

Telangana State Council of Science & Technology (TSCOST), Department of Environment, Forests, Science & Technology (PF&ST), Govt. of Telangana. Coordinates the Science & Technology Developmental programmes in the State and is the State Coordinator for Implementing National Children's Science Congress (NCSC) in Telangana State.

National Council for Science & Technology Communication (NCSTC) DST, GDI, conceptualized the NCSC in 1993. NCSC Program is providing a creative channel for the Children of our country. It gives unique opportunity to demonstrate their innovativeness and more particularly, ability to solve any problem for the benefits of society using scientific method.

TSCOST gives priority to NCSC for the benefits of Children of our State and constituted State & District Level Organizing and Academic Committees. The members of committees are drawn from concerned line departments as per NCSC guidelines viz. School Education, SCERT, Rajiv Vaidhya Mission (KVM), National Green Corps (NGC), AP Residential Educational Institutions, DIETS, various NGOs & local NCSTC Network Members of effective implementation and spread of the activity.

This inquiry-based learning programme is held every year on a specific focal theme which is continued consecutively for two years, and is decided upon the basic principle of 'Local for Global'. Under the 'new normal' situation following Covid pandemic the LMO has declared 2021-2023 as the UN Decade on 'Ecosystem Restoration' within existing structures and available resources considering its commitment to human well-being, biodiversity conservation and achieving Sustainable Development Goals.

OBJECTIVES OF NATIONAL CHILDREN'S SCIENCE CONGRESS :

- Represents teamwork of not exceeding two children & relates directly to community work with definite plans.
- Forum for formal school going children including dropouts in the age group of 10 to 17 years age (10-14 Lower Age Group & 14-17 Upper Age Groups as on December 31, Calendar Year).
- Involves keen observation on the model field work, data collection, survey, analysis, research & innovativeness based on which simple practical exploration of solutions may emerge for daily life situations.

GUIDELINES FOR TEACHERS AND PARTICIPANTS :

- One can choose any innovative project but it should fall under one of the sub-themes.
- Problem should be relevant to the society and the solution should be scientific.
- Relevance of the project to the school / immediate neighborhood community / village and its impact on target group should be kept in mind.
- Understanding of the subject, effort of team work, Collection and validation of data, Quality and Quantity of work will be assessed.
- Originality of the idea, innovation in design and creativity in presenting the problem and also the solution shown is important.
- The Guide teachers can guide the student in preparation, presentation of the project. They should fill and submit the registration forms available with the district co-ordinator.

- They should adhere to the time schedule
- They can consult the activity guide available with the district coordinator with regard to the projects and other guidelines of NCSC.
- No model is required for the project presentation. Use only Supportive materials like Map, Charts, Photos, Poster, Prototypes etc.

NCSC PROJECT EVALUATION CRITERIA (DISTRICT LEVEL) :

Sl. No.	Criteria	Max. Marks		
		Written Report	Oral Presentation	Total
1.	Originality of idea and concept	10	10	20
2.	Relevance of the project to the theme	10	10	20
3.	Understanding of the issue	15	15	30
4.	Data collection & analysis	15	15	30
5.	Experimentation / Validation	10	10	20
6.	Interpretation and problem solving attempt.	10	10	20
7.	Team work	10	10	20
8.	Background correction	10	10	20
9.	Presentation	10	10	20
	Total	100	100	200

All the marks in the above evaluation table of the state level will remain the same. The 8th item will include project continuation instead of background correction. Child scientists should keep the above evaluation items in mind.

STRUCTURE OF THE PROJECT REPORT :

The structure of the project report of CSC is as follows :

- Cover page - must incorporate
 - Title of the project
 - Name and address of Group leader and co-workers
 - Name and address of guide Teacher and School
- Form-A (Registration form).
- Abstract in 250 words (one copy in English).
- Contents list of chapter with detailed heading and sub-heading, list of tables, charts, maps, etc. Along with references against page numbers.
- Introduction-description on background of the study.
- Aims and objectives of the study, vii. Hypothesis.
- Need statement. viii. Work plan.
- Methodology. ix. Observations.
- Data analysis and interpretation.
- Results. xii. Conclusions.
- Solution to the problem. xv. Future plan.
- Acknowledgement. xvii. References.

The word limit for the written report for the lower age group is 2500 and that for the upper age group is 3500. The written report can be substantiated by including limited number of photographs, sketches, illustrations and / or drawing etc.

Documentation of the work done and the findings of the projects are to be reported in the form of a project report.

General guidelines on the preparation of project are as follows :

- A-4 size paper (i.e. 21 cm x 31 cm) to be used.
- Registration form can be obtained from the Guide Teacher/ District co-ordinator. The registration form must be filled in English irrespective of the language of the project report.
- The report should be in any constitutionally recognized Indian language.

