



# “Economic Valuation of Ecosystem Services – Case Studies”

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# Development vs Conservation

Making Informed Decisions



**PREAMBLE.....**

- *“Our people have a right to economic and social development and to discard the ignominy of widespread poverty. For this **we need rapid economic growth**.*
- *But I also believe that ecologically sustainable development need not be **in contradiction** to achieving our growth objectives.*
- *In fact, we must have a broader perspective on development. It must include the **quality of life**, not merely the quantitative accretion of goods and services.*
- ***Our people want higher standards of living, but they also want***
  - ***clean water to drink,***
  - ***fresh air to breathe and***
  - ***a green earth to walk on***

**Eminent Economist and Ex- Prime Minister**



It is hard to manage  
what you  
can't measure.

It is harder to  
convince people if  
you do not know the  
value of resources.

Building the future we  
desire requires that  
we measure what we want,  
remembering that it is  
better to be approximately  
right than precisely wrong.

“A country’s Gross Domestic Product (**GDP**) measures “everything except that which makes life worthwhile”.

*Robert F. Kennedy*



**Green  
Bhutan**

**Gross  
Domestic  
Happiness**

**Not GDP**



# Gross National Happiness Index

- Used in Bhutan.
- Uses elaborate surveys that ask **how content** people feel in **nine domains**:
  - psychological well-being,
  - standard of living,
  - governance,
  - health,
  - education,
  - community vitality,
  - cultural diversity,
  - time use and
  - ecological diversity.

# "Economic Valuation of Ecosystem Services"

*- An approach to effective management  
of Natural Resources*



Saving 2 Tigers gives more value  
than Mangalayaan !

**The Times of India 16<sup>th</sup> July 2017**

# Indo-Australian team

- **Making the hidden visible** : Economic valuation of tiger reserves in India
- Published in the journal of Ecosystem Services
- 2 Tigers yield a capital benefit of Rs.520 crore vs Mangalyaan cost of Rs. 450 crore
- 6 Tiger Reserves studied = stock benefit of **USD 230 Billion**
- Total 2226 Tigers = **Rs. 5.7 lakh crore**
- 300 rivers flow originate from tiger reserves

- **Ignorance** of value of ESS influences policies and decisions that **impact** the tiger protection
- Enhanced investment in these tiger reserves is now proved to be economically rational
- Each tiger has an annual benefit of USD 2.19 million (*annual interest earned on each T*)
- Annual **maintenance** expenditure of these 6 Tiger Reserves is only Rs. 23 crore
- **RoI is 356 times the investment !**

