NATIONAL CHILDREN'S SCIENCE CONGRESS

सत्यमेव जयते

SUPPORTED & CATALYSED BY NCSTC, DST, GOVT. OF INDIA

A programme of
National Council for Science & Technology Communication (NCSCTC)
Department of Science & Technology, Government of India

Focal Theme for 2022 - 2023

Understanding Ecosystem For Health And Well-Beieng

NCSC PROGRAMME IN GUJARAT

District Level	State Level
Aug - Sept 2022	October 2022

National Level of NCSC
December 2022

Sub Themes

- Know your ecosystem
- Fostering health, nutrition and well-being
- Social and cultural practices for ecoststem and health
- Ecosystem based approach (EBA) for self-reliance
- Technological innovation for ecosystem and health

Organized by:

GUJARAT COUNCIL ON SCIENCE AND TECHNOLOGY
(State Coordinator for Gujarat NCSC)
Department of Science & Technology, Government of Gujarat
Block B, 7th Floor, M.S. Building, Sec-11, Gandhinagar-382011
www.gujcost.gujarat.gov.in

Department of Science & Technology Government of Gujarat

NATIONAL CHILDREN'S SCIENCE CONGRESS

2022-2023

BHARAT PATHAK [Retired IFS/APCCF-GUJ]
Academic Coordinator –NCSC-GUJ.

June- July 2022

-: TOPICS FOR CONSIDERATIONS BY THE GUIDE/SCIENCE TEACHERS :-

1. NATIONAL CHILDREN'S SCIENCE CONGRESS

I. Objectives

A. To make a forum available to children, both from formal schools as well as from out of school, to exhibit their creativity and innovativeness.

B. Encourage students/ young scientists to solve societal problem experienced locally through science.

II. Brief history:

A. Started from the year 1993

B. 28^{th} & 29^{th} NCSC to be organized in The years 2020 & 2021(2022).

C. 30^{TH} & 31^{ST} NCSC to be organized in the years, 2022 & 2023, respectively.

III. Participation by the children of age group (A) 10+ to 14 years and (B) 14+ to 17 years, as on December 31 of the year.

IV. Guidance of the Guide Teacher for (i) Developing scientific temperament, (ii) Teaching research methodology and data analysis, (c) Explaining concepts related to focal theme & sub themes, (ii) Motivation, (iv) Problem identification, (v) Developing research method, (vi) Timely quality work completion , (vii) Oral and written presentation / communication skill and (viii) Follow up action and sustaining interest in scientific research and innovation.

-: TOPICS FOR CONSIDERATIONS BY THE GUIDE/SCIENCE TEACHERS :-

1. NATIONAL CHILDREN'S SCIENCE CONGRESS
   - IV. Organization:
     - IV. National: National Council for Science and Technology Communication, [NCSTC] Department Of Science and Technology [DOST], Ministry of Science and Technology [MoST] , Govt. of India.
     - V. GUJARAT STATE: Gujarat Council on Science and Technology [GUJCOST] .
     - VI. Districts: Districts Science Centres and Education Department Funtioneries.
   - V. Steps for Participation :
     - IV. Motivation And formation of team/group of children/young scientists.
     - V. Identification of problem to be solved / scientific project.
     - VI. Registration with the DSC, GUJCOST and NCSTC.
     - VII. Project innovation work
     - VIII. Sequential District, State and National level submissions and evaluations.

रावि्प्रौसंप NCSTC

NATIONAL COUNCIL FOR SCIENCE & TECHNOLOGY COMMUNICATION

विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY
सत्यमेव जयते

GUJARAT COUNCIL ON SCIENCE AND TECHNOLOGY
GOVERNMENT OF GUJARAT
Investing in Science:
Investing in the Future!



DISTRICT COMMUNITY SCIENCE CENTERS


REGIONAL SCIENCE CENTERS

-: TOPICS FOR CONSIDERATIONS BY THE GUIDE/SCIENCE TEACHERS :-

2. NCSC PARTICIPATION

I. Participation by the Guide Teachers

A. Identifying group /team of children / Young Scientists and motivating them for the scientific research/survey/experiment based learning and problem solving through innovations.

B. Encouraging young scientists to understand and learn fundamental and theoretical science as well as importance of multidisciplinary approach to problem solving.

C. Guiding young scientists to understand Focal Theme and Sub Themes.

D. Guiding the work of young scientists through proper scientific methods.

E. Supervising the work of young scientists for original scientific work.

F. Explaining evaluation criteria at (a) District level , (b) State Level and (c) National Level

PARTICULARS	2016-2017	2018-2019	2020-2021	2022-2023
FOCAL THEME	SCIENCE, TECHNOLOGY & INNOVATION FOR SUSTAINABLE DEVELOPMENT	SCIENCE, TECHNOLOGY & INOVATION FOR CLEAN,GREEN & HEALTHY NATION	SCIENCE FOR SUSTAINABLE LIVING	UNDERSTANDING ECOSYSTEMS FOR HEALTH & WELL-BEING
SUB THEMES	1. NATURAL RESOURCE MANAGEMENT	1.ECOSYSTEM & ECOSYSTEM SERVICES	1. ECOSYSTEM FOR SUSTAINABLE LIVING[SL]	1. KNOW YOUR ECOSYSTEM
	2. FOOD & AGRICULTURE	2.HEALTH, HYGIENE & SANITATION	2. APPROPRIATE TECHNOLGY FOR SL	2. FOSTERING HEALTH, NUTRITION & WELL-BEING
	3. HEALTH, HYGIENE & NUTRITION	3. WASTE TO WEALTH	3 SOCIAL INNOVATION FOR SL	3. SOCIAL & CULTURAL PRACTICES FOR ECOSYSTEM & HEALTH
	4. LIFESTYLES & LIVELIHOODS	4.SOCIETY, CULTURE & LIVELIHOOD	4. DESIGN, DEVELOPMENT, MODELLING & PLANNING FOR SL	4. ECOSYSTEM BASED APPROACH FOR SELF RELIANCE
	5. DISASTER MANGEMENT	5.TRADITIONAL KNOWLEDGE SYSTEMS	5. TRADITIONAL KNOWLEDG SYSTEMS FOR SL	5. TECHNOLOGICAL INNOVATION FOR ECOSYSTEM & HEALTH
	6. TRADITIONAL KNOWLEDGE SYSTEMS	--	--	

