temples, the ritual of *Aarati* by burning camphor by devotees is common. It is symbolic of destroying impurities.



Celebration of Eco Deepavali by mentally challenged children with MSc Environmental Science Students, Bangalore University in the presence of Dr. Sadananda Hegde, Dr. Raje urs, Dr. A.N. Yellappa Reddy and Prof. Nandini and Dr. Paramesha Naik.

Different types of wicks are used in an oil lamp. Wick made of banana stem fibre helps to obtain forgiveness for mistakes; a cotton wick (which is the most popular) helps to obtain good fortune; wick made of lotus stem fibre removes prarabdha karma and establishes a happy and prosperous life; wick made of pulp of white madder plant bark increases wealth and dispels bad luck; from wick made of a new yellow cotton cloth one obtains the grace of Goddess Parvati and wick made from a new red cotton cloth helps remove any obstacles in marriage and child bearing.

The ghee and the flame signify Goddess Lakshmi who blesses us with wealth; brightness of the flame symbolises Goddess Saraswathy who blesses us with education and knowledge, and the heat from the flame signifies Mother Durga who burns away and destroys all evil and the nefarious.

Different types of oils are used to light lamps with different benefits.

- i. Ghee from cow's milk: ensures prosperity, health and happiness.
- ii. Gingelly oil or sesame seed oil: ensures removal of obstacles and evil effects. Very popular for praying to Lord Shani or to please Shaneeswaran during the Mahadasha, Antardasha and Sadesati periods of Saturn.

- iii. Castor oil: ensures fame, happy family life and to gain a devotional temperament.
- iv. Panchadeepa oil: It is highly recommended. It is a mix of Coconut Oil/Gingelly Oil, Castor Oil, Neem Oil, Iluppai (Mahua tree) Oil and Cow's Ghee in the ratio of 3:2:1:2:2. A Panchadeepa Oil lamp will mitigate all evil; keeps home and its inmates protected from evil, illnesses and bad thoughts and evil eye; ensures prosperity - granaries full, home brimming with joy and laughter and children healthy and obedient.

Lighting oil lamps in different cardinal directions has certain significance:

North: The most preferable direction to place and light a lamp. One will be blessed with eight kinds of wealth or *ashtaishwaryas* by Goddess Lakshmi,

East: It will ensure good health and peace of mind.

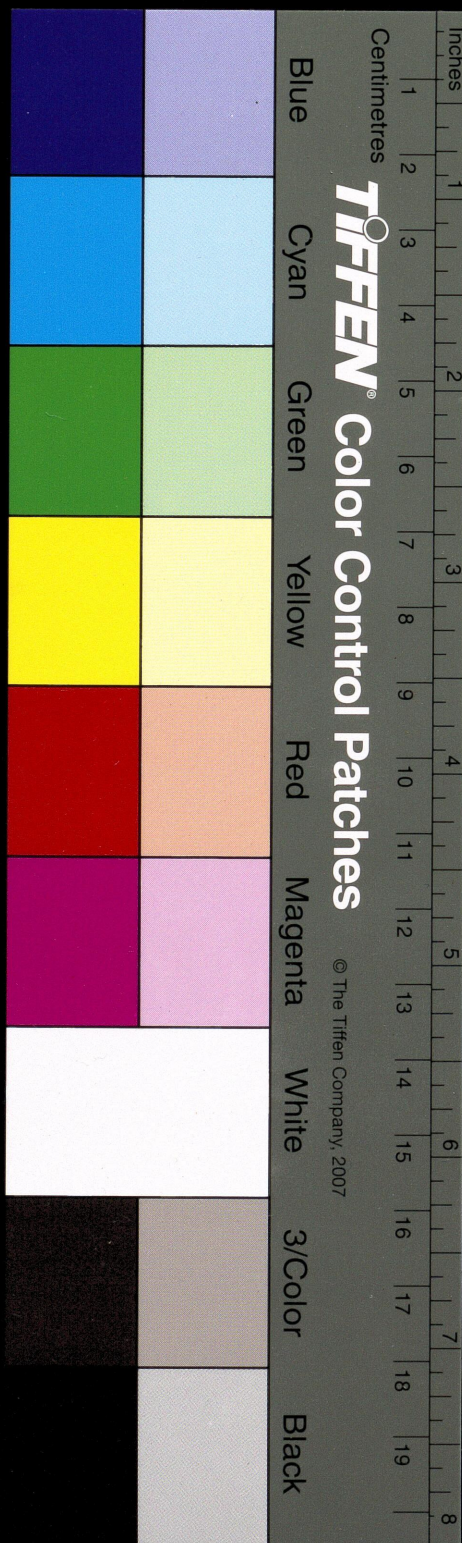
West: It will free you from debt and ensure victory over foes.

(**Note:** Never place and light a lamp in the south direction. It will bring bad tidings.)



Performance of a skit by students of Environmental Science (Ms. Rashmi, Ms. Nisha, Ms. Veenashree, Ms. Mamatha, Mr. Raghavendra, Mr. Jagadeesh, Mr. Kumar Naik, Mr. Halesh, Mr. Pruthiviraj) on the eve of World Water Day on 22 March 2014.





World Water Day on 22 March 2014

World Water day was celebrated during the training program to bring awareness about the importance of Water Conservation. Water is essential for survival – human beings can last three weeks without food but a day or two only without water. Water is also a source of energy. In olden days water wheels were used to pump water. Water is used for generating hydroelectric power. Conversely, about 8% of global energy is used for pumping, treating and transporting water to various consumers. With this background, a skit was performed by the students and scholars of the Department of Environmental Science, Bangalore University to bring awareness on conservation of water and energy.

Valedictory Programme

The year-long Eco Therapy Pilot Programme for mentally challenged children which started on 15 February, 2014 came to an end on 17 January 2015.