# Hoge Veluwe Forest, the Netherlands

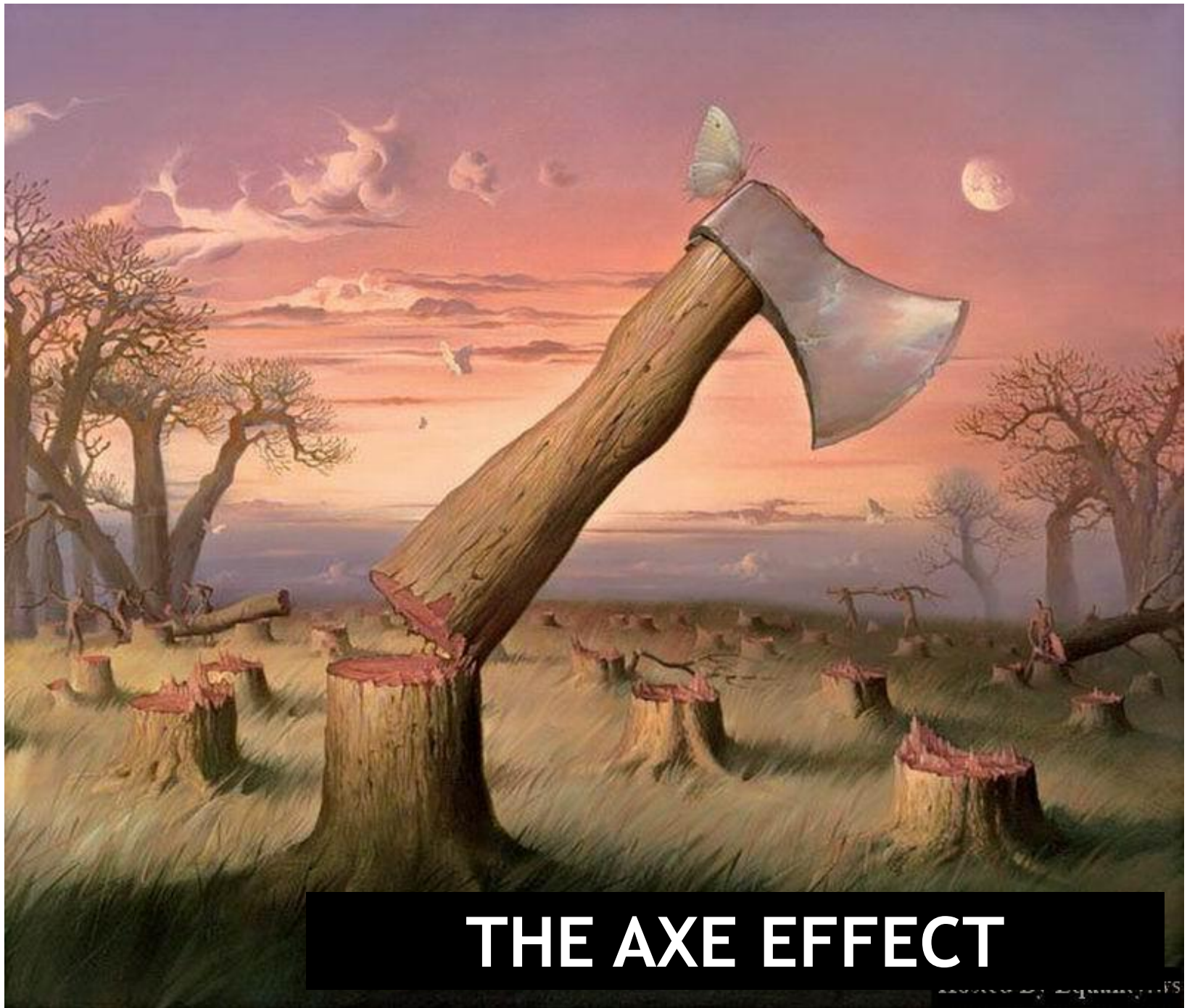
Area : 5,500 ha

- The **services** included in the study are wood production, supply of game, **groundwater recharge**, **carbon sequestration**, **air filtration**, **recreation**, and **nature conservation**.
- A conservative estimate of the total economic benefits generated by the **forest** is around **2000 Euro/ha/year**, which is more than three times higher than the per hectare-value generated by nearby agricultural land.

# State of the World's Forests 2016

## (FAO)

- Forests play **key role** in water cycle, soil conservation, carbon sequestration and habitat protection, including for **pollinators**.
- It is possible to increase Agricultural productivity and Food security while **halting** or even reversing **deforestation**
- Integrated land use planning along with policies to promote both **sustainable forests and agriculture**
- Food Security can be achieved through **agricultural intensification**, social protection, etc rather than through expansion of agricultural areas at the expense of forests.