2022-2023 NCSC FOCAL THEME & SUB THEMES	KEY-WORDS & CONCEPTS
UNDERSTANDING ECOSYSTEMS FOR HEALTH & WELL-BEING	ECOSYSTEMS- BASED ON THE KNOWLEDGE OF ECOLOGY HUMAN HEALTH AND HUMAN WELL BEING ARE DEPENDENT ON ECOSYSTEM T WHICH THE BELONG AND HEALTH OF THOSE ECOSYSTEMS
1. KNOW YOUR ECOSYSTEM	ECOSYSTEM PROFILE INCLUDING (A) COMPONENTS [LIVING, NON LIVING & AMBIENT] OF ECOSYSTEMS, (B) ECOSYSTEM PROCESES [INTER-RELATIONSHIS, NATURAL CYCLES & THEIR OUTCOMES] MAKING ECOSYSTEM SELF SUSTAIING AND PRODUCING GOODS AND SERVICES THA MAKE ECOSYSTEM LIFE SUPPORT SYSTEM,(C) ECOSYSTEM DISTURBANCE & DEGRDATION FACTORS THAT REDUCE AND DEGRADE CAPACITY OF ECOSYSTEMS TO PRODUCE GOODS AND SERVICES, WHICH IN TURN DAMAGE THE LIFE SUPPORT SYSTEMS, (D) LANDSCAPE ECOLOGY- MOSAIC OF DIVERSE ECOSYSTEMS FOR DIOLOGICAL DIVERSITY & PRODUCTON OF DIVERSE GOODS & SERVICES AND (E) ECOSYSTEM RESTORTION FOR HUMAM WELLBEING.
2. FOSTERING HEALTH, NUTRITION & WELL-BEING	NUTRITION, HEALTH [INDIVIDUAL HEALTH, COMMUNTY / PUBLIC HEALTH], EPIDEMIOLOGY [EPIDEMICS & PANDEMICS AS DISASTERS, DRR], CHRONIC DISEASES, ECOLOGICAL / ENVIRONMENTAL HEALTH, DISEASE SURVEILENCE, HEALTH MANAGEMENT, RESEARCH IN HEALTH [DISEASE PREVENTION & HEALTH MANAGEMENT], HEALTH ECONOMICS, GENDER & HEALTH, LAWS & REGULATIONS FOR BETTER HEALTH. ***CONCEPT OF ONE HEALTH***
3. SOCIAL & CULTURAL PRACTICES FOR ECOSYSTEM & HEALTH	EDUCATION & AWARENESS, LIFE STYLE, INFASTRUCTURE, TRAINED & CAPABLE HUMAN RESOURCE, ECOSYSTEM COSERVATION, CLEANLINESS, CLIMATE AMELIORATION, POLLUTION CONTROL,
4. ECOSYSTEM BASED APPROACH FOR SELF RELIANCE	LOCAL SOLUTIONS, LOCAL PRODUCTION OF GOODS & SERVICES REQUIRD FOR HELTH, CONCEPT OF STOCK RESOURCES AND FLOW RESOURCES FOR AN ECOSYSTEM,
5. TECHNOLOGICAL INNOVATION FOR ECOSYSTEM & HEALTH	APPROPRIATE TECHNOLOGY [SOIL HEALTH , SOIL CONSERVATION, WATER CONSERVATION, NATURAL RESOURCE MANAGEMENT, EFFICIENT USE, WASTE MANAGEMENT TO PREVEN ADVERSE IMPACT ON HEALTH, APPROPRIATE ENERGY USE, RENWABLE ENERGY, NUTRITION & HALTH RELATED DISASTER PREVENTION, TECHOLOGY & INNOVATIONS FOR HEALHY DIET]

-: TOPICS FOR CONSIDERATIONS BY THE GUIDE/SCIENCE TEACHERS :-

2. NCSC PARTICIPATION

II. Participation by young scientists / children under the guidance and supervision of Guide Teachers

A. Rapport building of the group /team of children / Young for the scientific research/survey/experiment based learning and problem solving through innovations.

B. Understanding and learning fundamental and theoretical science as well as importance of multidisciplinary approach to problem solving.

C. Understanding Project Evaluation method and scores /marks for different steps.

D. Problem and Project Identification as per the FOCAL THEME & SUB THEMES.

E. Ideation, developing project Scope, strategy, Method, Observations, Experimentations, Data Collection , Data Validation, Data Analysis, Drawing Inferences, Discussions , Drawing Conclusions and finding Solutions.

F. Project Writing and Presentations

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મુખ્ય વિષય: UNDERSTANDING ECOSYSTEMS FOR HEALTH & WELL-BEING

સ્વાસ્થ્ય / આરોગ્ય તેમજ સુખાકારી માટે પારિસ્થિતિકીય તંત્ર નું મહત્વ

“પહેલું સુખ તે જાતે નર્યા”

પૂર્વધારણા ઓ

1. વ્યક્તિગત / સામુહીક/સામુદાયીક આરોગ્ય/સ્વાસ્થ્ય એ વિકાસ અને સુખાકારી માટે અગત્ય ના છે.
2. વ્યક્તિગત / સામુહીક / સામુદાયીક આરોગ્ય / સ્વાસ્થ્ય અને સુખાકારી અન્ય પરિબળો ઉપરાંત પારિસ્થિતિકીય તંત્ર ના સ્વાસ્થ્ય પર અધારિત છે.
3. સારા / બહેતર સ્વાસ્થ્ય / આરોગ્ય ના ચાર અગત્ય ના સ્થંભો:: [પારિસ્થિતિકીય તંત્ર પર પણ આધારિત છે.]

   (ક) આહાર [Diet],

   (ખ) વિહાર [Environment / Ecosystem of dwelling],

   (ગ) આચાર [Conduct, Lifestyle] અને

   (ઘ) વિચાર [Thoughts leading to actions]

SUB THEME I:- KNOW YOUR ECOSYSTEM

ECOLOGY :

- The term coined by German Biologist Ernst Haeckel
- Based on two greek words OIKOS [Home, House , Dwelling] and LOGOS [Science, Study].
- Study of interelations between living organism and their environment.
- How living organisms, including Man live, Survive and perpatuate ? - Dependence on natural environment and natural processes.

ECOSYSTEM:

- In 1935, **Arthur Tansley**, the British ecologist, coined the term ecosystem, the interactive system established between the biocoenosis (the group of living creatures), and their biotope, the environment, in which they live. Ecology thus became the science of ecosystems.
- The concept with emphasis on the importance of dynemic transfers of Material and Energy between organisms and their environment. "The whole system, ... including not only the organism-complex, but also the whole complex of physical (Physico-chemical) factors forming the **environment**".

SYSTEM:

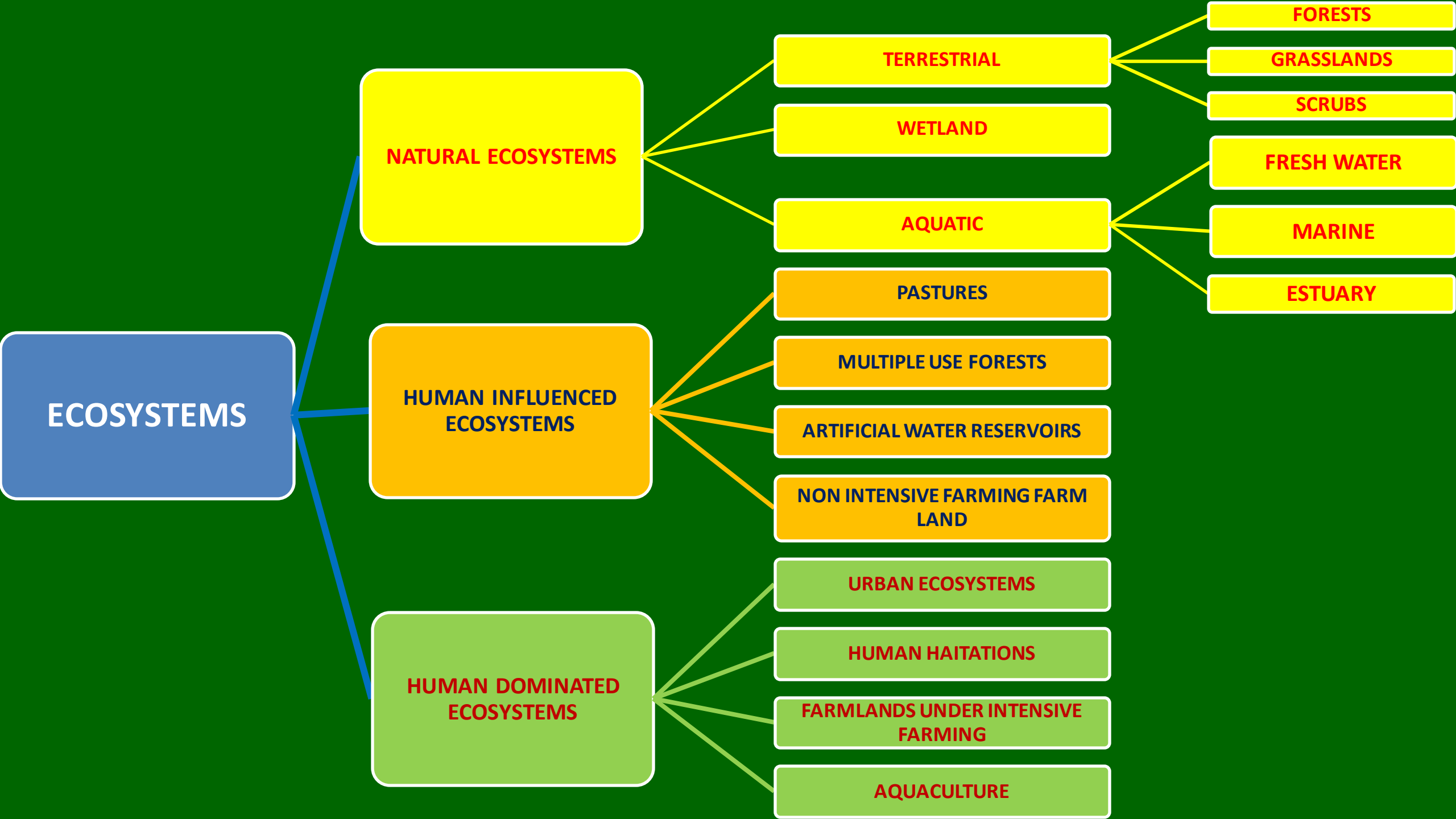
A SET OF THINGS
[COMPONENTS- LIVING & NON LIVING]
WORKING
[WORK REQUIRES ENERGY AND PROCESS] TOGETHER AS PARTS OF A MECHANISM OR AN ITERCONNECTING NETWORK; A COMPLEX WHOLE
TO PRODUCE GOODS AND SERVICES THROUGH MATERIAL TRANSFER AND TRANSORMATION
[PRIMARY PRODUCERS LIKE PLANTS PRIMRY CONSUMERS & SECONDARY COSUMERS, DECOMPOSERS PRODUCING GASES AND SYMPLE SUBSTANCES AND ELEMENTS]