A valedictory function was held on 5 February, 2015. It was attended by Prof. K.K. Seethamma, Registrar Bangalore University, Dr. A.N. Yellappa Reddy, Captain S. Prabhala and Dr. Sadananda Hegde, of Bangalore Environment Trust and Prof. N. Nandini of Department of Environment Sciences, Bangalore University.



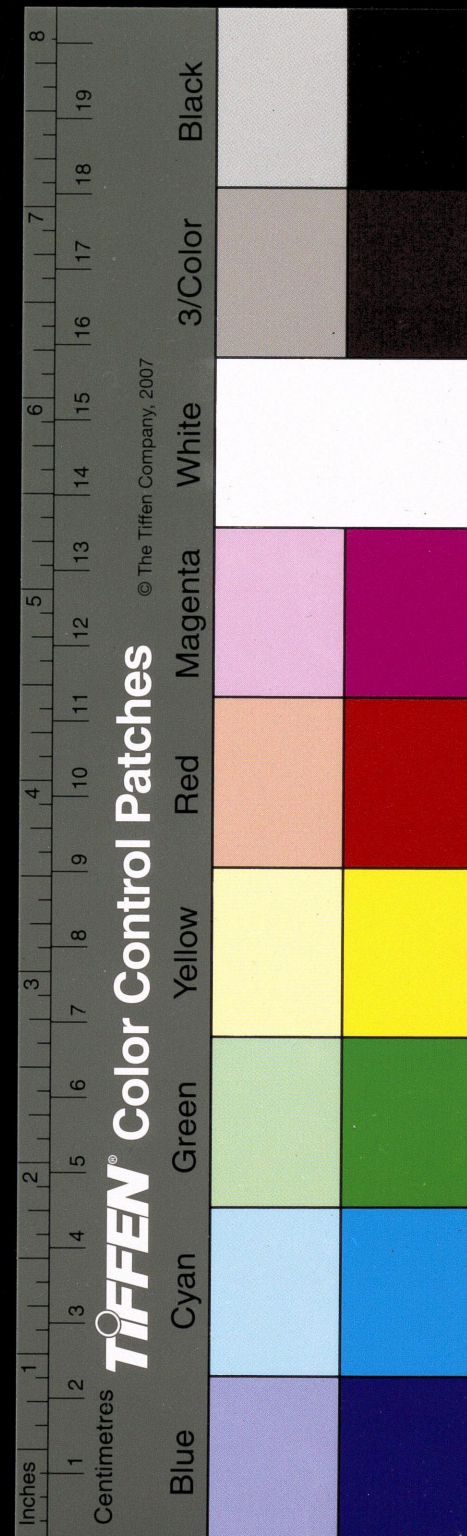
Valedictory function – L to R: Captain S. Prabhala, Dr. Sadananda Hegde, Prof. K.K.Seethamma, Prof. N. Nandini, Dr. A.N. Yellappa Reddy.

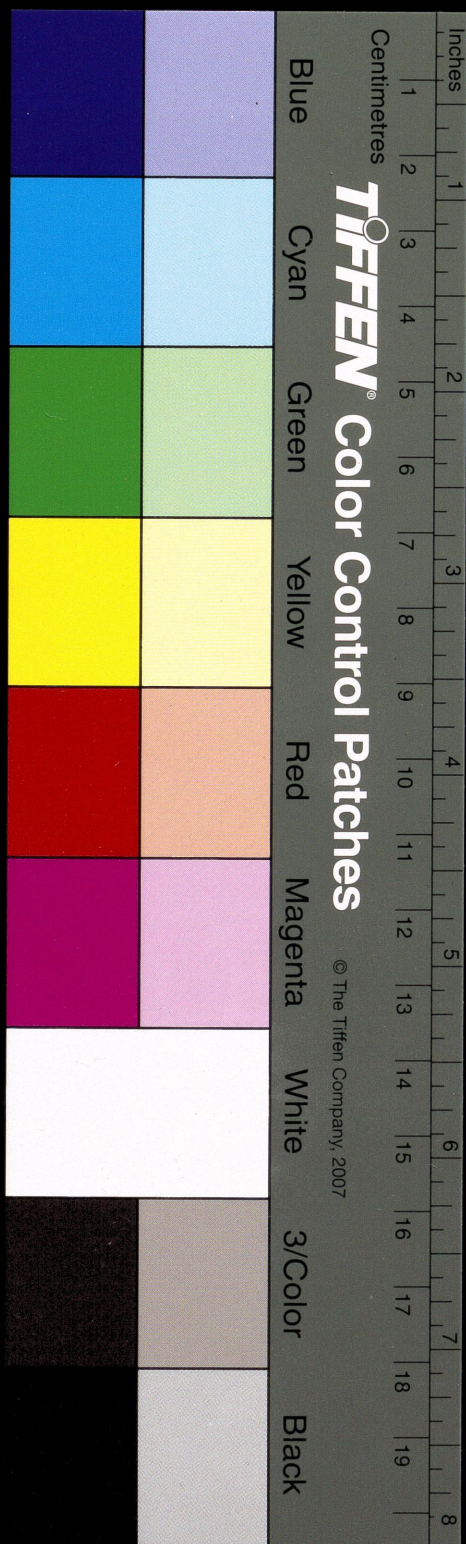


Two special children narrating their views about the Ecotherapy programme.



Valedictory function - Special Children, Parents, Trainers and Organisers.