FOCAL THEME : UNDERSTANDING ECOSYSTEM FOR HEALTH AND WELL-BEING

Ecossystems are the planet's biosprial systems not only for humans but also for all other life-forms. Human survival has fundamental needs for food, water, clean air, shelter and regulated climatic condition.

Stress of any form on ecological balance, biodiversity, freshwater sources, foodproducing systems and climate regulation cause major adverse impacts on health and well-being.

Therefore, understanding very important to develop ecological literacy. Moreover, understanding human impacts on ecosystems affecting health and well-being are also quite important. It is essential to know how our activities disturb the ecosystem functions leading to various negative impacts on health and overall well-being.

Hence, our daily activities at all levels need rectification and redesigning to reduce the negative impacts on ecosystem and thereby achieving ecosystem sustainability, health safety and security as well as well-being for all.

The focal theme will focus on the major following aspects by engaging children for inquiry-based learning applying methods of science in their own local contexts:

- Exploring and understanding ecosystem(s) in their neighborhoods and taking initiatives for ecosystem conservation and restoration.
- Making inquiry into the interlinkages of ecosystem with health, nutrition and well-being along with their implications.
- Taking initiatives for experimentation, based on ecosystem approach, for local level natural resource management, farm and non-farm based production, and finding out ways for local, nutrition and livelihood security, health safety, and developing resilience and adaptation towards climate change and disaster risk reduction.

The proposed theme of the National Children's Science Congress for the years 2022 and 2023, "Understanding the ecosystem for health and well-being" is considered very appropriate and useful. Children, thereby, can adopt sustainable living and leverage science and technology principles to pave the way for sustainable development through their project-based endeavors.

The focal theme has been divided into the following five sub-themes :

- 1) Know your ecosystem
- 2) Fostering health, nutrition and well-being
- 3) Social and Cultural practices for ecosystem and health
- 4) Ecosystem based approach for self-reliance
- 5) Technological innovation for ecosystem and health

Sub-Theme - I KNOW YOUR ECOSYSTEM

This sub-theme will encourage the children to explore, identify ecosystem(s) in their neighborhoods and carry out studies on the ecosystem(s) to know about its different components (abiotic and biotic), their interrelationship,

functions, role of certain species in the ecosystems, association of biodiversity with the ecosystems, ecological services, human dependency on the ecosystem(s) and impact of human activities on the ecosystem(s) etc.



While doing so, based on the geo-ecological context, children may carry out their studies considering natural ecosystems (wetland, grassland, desert, mountain, coastal, forest river, woodland, estuaries, etc.) or man-made ecosystem (fishery, agricultural field, agroforestry plot, garden, etc.) as their specific unit of observation and study.

It is, thereby, desired that their study will find out the spatial and temporal perspectives of ecosystem components, its function and may also identify the status of the ecosystem in terms of its sustainability and find out strategies and paths for strengthening/upgrading the suitability of the ecosystem.

Suggested Projects :

1. Comparison of butterfly populations in urban and rural environs.
2. Diversity in the mangrove.
3. Impact of solid and liquid wastes on the mangrove ecosystem.
4. Impact of solid and liquid wastes on the wetlands.
5. Impact of solid and liquid wastes on the mangrove ecosystem.
6. Impact of solid and liquid wastes on the wetlands.
7. Birds in the paddy fields.
8. Earthworm presence and density as an indicator of soil organic content and soil health.

Sub-Theme - II

FOSTERING HEALTH, NUTRITION AND WELL-BEING :

The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." This is consistent with the bio-psycho-social model of health, which considers physiological, psychological and social factors in health and illness and interactions between these factors.

Well-being commonly covers the aspects of psychological, emotional, social, and physical aspects of human life and its connection to nature.

This sub-theme basically focuses to inspire the children to make scientific inquiry, in their own locality, about situation of health, nutrition and well-being and will also encourage them to make efforts to identify ways and means to fortify and foster the situation ensuring health safety and security, nutritional security and well-being of individual, family and community levels.

Suggested Projects :

1. Water disinfection / treatment using solar energy.
2. Correlation between junk food and obesity.
3. Nutritive value of local / seasonal fruits / vegetables.
4. Evaluation of level of essential nutrients in foodstuffs.

5. Impact of climate change on the diseases of humans and/or plants and/or animals.
6. Assessment of animal feed on production.
7. Study of food system in tribal and its impact on their health and well-being.
8. Role of public health systems on societal well-being.

Sub-Theme - III SOCIAL AND CULTURAL PRACTICES FOR ECOSYSTEM AND HEALTH

India is a country of great culture. Our family system is the structure of society and the relationships between different groups hold our society together. But with changing aspirations we are seeing cultural changes taking place with the technological revolution.



Social situation of a society in relation to family structure, different social groups and institutions develop a social makeup and create a social foundation.

On the other hand, in relation to health, there are social and cultural value based perceptions, which are sometimes linked to myth and in certain cases there are practices linking to health safety through specific food, herbal medicine, norms of sanitation management, etc.