ECOSYSTEM:

AN ECOYSTEM / ECOLOGICAL SYSTE CONSISTS OF ALL THE ORGANISMS AND THE ABIOTIC POOLS [PHYSCAL ENVIRONMENT INCLUING CLIMATE] WITH WHICH THEY INTERACT THROUGH THEIR INTERRELATIONSHIP. IN SUCH SYSTEM BIOTIC 7 ABIOTIC COMPONENS ARE LINKED TOGATHER THROUGH NTRIENT CYCLES & ENERGY FLOWS.

ECOSYSTEM PROCESSES

TRANSFER OF ENERGY AND MATERIALS FROM ONE POOL TO ANOTHER AND NCLUDE NURIENT CYCLES, OXYGEN CYCLE, CARBON CYCLES, NITROGEN CYCLE, BIOMASS [TROPHIC LEELS] CYCLES, HYDROOGICAL CYCLES, ENERGY CYCLES, PHYSICAL PROCESSES SUCH AS SOIL PROTECTION, EROSION AND DEPOSITION, ETC.


ECOSYSTEMS
NATURAL ECOSYSTEMS
HUMAN INFLUENCED ECOSYSTEMS
HUMAN DOMINATED ECOSYSTEMS
TERRESTRIAL
WETLAND
AQUATIC
FORESTS
GRASSLANDS
SCRUBS
FRESH WATER
MARINE
ESTUARY
PASTURES
MULTIPLE USE FORESTS
ARTIFICIAL WATER RESERVOIRS
NON INTENSIVE FARMING FARM LAND
URBAN ECOSYSTEMS
HUMAN HAITATIONS
FARMLANDS UNDER INTENSIVE FARMING
AQUACULTURE

સંશોધન વિષય પસંદ કરવાનૂ/ સમસ્યા શોધવાનો કોઠો

પારિસ્થિતિકીય તંત્ર/ ECOSYSTEM			આહાર/પોષણ/પાણી/ હવા Food/Water	વિહાર/રહેઠાણ Ecosystem/Habitat	આચાર/જીવનશૈલી/ Lifestyle	વિચાર/ Conscious Awareness
પ્રાકુતિક પારિસ્થિતિકીય તંત્ર	જમીન પર ના પારિસ્થિતિકીય તંત્ર	વન, ઘાંસ ના મેદાનો, પડતર ખરાબા				
	મીઠા પાણી ના પારિસ્થિતિકીય તંત્ર	નદી, તળાવ, નદી ના મુખ પ્રદેશ, જલપ્લાવિત વિસ્તાર				
	દરિયાઇ	ચેર ના વનો, પરવાળા, ભરતિ – ઓટ નો વિસ્તાર				
માનવ પ્રવૃત્તિ ની અસર વાળા પારિસ્થિતિકીય તંત્ર	ગૌચર, ખેતરો, બગિચા, ગ્રામ્ય રહેઠાણ-ગામતળ, ઉપયોગ માં લેવાતા તળાવ, નદી.					
માનવ પ્રભુત્વ વાળા પારિસ્થિતિકીયતંત્ર	શહેરી વિસ્તાર, ઔદ્યોગિક વિસ્તાર					

કોઇ એક ગમતા વિષય નું અથવા બાળ વૈજ્ઞાનિક જે પરિઅર માં રહેતા હોય તે સબંધ નું ખાનું પસંદકરી , કોઇ એક પેટા વિષય/ **SUB THEME** સાથે તેનો સબંધ પ્રસ્થાપિત કરી , તે બાબતે સંશોધન વિષય નિયત કરી શકાય.

ECOLOGICAL PROFLE / ECSYSTEM PROFILE:[KNOW YOUR ECOSYSTEM]:

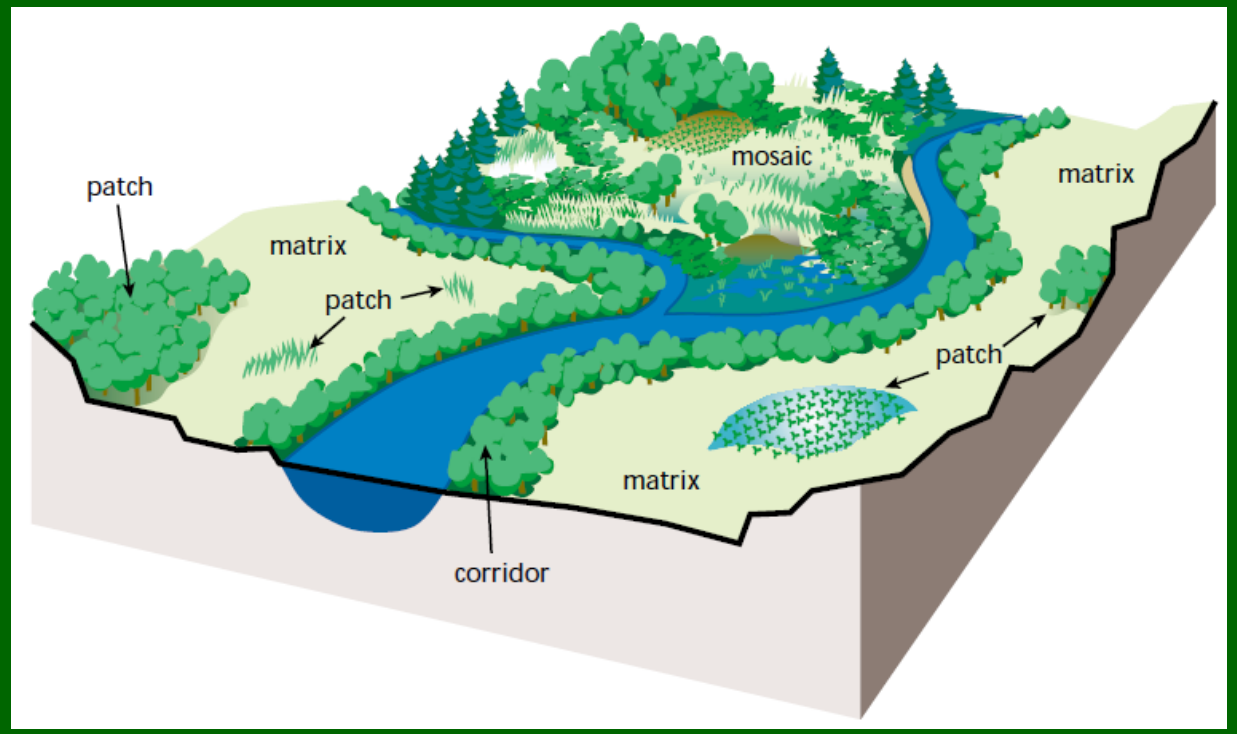
A DESCRIPTION, IN ACCORDANCE WITH THE IMPLEMENTATING MEASURES APPLICALE TO THE PRODUCT, OF THE IPUTS AND OUTPUTS [MATERALS, EMISSIONS AND WASTE] ASSOCIATED WITH A PRODUCT THROUGHOUT ITS LIFE CYCLE WHICH ARE SIGNIFICAT FROM THE POINT OF VIEW OF ITS ENVIRONMENTAL IMPACT AND ARE EXPRESSED IN PHYSICL QUANTITIES THAT CAN BE MEASURED.