Assessment of Ecotherapy Programme

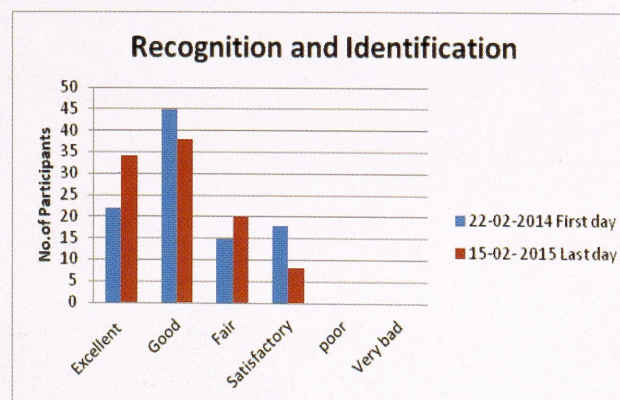
The target group consisted of Special Children with varying ages and mental disability, coming from varying family backgrounds and incomes. All the four schools selected regularly participated for five months. However, Manonandana School pulled out because of their internal problems in sending the children for this program. This has decreased the total number of attendance of special children to about 75 from sixth month onwards. Although attendance of most of the children were regular, three or four children were absent in some months because of illness and family functions.

An assessment carried out before the commencement of Ecotherapy programme showed that about 70% of the special children had behavioural problems such as inability to concentrate, sudden changes in mood and behaviour, mental age below their physical age, acting without thinking, etc.

Mental ability and behaviour of all the Special Children were recorded by the trainers in observation books maintained on each child. Five basic parameters were observed and monitored

1. Recognition and identification
2. Excitement and response
3. Social perspective
4. Self-esteem and stress management
5. Attitude towards society

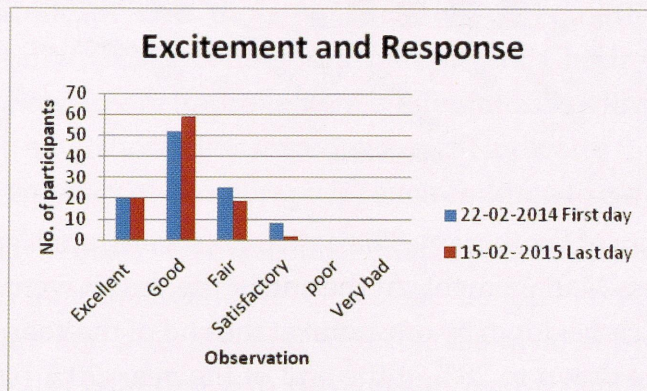
Recognition and Identification



During the first day of Ecotherapy, observation of the participants revealed that 22% participants were 'excellent' in Recognition and Identification (RI). At the

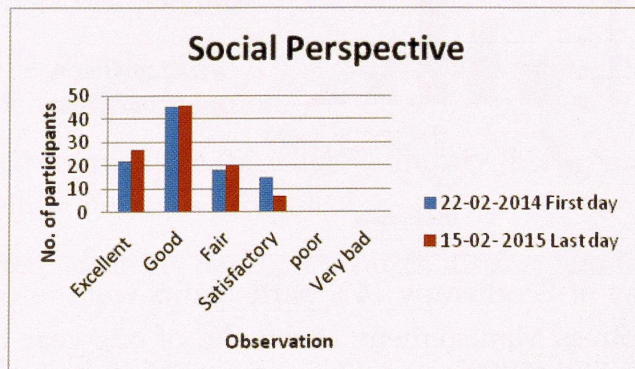
end of one year, the percentage increased to 34%. 45% participants were 'good' at the start which at the end of the year decreased to 38%. 15% participants were 'fair' at the start which increased to 20% at the end of the year. 18% participants were 'satisfactory' in the beginning and it decreased to 8% at the end of the year.