Under this sub-theme children will be inspired to identify, document and walk local socio-cultural practices in their local contexts over a period of time for the protection of ecosystems and associated services, sustainability, conservative nature way and means such knowledge systems got transferred from one generation to another.

Suggested Projects :

- 1) Agriculture related social and cultural practices leading to an chemical farming with respect to biological pest and nutrient management.
- 2) Cloud-burst and result on flooding and its impact on agro-ecosystems.
- 3) Sacred groves and their importance / role in conservation and local traditions and ecosystem services.
- 4) Role of traditional games / sports and their link age to health / Physical activity mapping / seasonal games etc.
- 5) Food preservation / processing linked to seasonal availability of resources / fish / meat / vegetable process / in various agro-ecosystems.
- 6) To study role of rain garden in water recharge.
- 7) Study and compare lifestyle of different group / communities either in village or cities.
- 8) Scientific study on traditional method of food storage processing and its role in ecosystem.

Sub-Theme - IV ECOSYSTEM BASED APPROACH FOR SELF - RELIANCE

Ecosystem based approach (EBA) is an integrated approach of planning and management that recognize the functional interaction of ecosystem with human activities focused to natural resource management, farm based activities like - sustainable agriculture, agroforestry, animal husbandry,



Sub-Theme - II

resilience, climate change adaptation, and disaster risk reduction etc.

Such approaches aim at a bio-economic base through sustainable use and management of natural resources, developing natural resource-based livelihoods, local level food and nutrition sufficiency and well-being for all.

In these broader perspectives the proposed sub-theme will encourage the children to explore about natural resource potentiality and challenges in their localities for its management and find out path for local level

Suggested Projects :

- 1) Documentation of the wild edibles from different habitats in the surrounding area.
- 2) Assessment of current scenarios of different natural resources in the surrounding area of your school.
- 3) Management of solid waste in urban areas Reduce, Segregation, Collection (efficiency), Transportation, Resource recovery, Disposal.
- 4) Study of impact of traditional agriculture on water harvesting system.
- 5) Study of propagations techniques of different wild edibles.
- 6) Study of vulnerable / degraded resource areas in the surrounding.
- 7) Study of restoration practices (indicative) for degraded ecosystems.
- 8) Study of aquatic flora to reduce water pollution.

Sub-Theme - V TECHNOLOGICAL INNOVATION FOR ECOSYSTEM AND HEALTH

Technology has evolved much on the application of scientific principles in different activities of human being by improving efficiency to reduce resource consumption based on the principle of low inputs to get high output, reducing wastage of material, time and labour (dudgery), tapping renewable energy resources, tapping wealth from waste, mobilizing information and communication for effective management through appropriate decision-making at appropriate time, adopting or modifying already existing technologies for local context and resources etc.

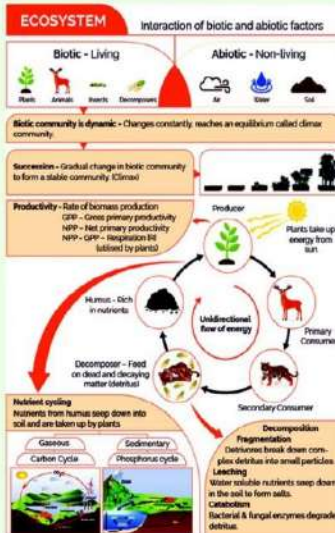
The post-pandemic world demands new technological interventions and innovations for ecosystem security, health security and overall well-being.

With these broader perspectives the proposed sub-theme will encourage children to find local level problems and take initiatives for developing local technological solutions from the perspectives of green technology, appropriate technology, information communication technology or improving

traditional technology based on the principles of frugal innovation.

Suggested Projects :

- 1) Biomass (Algae, Bio-residue, waste, etc.) as green energy.
- 2) Design and development of simple and economical devices for measuring water quality.
- 3) Technology for portable drinking water delivery during flood.
- 4) Design, development of a solar water still for coastal and brackish water areas.
- 5) To develop a simple tool for measuring water table depth in tube well.
- 6) Bamboo as a sustain able engineering material.
- 7) Solar / biomass-based crop dryers for farmers.
- 8) Technologies for person with disability.



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31st National Children's Science Congress

2023



Focal Theme :

UNDERSTANDING ECOSYSTEM FOR HEALTH AND WELL-BEING

Catalyzed, Supported & National Organizer :
NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY COMMUNICATION (NCSTC)
Department of Science & Technology (DST)
Govt. of India, New Delhi

Co-ordinated in Telangana by :
TELANGANA STATE COUNCIL OF SCIENCE & TECHNOLOGY (TSCOST)
(Dept. of Environment, Forests, Science & Technology, Govt. of T.S.)

In Association with :
DEPARTMENT OF SCHOOL EDUCATION
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