1. LISTING OF BIOTIC COMPONENT AND QUANTIFYING – BIOLOGICAL DIVERSITY OF THE SYSTEM. [INTRODUCE BIODIVERSITY ACT, BMC AND PUBLIC BIODIVERSITY REGISTER]
2. LISTING, DESCRIBING AND QUANTIFYING ABIOTIC COMPONENTS - ROCKS, MINERALS SOIL, WATER, TOPOGRAPHY, CLIMATE, ET.
3. LSTING , DESCRIBING AND GRADIG PROCESSES SUCH AS HYDROLOGICAL CYCLE, PRIMARY PRODUCTION, TROPHIC LEVELS, ENERGY LOW, VARIOUS NATURAL CYCLES,ETC.
4. ASSESS AND DESCRIBE ECOLOGICAL SERVICES OF ECOSYSTEM.

ONE ECOSYSTEM OR SEVERAL ECOSYSTEMS ?
MOSAIC OF ECOSYSTEMS IN A LANDSCAPE-
LANDSCAPE ECOLOGY OR SEASCAPE ECOLOGY

LANDSCAPE IS THE VISIBLE FEATURES OF AN AREA OF LAND, IS LANDFORMS, AND HOW THEY INTEGRATE WITH NATURAL OR MANMDAE FATURES.

IN ONE LANDSCAPE THERE COULD BE ONE OR SEVERAL ECOYSTEMS SUCH AS FORESTS, GRASSLANDS, WETLANDS, RIVERS, ESTUARIES, AGRI. FARM LAND, ORCHARDS, HABITATIONS.



LANDSCAPE / SEASCAPE ECOLOGY:

THE SCIENCE OF STUDYNG AND IMPROVING RELATIONSHIPS BETWEEN ECOLOGCAL PROCESSES IN THE ENVISONMENT AND SET OF ECOSYSTEMS IN THE LANDSCAPE. IT DEALS WITH LANDSCAPE DIVERSITY AS THE SYNERGETIC RESULT OF BIOLOGICAL DIVERSITY AND GEOLOGICAL DIVRSITY AND THEIR INTER-RELATIONSHIPS.

ECOSYSTEM SERVICES :

- Ecosystem services are the benefits provided to humans through the transformations of resources (or environmental assets, including land, water, vegetation and atmosphere) into a flow of essential goods and services e.g. clean air, water, and food (Constanza et al. 1997).

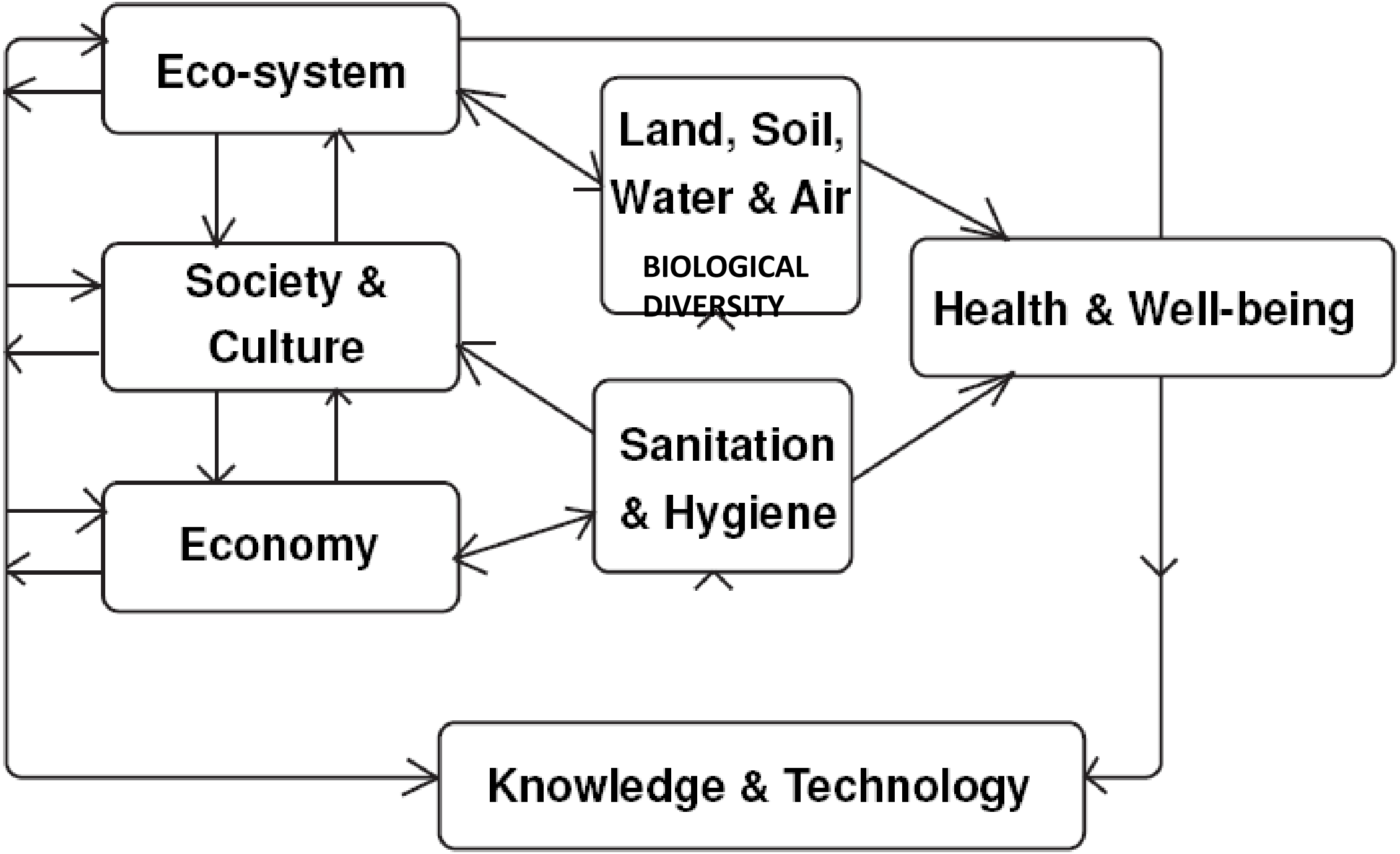
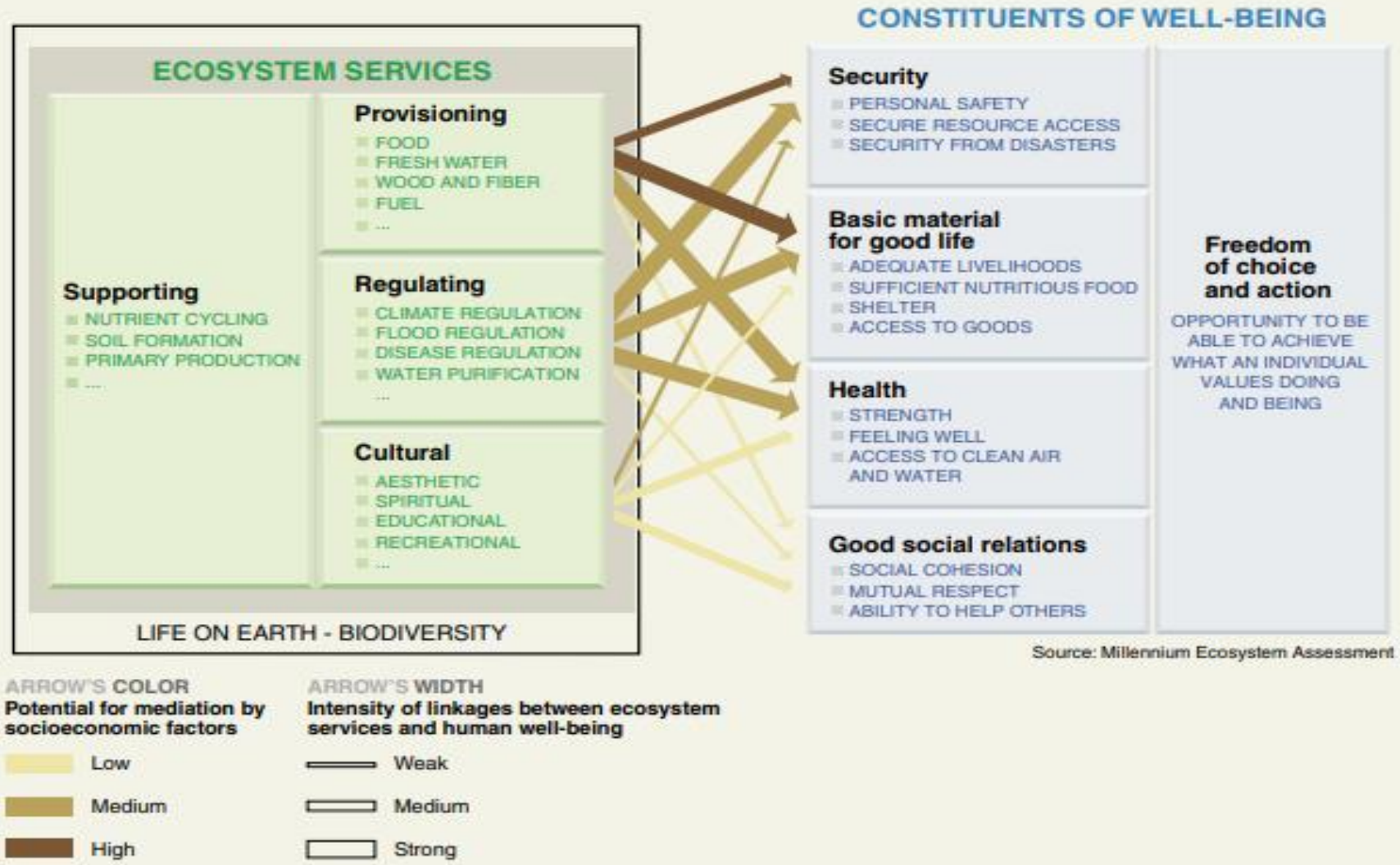