Excitement and Response

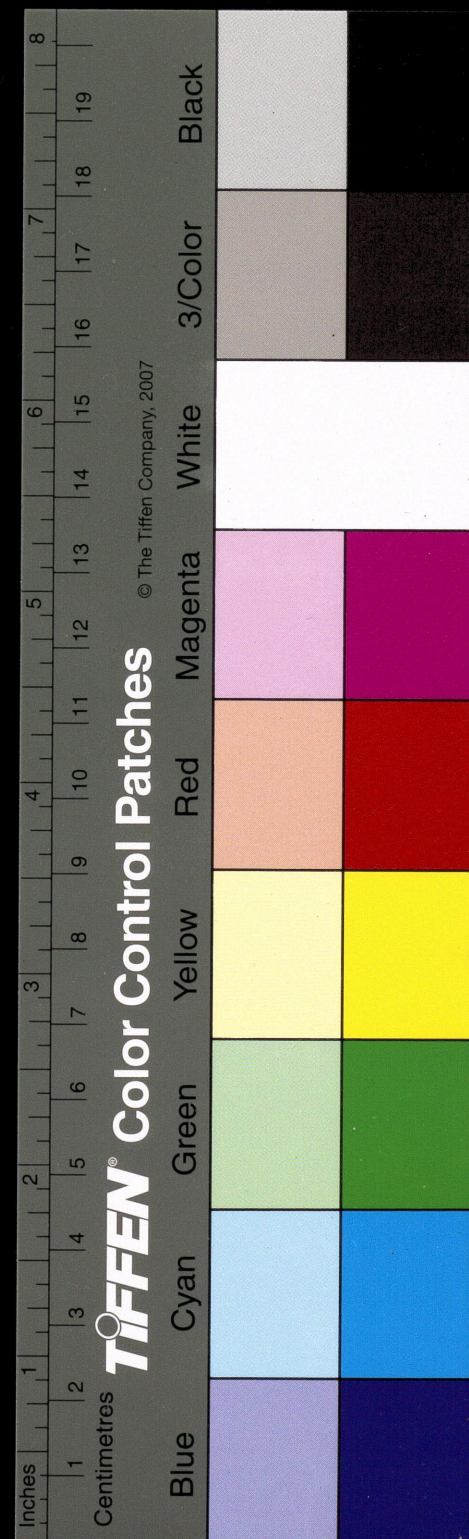


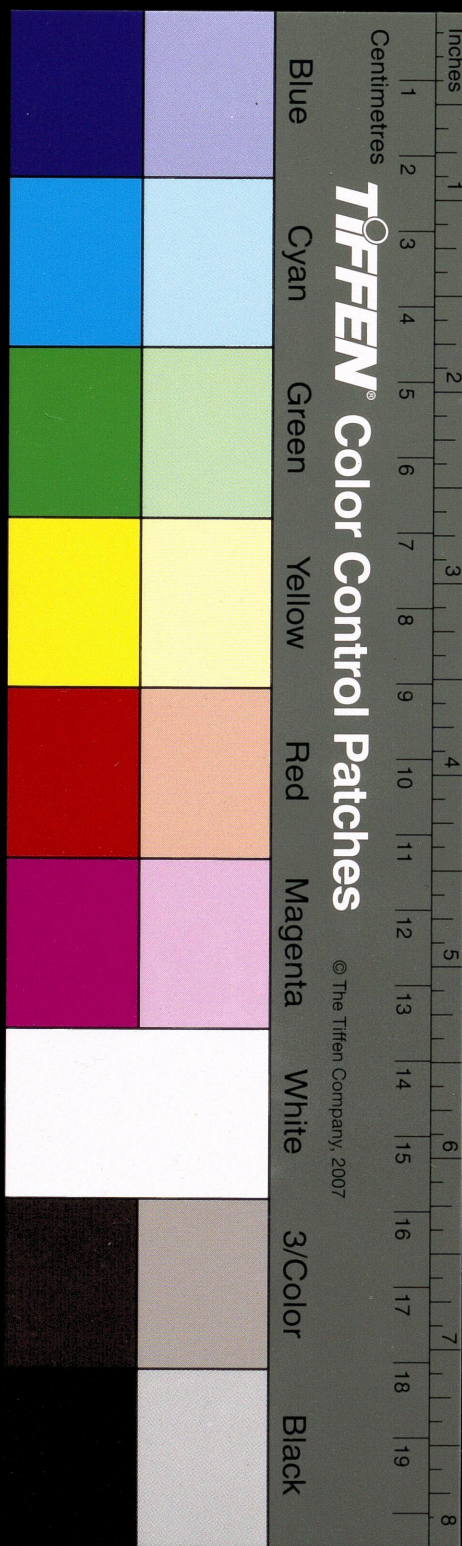
On the first day of Ecotherapy, 20% participants were rated 'excellent' in Excitement and Response and at the end of one year the percentage was the same. 52% were rated 'good' which later rose to 59%. 25% participants were 'fair' which later came down to 20%. 8% participants were 'satisfactory' which later fell to 2%.

Social Perspective

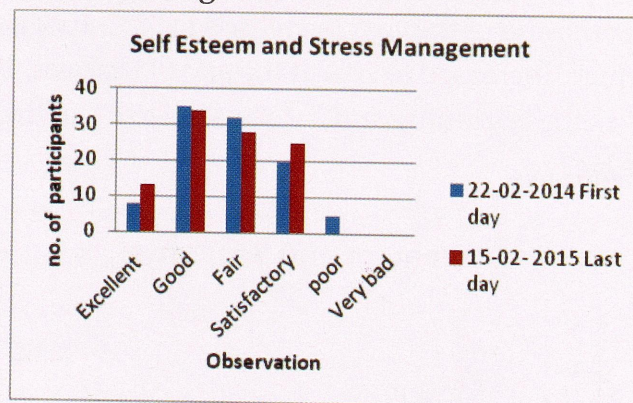


On the first day of Ecotherapy, 22% participants were rated 'excellent' in Social Perspective. At the end of the year, the percentage of went up to 27%. 45% were rated 'good' and later it increased to 46%. 18% were 'fair' at the start which increased to 20% later. 15% were 'satisfactory' which later decreased to 7%.



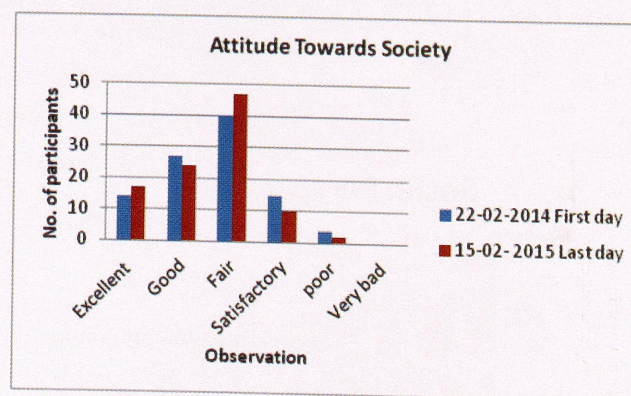


Self-esteem and Stress Management



On the first day of Ecotherapy 8% participants were rated 'excellent' in Self-esteem and Stress Management. At the end of the year it went up to 13%. 35% 'good' category came down by one point at the end of the year. 32% rated 'fair' at the start came down to 28% at the end of the year. 20% participants were 'satisfactory' at the start which at the end of one year increased to 27%. 5% participants were 'poor' and at the end of one year there were none.

Attitude Towards Society



On the first day of Ecotherapy 14% participants were rated 'excellent' in Self-esteem and Stress Management; at the end of one year this percentage increased to 17%. 27% participants were 'good' at the start; later it decreased to 24%. 40% participants were 'fair' at the start; at the end of one year this increased to 47%. 15% participants were rated 'satisfactory'; later the percentage decreased to 10%. 4% participants were 'poor'; later this percentage decreased to 2%.

As can be seen, the results are not consistent. It has not been possible to identify any definite reason for such mixed results but it could be due to the decrease in participants caused by the withdrawal of 25 children by Manonandana School. Perhaps there is a 'critical mass' of children required for mutual interaction and a sense of rivalry to produce consistent results

It is also significant that those who attended regularly showed some improvement in all five basic behavioural parameters. Children with marginal disability have shown more improvement while children with higher degree of mental disability have shown less improvement. It indicates that there is a need to increase the frequency of Ecotherapy for such children to get better results.