**THE AXE EFFECT**

# IUCN Red List

- 45,000 species assessed (2.7% of known 1.8 million species)
  - 17000 (38%) - Threatened
  - 804 – Extinct
  - 5561 – Data Deficient (probably Threatened)
- 5 to 30 million – total estimated species
- **At Risk of Extinction** –
  - 1/3 rd of all Amphibians
  - ¼ th of all Mammals
  - 1 in 8 of all bird species
- **HABITAT LOSS – MAJOR CAUSE**
- We are losing many species (mostly unknown)

<https://www.iucnredlist.org/>



Value of **Services** provided by  
all the **Ecosystems**  
in the World

**US \$ 33 Trillion** (1997 – Costanza)

*Sum of GNP of all Nations or  
Gross World Product = **US \$ 18 Trillion***

## *Measuring and Valuing Environmental Impacts*

**Humans caused \$6.6 trillion worth environmental damage in 2008.**

*Trucost. 2011. Universal Ownership: Why Environmental Externalities Matter to Institutional Investors. Commissioned by UN Principles for Responsible Investment (PRI) and UNEP Finance Initiative.*

# “Real Value” of a Tree

Environmental benefits derived from a tree (50 tonnes) during its 50 years life span, **excluding** values of timber, fruit and flowers

	<b><u>Source:</u></b>	Single tree
Sl. No	<i>T.M. Das (1980), The Value of Tree, Proceedings of Indian Science Congress</i>	Rs. (Lakh)
1.	<b>Oxygen production</b>	<b>2.50</b>
2.	<b>Conservation of Animal protein</b>	<b>0.20</b>
3.	<b>Control of soil erosion</b>	<b>2.50</b>
4.	<b>Recycling of water and control of humidity</b>	<b>3.00</b>
5.	<b>Shelter for birds, squirrels, insects, plants</b>	<b>2.50</b>
6.	<b>Control of air pollution</b>	<b>5.00</b>
	<b>TOTAL BENEFIT</b>	<b>15.70</b>

# Current Value of A 50 yr old Tree

- During a 50-year life span, one tree will
- generate Rs. 14 lakhs in oxygen,
- recycle Rs. 16 lakh worth of water,
- clean up Rs. 28 lakh worth of air pollution

Total Service Per Tree = Rs. 58 lakh

# Benefits of Forest Ecosystems

- Fruit
- Flower
- Seed
- Grass
- Bamboo
- Small Timber
- Timber
- Medicinal plants
- Meat
- Recreation
- Clean Air – Oxygen
- Carbon Sink
- Water
- Soil
- Tourism
- Research
- Adventure
- Education
- Pollution removal
- Heat Mitigation

# Tangible and Intangible Benefits of Forest Ecosystems

Direct and Indirect



# Some More Benefits....

- Reduction of **Stress** in Workplace
- **Speedy Recovery of Patients in Hospitals**
- Trees can reduce utility bills for AC in residential and commercial buildings by 15-50 %
- **Trees can absorb CO<sub>2</sub> at the rate of 6 kg /tree p.a.**
- For every ton of new wood that grows, about
  - **1.5 tons of CO<sub>2</sub> are removed** from the air
  - **1.07 tons of life-giving oxygen** is produced.

# What are Ecosystem Services

- What a forest provides **merely by existing**.
- A standing forest can
  - enhance rainfall (**water** catchment),
  - prevent flooding,
  - regulate the **soil**,
  - provide biodiversity and
  - store **carbon**
  - Enhance air quality
- **These benefits are received by everyone in society, but no one pays for them**

# Categories of ESS

1. Provisioning Services

2. Regulating Services

3. Cultural Services

4. Supporting Services

# Provisioning Services

## Products Obtained from Ecosystems

- Food
- Fresh Water
- Fuelwood
- Fiber
- Biochemicals
- Genetic Resources

# Regulating Services

## Benefits Obtained from regulation of Ecosystem processes

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

# Cultural Services

## Non Material Benefits Obtained from Ecosystems

- Spiritual and Religious
- Recreation and Ecotourism
- Aesthetic
- Inspirational
- Educational
- Sense of Place
- Cultural Heritage

# Supporting Services

Services necessary for the production of all other ecosystem services

- Soil Formation
- Nutrient Recycling
- Primary production



# Ecosystem Services

“The conditions and processes through which natural ecosystems and the species that make them up, sustain and fulfill human life”