Eco-system
Land, Soil, Water & Air
BIOLOGICAL DIVERSITY
Society & Culture
Health & Well-being
Sanitation & Hygiene
Economy
Knowledge & Technology

Figure A. Linkages between Ecosystem Services and Human Well-being

This Figure depicts the strength of linkages between categories of ecosystem services and components of human well-being that are commonly encountered, and includes indications of the extent to which it is possible for socioeconomic factors to mediate the linkage. (For example, if it is possible to purchase a substitute for a degraded ecosystem service, then there is a high potential for mediation.) The strength of the linkages and the potential for mediation differ in different ecosystems and regions. In addition to the influence of ecosystem services on human well-being depicted here, other factors—including other environmental factors as well as economic, social, technological, and cultural factors—influence human well-being, and ecosystems are in turn affected by changes in human well-being. (See Figure B.)



Source: Millennium Ecosystem Assessment

Millennium Ecosystem Assessment (MEA)[1] launched in 2001 by the UN Secretary General and completed in 2005. A conceptual framework was developed to highlight the real impacts of the ecosystem services on human health, security, social relations and physical wellbeing to explain the integrated aspects organized into four categories (Fig. – 1.1).

Provisioning Services

Products obtained from ecosystems

- Food
- Fresh Water
- Fuel wood
- Fiber
- Biochemicals
- Genetic Resources

Regulating Services

Benefits obtained from regulation of ecosystem processes

- Climate Regulation
- Water Regulation
- Disease Regulation
- Pollination
- Water Purification

Socio - Cultural Services

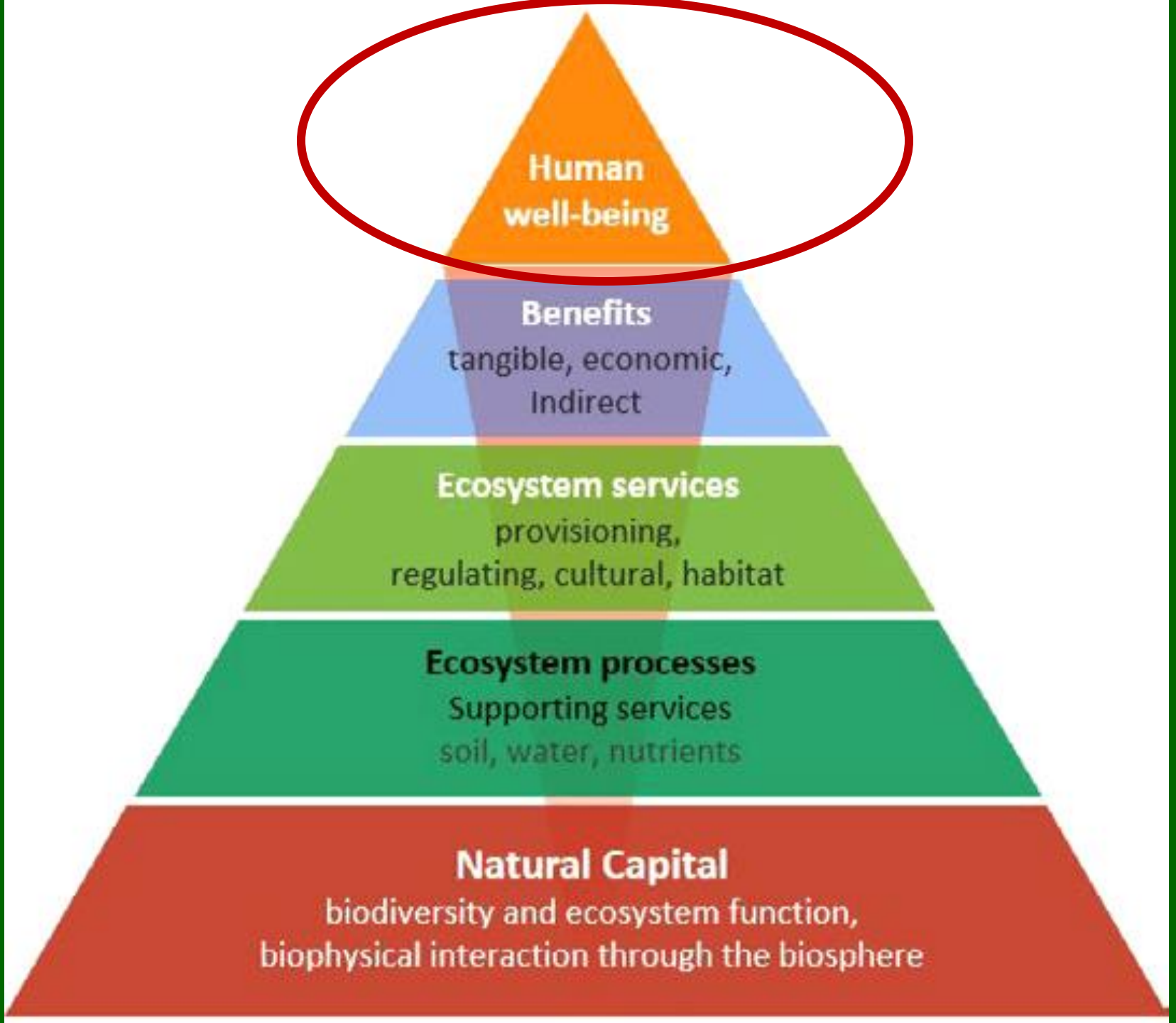
Nonmaterial benefits obtained from ecosystems