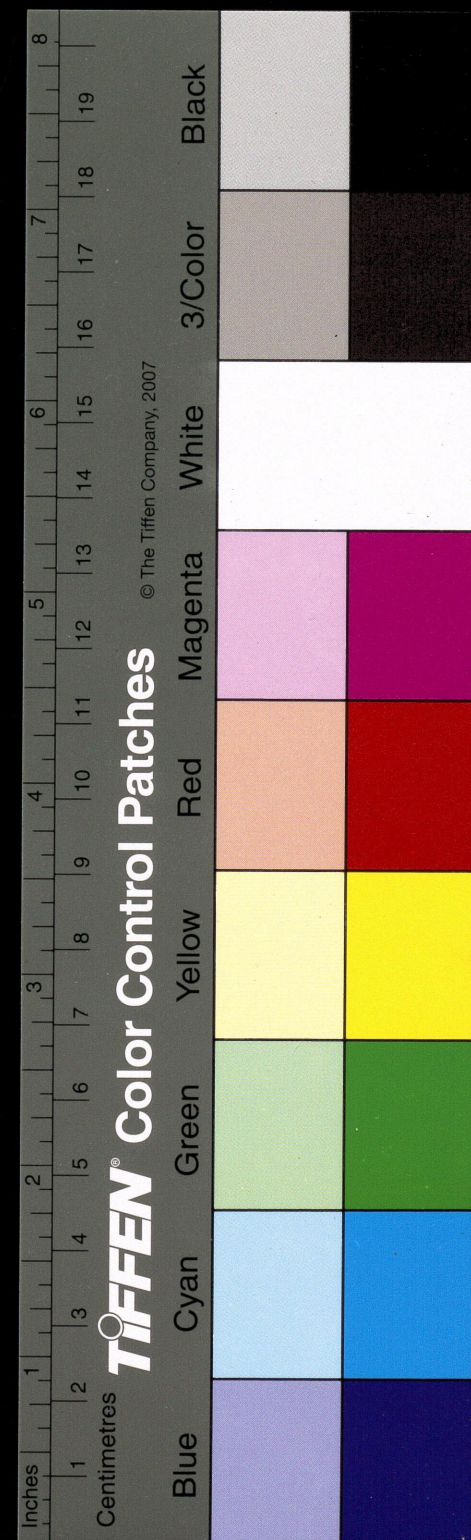
In addition, it was observed that counselling of parents mattered. Those who were oriented to treat their child as "God's special gift" and give him/her all possible love, care and affection and to recognise his/her special talent and nourish it and build confidence in the child to lead a fruitful life got better results.

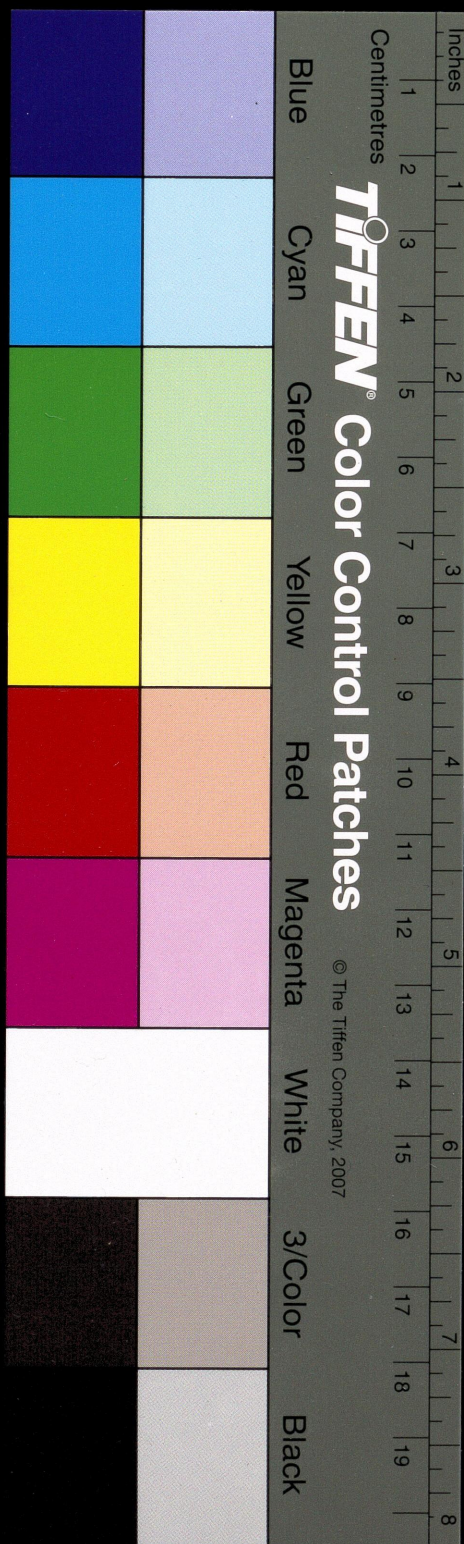
To summarise, the Special Children who were regular in attendance and whose parents were supportive showed improvement in several aspects:

1. They had developed comradeship.
2. Some children who were not mingling with others started mingling easily after 3rd or 4th month.
3. Recognizing objects and people and remembering yoga exercises and plants which they had planted.
4. They gained competitive spirit and came forward to show their talents by singing, telling stories, reciting *shlokas*, etc.
5. They started admiring nature like birds, insects, butterflies, flowers and colours.
6. They were able to remember names of people they met and recalled their expressions.

Feedback

In order to complete the assessment of this program, feedback from teachers and parents and Bangalore University Environment Science students who





worked as volunteers were obtained, besides the Special Children themselves during the Valedictory Function. One representative from among the participant children, teachers and parents from each School, spoke on their experience and benefits they derived from this year-long Ecotherapy program.

Everyone expressed happiness with the programme, choice of Charakavana and felt the need for such programmes to improve the Special Children's mental ability and of understanding the importance of clean environment. They expressed their desire to participate in case such a programme is organized again. Teachers and parents wanted it to be a part of the curriculum of the Special Schools. Volunteers gave positive feedback highlighting importance of such a program and the efforts put in by the organizers in planning and executing the program in a scientific manner leading to meaningful results.