# Non-Use Values

# Existence Value

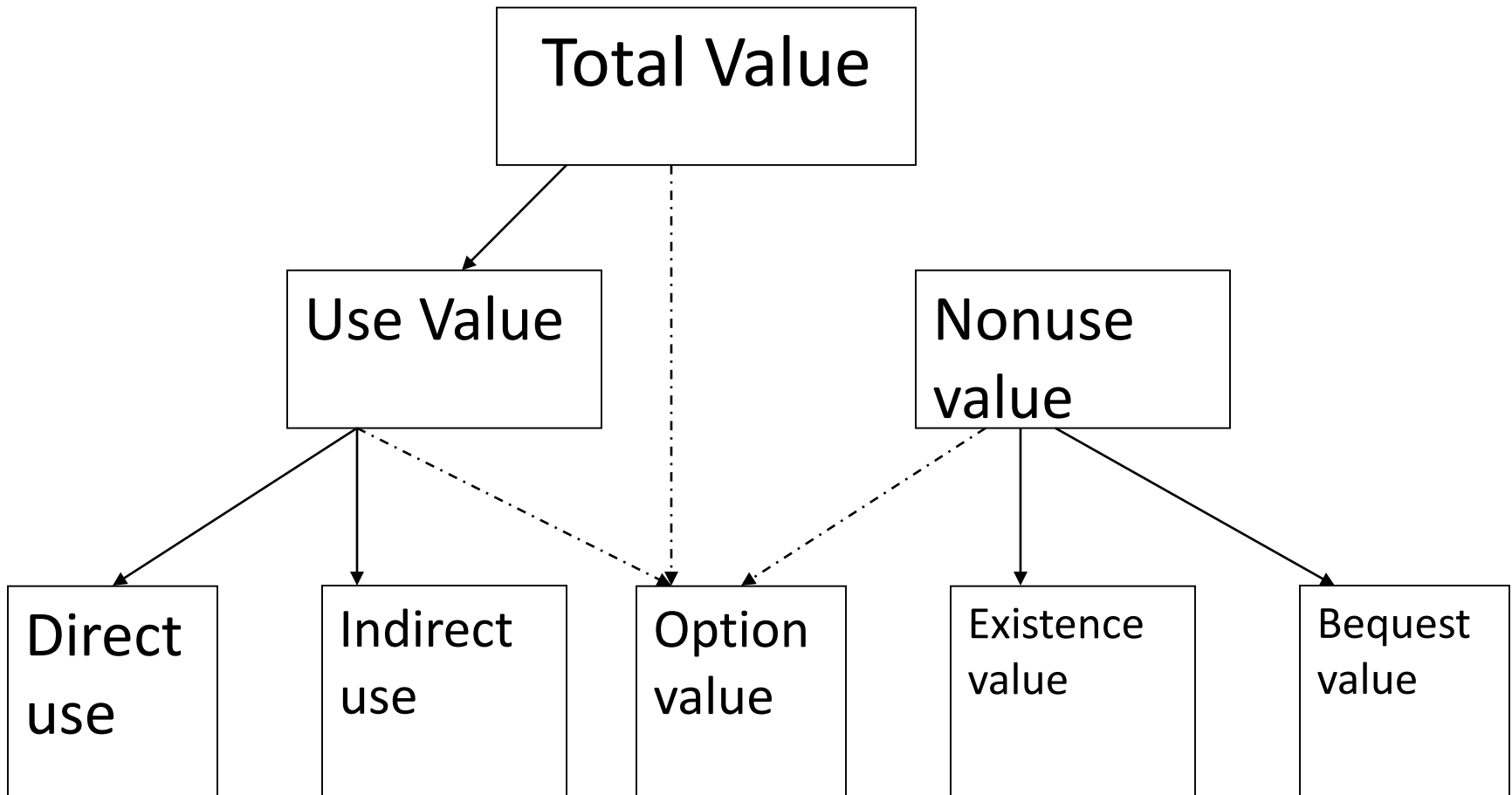
- Forests are valued for their mere existence.
- We are willing to pay for protection of many **endangered species** against extinction.
- In habitats, even those located in remote, hard to access areas.
- Although those placing the value will most likely never travel to these places, or see the species, they nonetheless **value the knowledge that such species exist**

# Option Value

- In future forest may provide some use value.
- Goods and services valued for their potential to be **available in the future**.
- It is an **insurance premium** one may be willing to pay to ensure the supply of the environmental **goods later** in time.
- **Willing to pay** for preserving biodiversity or genetic materials to ensure the option of having these goods in the future.