- Recreational
- Aesthetic
- Educational
- Heritage
- Spiritual & Religious
- Inspirational

Supporting Services

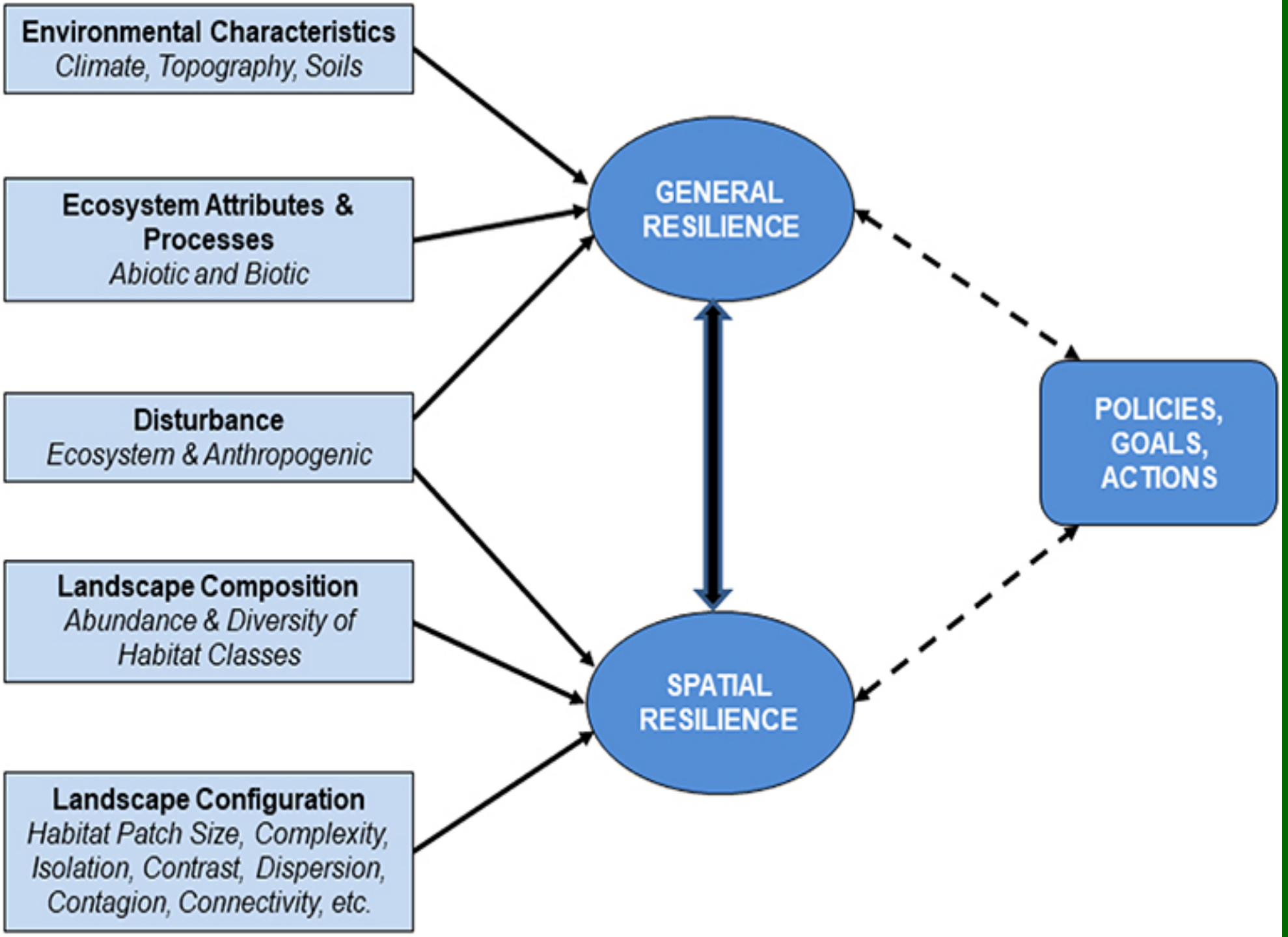
Services necessary for the production of all other ecosystem services

- Soil Formation - Nutrient Cycling - Primary Production



REFERENCE

- The links from natural capital to human wellbeing, and back.
- Ecological and socioeconomic sustainability is achieved through recognizing and accounting for the links in this pyramid.
- The restoration of natural capital generates many benefits to society.
- Source: Alexander et al. (2016).



Reference:

""Operationalizing **Ecological Resilience** Concepts for Managing Species and Ecosystems at Risk"" by

Jeanne C. Chambers1*,

Craig R. Allen2 and

Samuel A. Cushman3

1U.S. Department of Agriculture Forest Service, Rocky Mountain Research Station, Grasslands, Shrublands and Deserts Program, Reno, NV, United States