It is significant to note that one of the parents, Ms. Vanita Vinod from Nachiketa Manovikasa Kendra, narrates her experiences of Ecotherapy as *"one of the greatest opportunities given to me to understand my child and myself in the fresh natural environment of Charakavana and seek answers to many of my unanswered questions in my mind about my child, Kishor. I could observe lot of behavioural changes in my child and in my attitude"*.

The behavioral improvements in my child were:

- a. he asks me for food by himself;
- b. he consoles me when I am depressed and hugs me with love immediately after returning from School;
- c. he reports me the activities he did in School;
- d. he likes to walk with me now,
- e. he has learnt to mingle & play with other children,
- f. every day he waters 'Ashwagandha" seedlings given to him during Ecotherapy program".

Similar views have been expressed by other parents & teachers who participated in the program. Some schools and parents are of the opinion that such programs should be conducted often that would help build self-confidence among children and understand the child's hidden talents.

Conclusion and Recommendations

While no spectacular results can be claimed from this Pilot Programme, marginal improvement in mental ability and behaviour can be justly claimed. According to Baron-Cohen, Director, Autism Research Centre, Cambridge University, autistic people have eye for details and can be good workers in specialized fields (Times of India, December, 2015). Since Ecotherapy has the potential to improve physical, mental and social health and thereby discover the hidden talent among the Special children, its continuation is essential.

In summary, benefits of Ecotherapy can be listed thus:

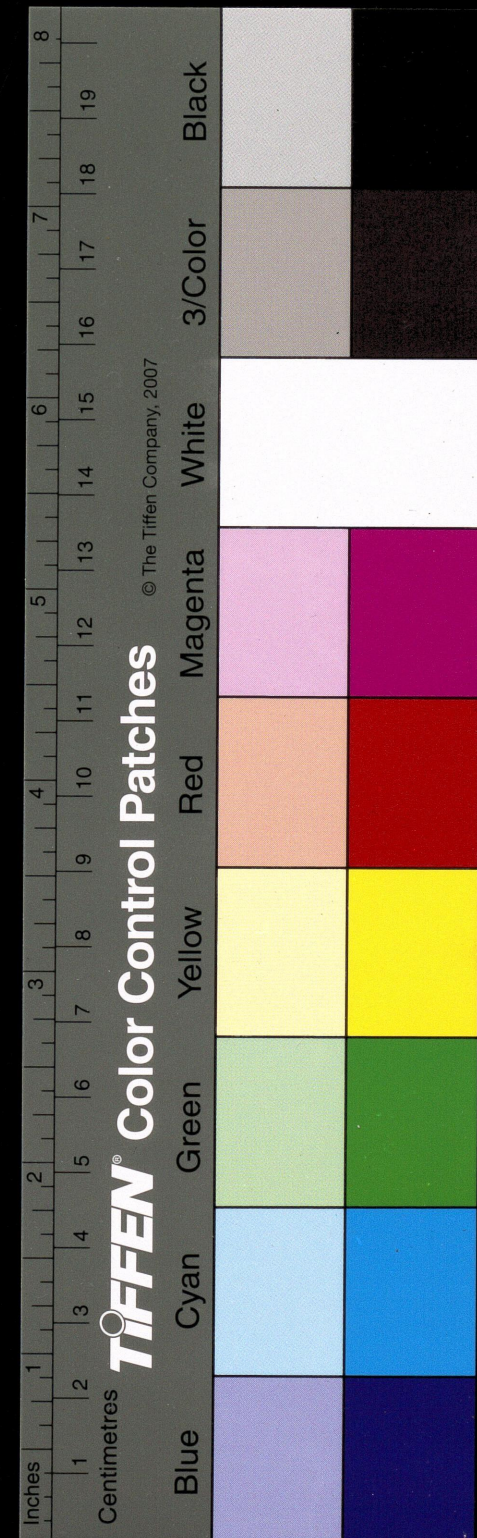
1. **Physical benefits** - Increased mobility, improved fine motor skills, increased muscular strength, improved co-ordination and balance.
2. **Mental benefits** - increased independence, provides an outlet for stress, anger and emotion, increased self-esteem, increased attention span, improved problem solving, encourages self-expression and creativity.
3. **Social benefits** - improved ability to interact with others, provides an environment to learn and be inspired by others, decreased dependency on others.

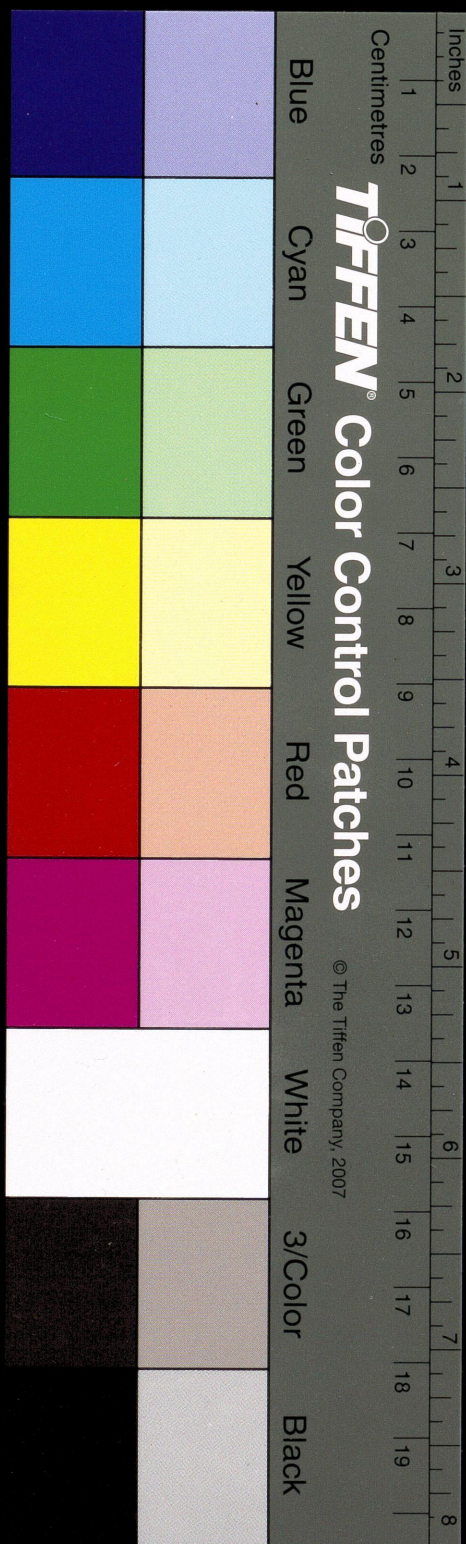
In view of the above findings, it is recommended that the Department of Social Welfare, Karnataka Government to include Ecotherapy program in the curriculum of Special Schools.