# Bequest Value

- Benefits that we get from ensuring that certain goods will be preserved for **future generations**.
- We are willing to pay for CC mitigation despite the fact that the vast majority of the damage is expected to affect us after our generation is gone.



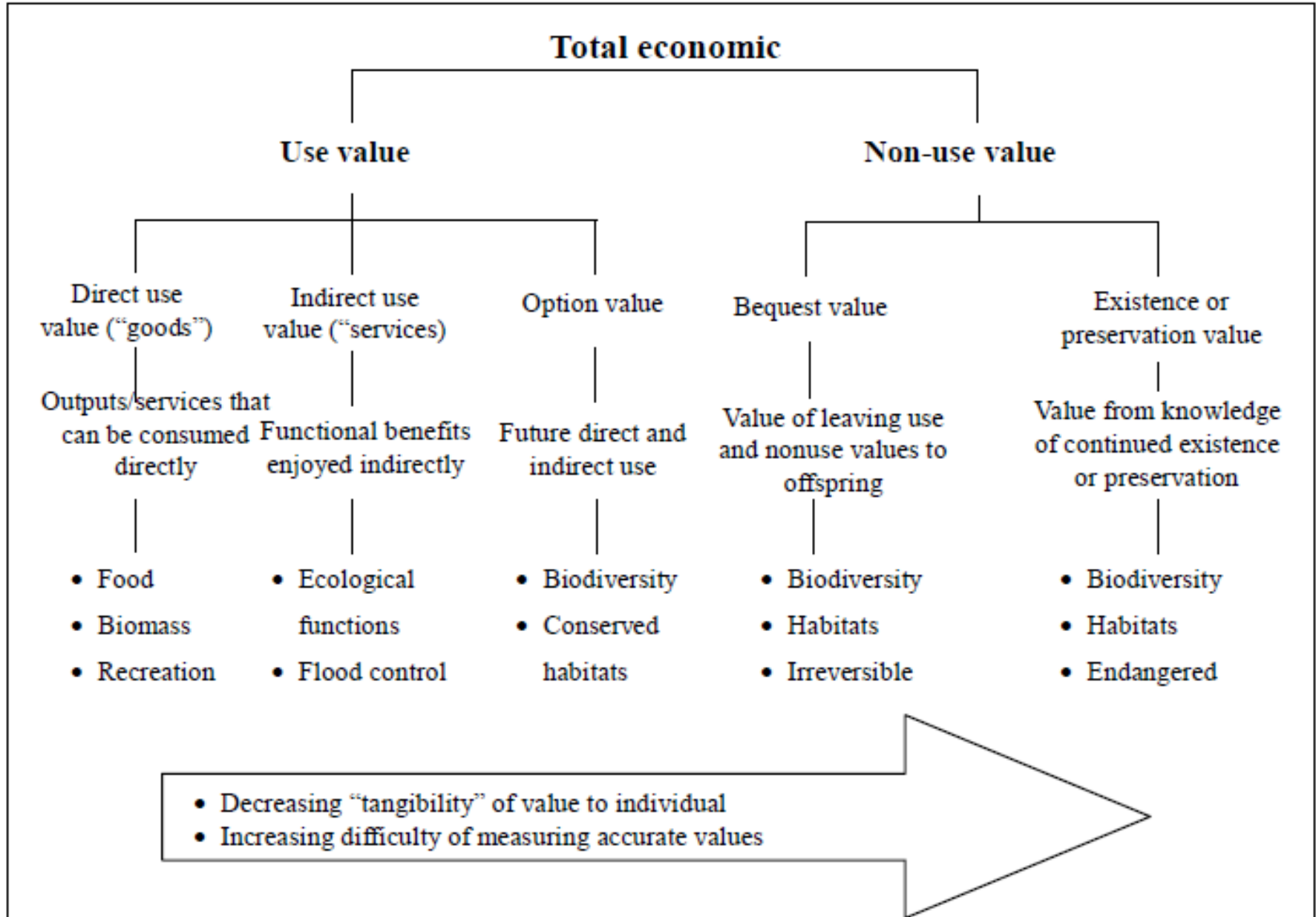
# **TOTAL ECONOMIC VALUE OF FORESTS**

# Payment for