THE DECADE OF 2021 TO 2030 UN DECLARATON

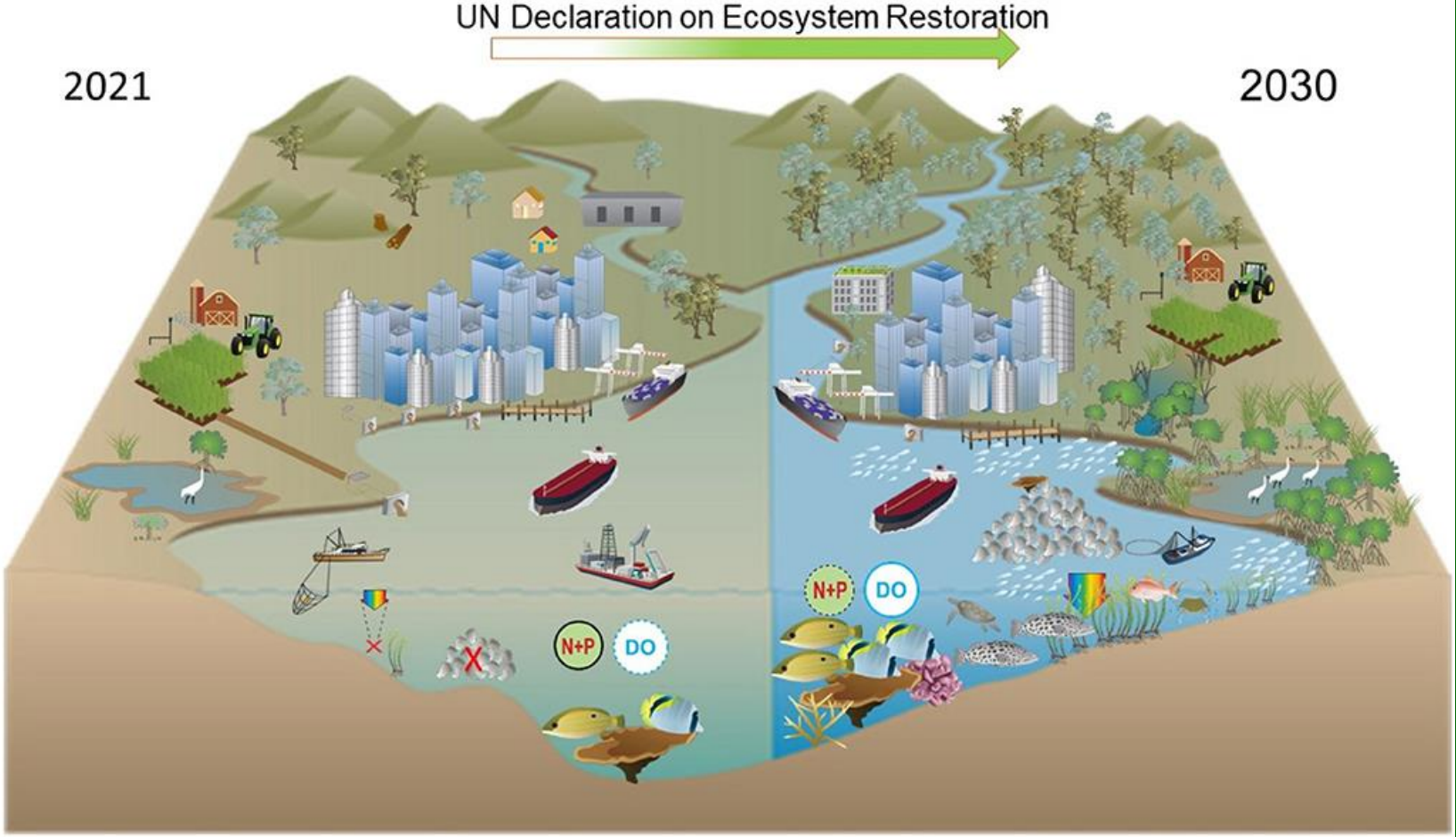
THE DECADE OF ECOLOGIAL RESTORATION

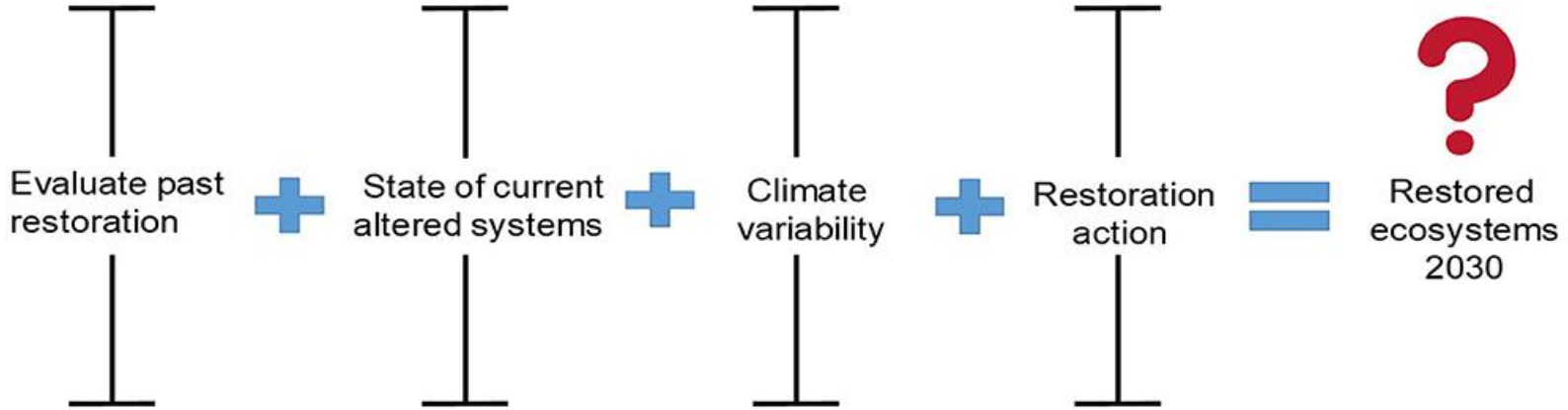
IT IS A PRACTICE / IMPLEMENTATION / ACTION OF RENEWING AND RESTORING DEGRADED, DAMAGED AND DESTROYED ECOSYSTEMS AND HABITATS IN THE ENVIRONMENT BY ACTIVE INTERRUPTION AND ACTION.

IT IS AN INTENTIONAL ACTIVITY THAT INITIATES OR ACCELERATES THE RECOVERY OF AN ECOSYSTEM WITH RESPECT ITS HEALTH, INTEGRITY AND SUSTAINABILITY

It requires:

- **Explicit goals and policies**
- **Restoration plan / project**
- **Prevention of degrading / damaging factors / influences**
- **Sustained long-term efforts as per the plan.**





REFERENCE:

UN Decade on Ecosystem Restoration 2021–2030—What Chance for Success in Restoring Coastal Ecosystems?

BY UN

Nathan J. Waltham1,2*,

Michael Elliott3,4, S

hing Yip Lee5, *et al.*

RESTORATION INCLUDE

- **Prevent disturbance / degrading factors**
- **Restore natural dynamic equilibrium**
- **Restore natural resilience**
- **Restore Biodiversity & their habitat**
- **Restore productivity [goods & Services] of ecosystem**

ECOSYSTEMS AND PUBLIC HEALTH

Biodiversity Loss and Disease Outbreak

1. A section of scientists say there is a ‘ biodiversity dilution effect ’ in which
2. declining biodiversity results in increased infectious disease transmission.
3. Scientists have observed link between decrease in disease frequency with increase in host diversity.
4. Incidence of West Nile Disease and Lyme Disease has been linked to the biodiversity dilution effect.
5. However, another section of scientists say the issue of biodiversity dilution effect is the subject of ongoing research and is still unresolved.

ECOSYSTEMS AND PUBLIC HEALTH

6. Clear links between biodiversity losses and increased risk of transmission (Rajan Patil , associate professor of epidemiology at SRM University, Chennai in research of 2018) biodiversity has great influence on magnitude and impact of epidemics
7. An article in Journal of Community Medicine (Patil's group) attributed an outbreak of anthrax in Chhattisgarh state to the loss of biodiversity.
8. Species at risk of extinction can directly impact human health
9. In the case of disease transmission dynamics, species evenness is important as it indicates the total distribution of vectors available for a pathogen to feed from.
10. Examples of diseases that entered humans as host directly from wild or from domesticated animals (who caught it from wild) plague, anthrax, SERS, MERS, Zika , Ebola and Novel Coronavirus that became an epidemic and Pandemic.
11. Because of mishandling of ecosystems, deforestation

Source: https://india.mongabay.com/2020/04/can biodiversity loss lead to more infectious disease spread/ PPT AT GIDM.

September 2015, the United Nations General Assembly formally adopted the "universal, integrated and transformative" 2030 Agenda for Sustainable Development Goal,

Set of 17 Sustainable Development Goals (SDGs).

Sl	S.D.Goal	Targets
1	No Poverty	5
2	Zero Hunger	5
3	**Good health & well being**	**9**
4	Quality Education	7
5	Gender Equality	5
6	**Clean Water and Sanitation**	6
7	**Alternate & Clean Energy**	3
8	Decent work & **ECONOMIC Growth**	10
9	Industry, innovation & Infrastructure	5

Sl	S.D.Goal	Target
10	Reduced inequalities	7
11	Sustainable cities and Communities	7
12	**Responsible consumption & Production**	8
13	**Climate Action**	3
14	**Life Below Water**	7
15	**Life on Land**	9
16	Peace, Justice & Strong Institutions	10
17	Partnerships for Goals	19
Total 17 Goals and 169 Targets		

'One Health' is an approach in which multiple sectors communicate and work together to achieve better public health outcomes and to :

- designing and implementing programmes,
- policies,
- legislation and
- research.