Acknowledgements and Thanks

The Ecotherapy Pilot Programme would not have been possible but for the active participation and support of many individuals. Bangalore Environment Trust extends its gratitude and thanks to the following:

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- Prof. N. Nandini, Head, Department of Environment Sciences, Bangalore University.
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- Mr. S. Narayanaswamy, Garden Curator, Bangalore University & his team.
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- Akshayapatra Foundation.
- BMTC.
- Principals/Headmasters of Special Schools.
- Parents of Special Children.
- Trustees of Bangalore Environment Trust.
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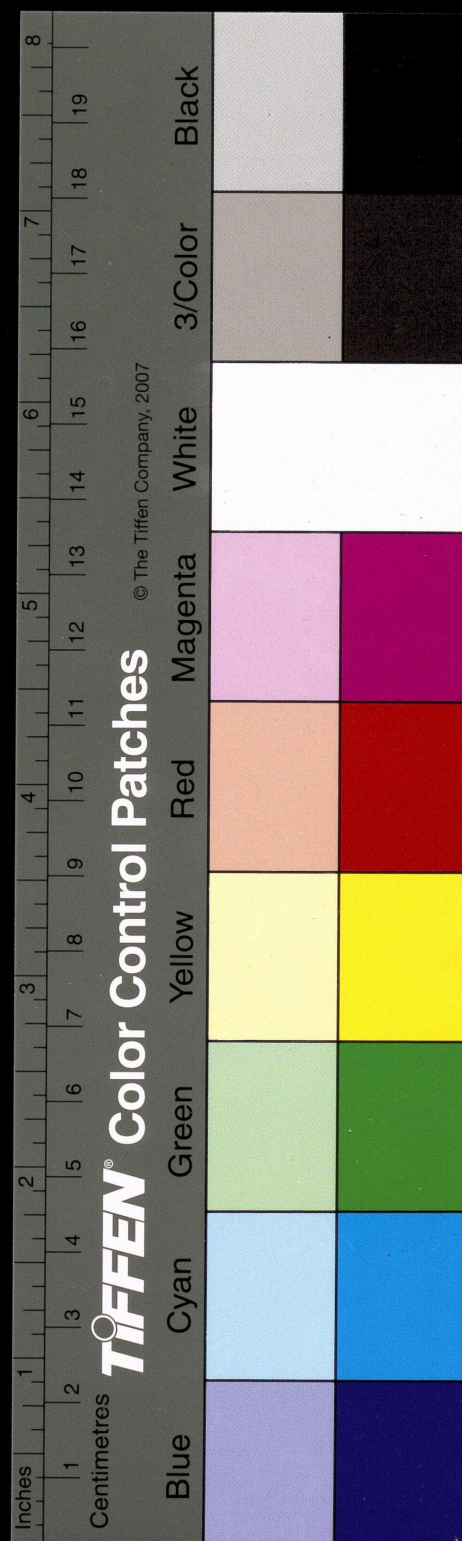
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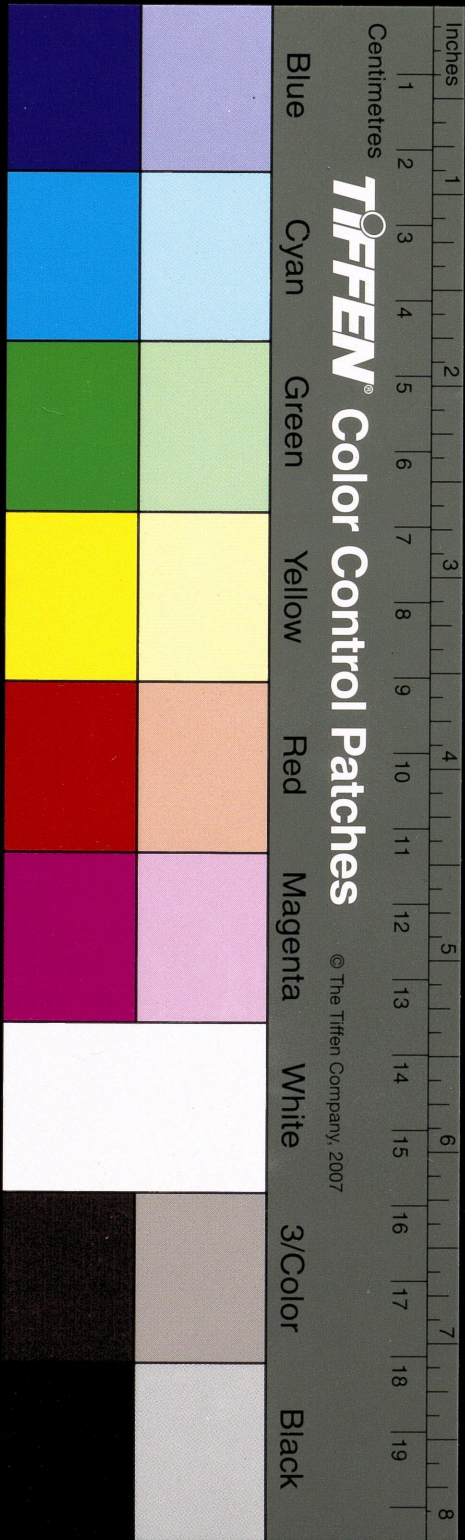
Report prepared by

Dr. N. Nandini,

Dr. Sadananda Hegde

& Dr. S. Raje Urs.





Akshayapatra Foundation serving food to the Special children at Charakavana.



Special attention to individual child by the volunteers at Charakavana.

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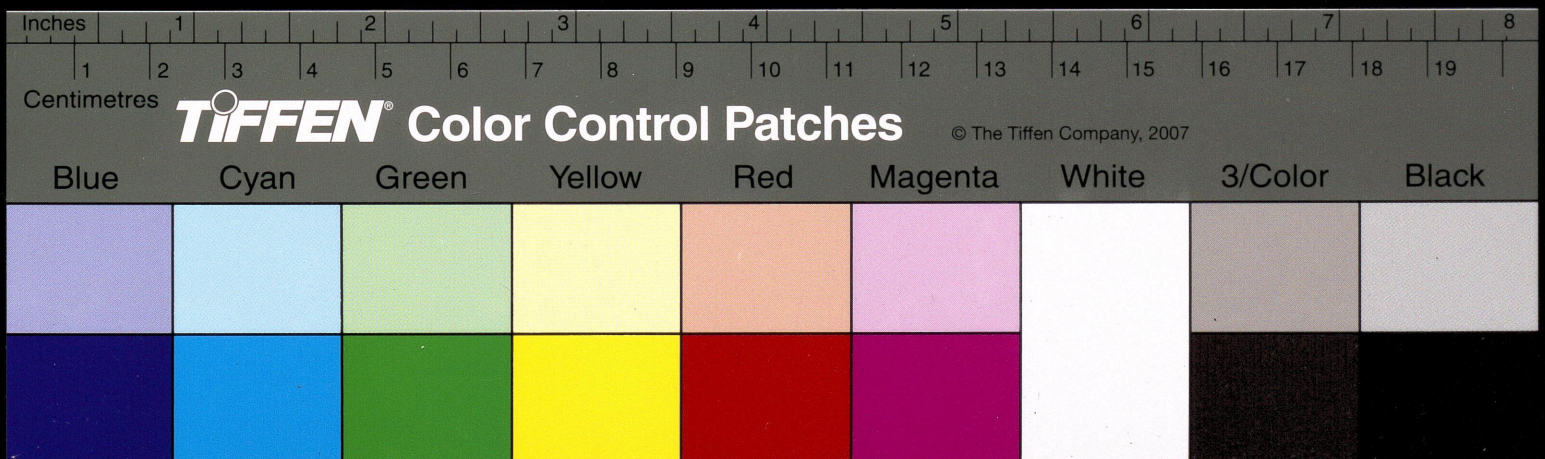


Volunteers befriending the children playing with them giving a relaxed atmosphere at Charakavana.





The Organising Team with some Special Children. From left to right: Mr. Balakrishna, Dr. S. Raje Urs. Prof. T. J. Renukprasad, Mr. H. N. Ramachandra, Mr. T.C. Ravindra, Dr. A.N.Yellappa Reddy, Capt. S. Prabhala, Dr. Sadananda Hegde, Mr. B. Subrahmanyam, Mr. Govinda.

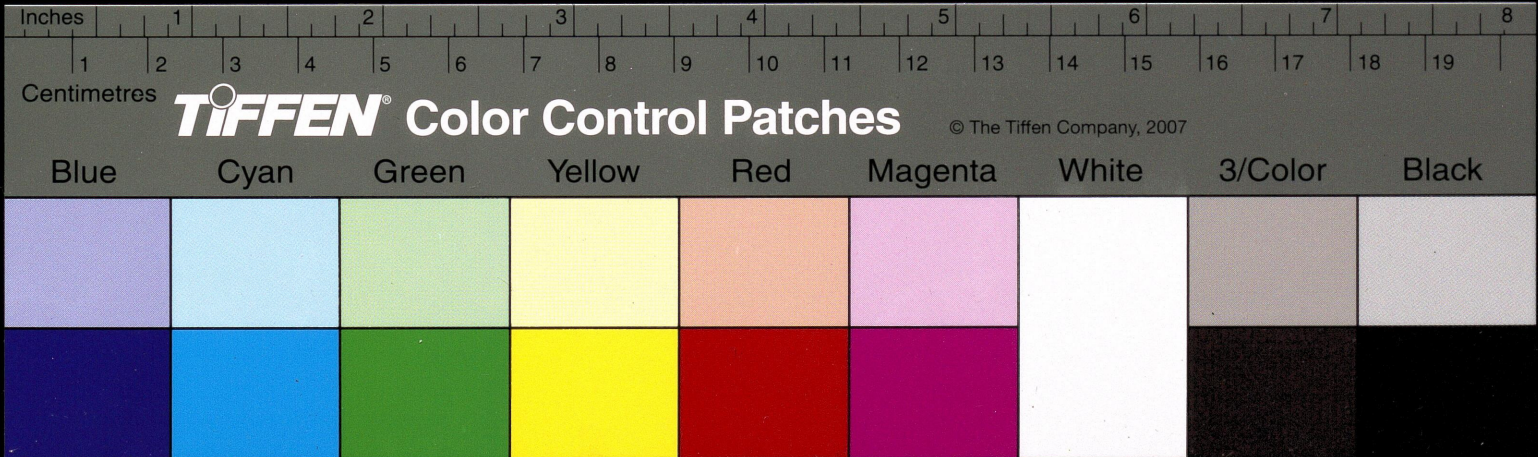


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