The Areas / Sectors / Topics:

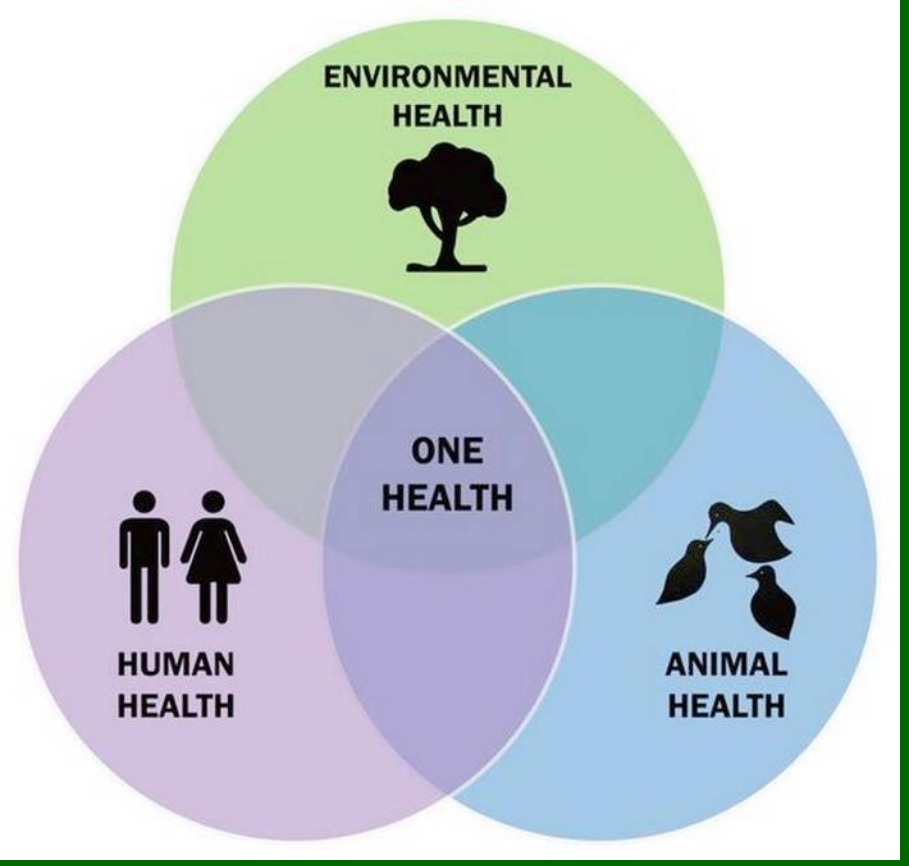
- Food safety,
- Control of zoonoses (diseases that can spread between animals and humans, such as flu, rabies and Rift Valley Fever),
- Combatting antibiotic resistance

World Health Organization

1. INTERNATIONAL STANDARDS
2. EMERGENCY RESPONSE CAPABILITIES
3. INSTITUTIONAL COLLABORATION
4. STRATGIC SURVIELLENCE AND RESEARCH
5. CONCERN FOR POORS

One World, One Health- Manhattan Principles

1. Recognize the essential link between human, domestic animal and wildlife health and the threat disease poses
2. Recognize that decisions regarding land and water use have real implications for health
3. Include wildlife health science as an essential component of global disease prevention, surveillance, monitoring, control and mitigation
4. Recognize that public health programs can greatly contribute to conservation efforts
5. Devise adaptive, holistic and forward-looking approaches to the prevention, surveillance, monitoring, control and mitigation of emerging and resurging diseases that take the complex interconnections among species into full account
6. Integrate biodiversity conservation perspectives and human needs when developing solutions to infectious disease threats
7. Reduce demand for and better regulate the international wildlife and bush meat trade
8. Restrict the mass culling of wildlife species for disease control
9. Increase investment in the global human and animal health infrastructure
10. Form collaborative relationships among governments, local people, and the private and public sectors
11. Provide adequate resources and support for global wildlife health surveillance
12. Invest in educating and raising awareness among the world's people



- **One Health** is an approach that recognizes that the health of people is closely connected to the health of animals and our shared environment.
- **One Health' vision** derives its blueprint from the agreement between the tripartite-plus alliance comprising the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE).
- **It's purpose** is to encourage collaborations in research and sharing of knowledge at multiple levels across various disciplines like human health, animal health, plants, soil, environmental and ecosystem health in ways that improve, protect and defend the health of all species.

Ref:
DRISHTI IAS COACHING CLASSES ON INTERNET

•**SIGNIFICANCE:** It has become more important in recent years because many factors have changed interactions between people, animals, plants, and our environment.

- **Human Expansion:** Human populations are growing and expanding into new geographic areas due to which close contact with animals and their environments provides more opportunities for diseases to pass between animals and people.
- Of the contagious diseases affecting humans, more than 65% are of zoonotic or animal to man origin.
- **Environmental Disruptions:** Disruptions in environmental conditions and habitats can provide new opportunities for diseases to pass to animals.
- **International Travel & Trade:** The movement of people, animals, and animal products has increased from international travel and trade due to which diseases can spread quickly across borders and around the globe.
- **Viruses in host animals:** Scientists have observed that there are more than 1.7 million viruses circulating in wildlife, and many of them are likely to be zoonotic.
- This implies that unless there is timely detection, India risks facing many more pandemics in times to come.

India's One Health Framework::

- In keeping with the long-term objectives, India established a National Standing Committee on Zoonoses as far back as the 1980s.
- Further, the Department of Animal Husbandry and Dairying (DAHD) has launched several schemes to mitigate the prevalence of animal diseases.
- In addition, DAHD will soon establish a 'One Health' unit within the Ministry.
- Additionally, the government is working to revamp programmes that focus on capacity building for veterinarians and upgrading the animal health diagnostic system such as Assistance to States for Control of Animal Diseases (ASCAD).
- Recently, funds were sanctioned for setting up a 'Centre for One Health' at Nagpur.
- Also, the Department of Biotechnology has launched the country's first One Health consortium.

PERSONAL AND PUBLIC HEALTH: Indicative list of subjects for NCSC research

1. Personal nutrition and hygiene
2. Cleanliness- social & Behavioural science- Gender & Health
3. Public health nutrition
4. Environmental Health
5. Occupational Health
6. Communicable & Non communicable diseases
7. Epidemiology-study of epidemics and Pandemics
8. Child Health Care
9. Reproductive health
10. Disease surveillance
11. Economics of good health and health issues
12. Health Policy, National Health Programme & Management
13. Immunisation Programmes
14. Public Health Laws
15. Invoking Disaster Management Laws during Pandemic / epidemic

3. Evaluation Sheet

i. District level

Sl. No.	Criteria	Max. marks		Total
		Written Report	Oral Presentation	
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

STATE LEVEL EVALUATION

Sl. No.	CRITERIA	MAX. MARKS		TOTAL
		WRITTEN REPORT	ORAL PRESENTAION	
1	Originality of idea and concept	05	05	10
2	Relevance of project to the theme	10	10	20
3	Understanding of the issue	15	15	30
4	Data collection & Anlysis	15	15	30
5	Experimentation / validation	10	10	20
6	Interpretation & Problem solving attempt	20	20	40
7	Team work	05	05	10
8	Oral Presentation/ written report (as applicable)	10	10	20
9	Improvement over previous level suggested	10	10	20
TOTAL		100	100	200

iii NATIONAL LEVEL EVALUATION CRITERIA

Sl. No.	Criteria	Max. Points
A	**Oral Presentation**	
1	Originality of idea and concept	05
2	Relevance of the project to the theme	05
3	Understanding of the issue	05
4	Data collection & analysis	10
5	Experimentation/validation	10
6	Interpretation and Problem solving attempt	05

Sl. No.	Criteria	Max. Points
7	Oral Presentation	10
	Sub Total - A	50
B	**Written Report**	
1	Data Collection /Analysis, Graphical Representation etc.	15
2	Methodology-Experiment/Survey design	15
3	Discussion and Conclusion	10
	Sub Total - B	40
C	**Poster Presentation**	
1	Lay out	05
2	Logical Framework	05
	Sub Total - C	10
	Grand Total (A + B + C)	100

THANKS