Ecosystem Services

## Valuation can help

- Identify the main beneficiaries of conservation
- The magnitude of the benefits
- Thus contribute to financing of conservation

# Valuation of Biodiversity and Ecosystems

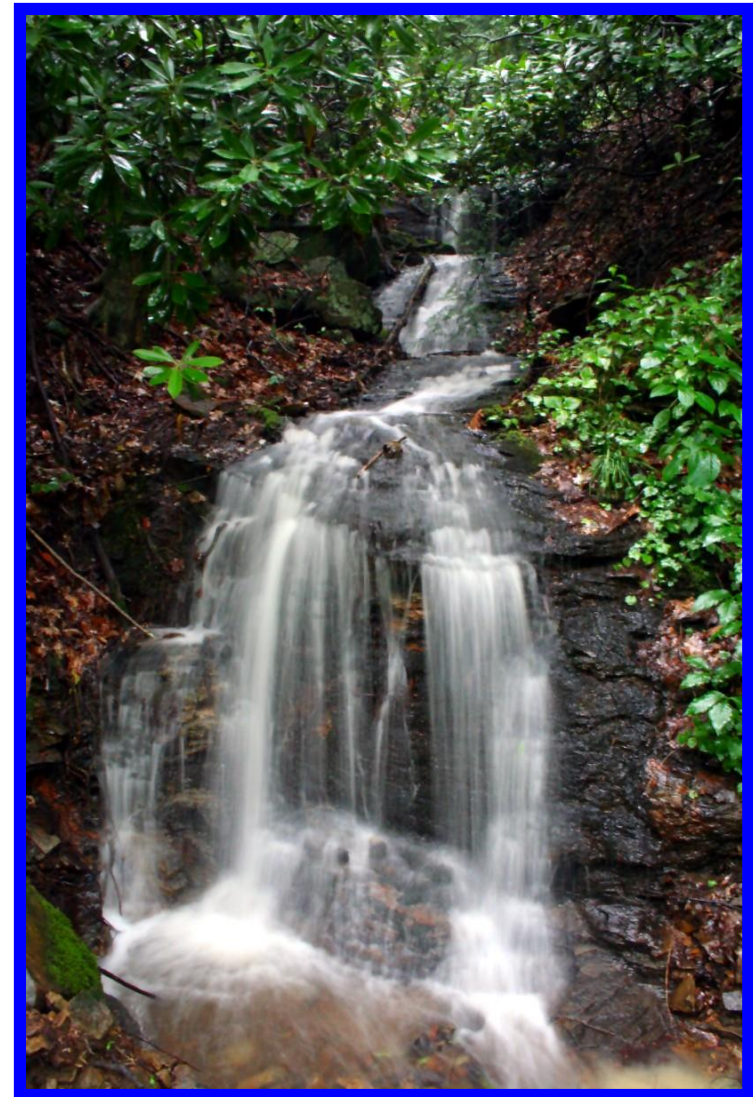




# What is the Value of Water ?



**Easy to Answer**



**INVALUABLE – NOBODY KNOWS**



### Kona Nigari Water – 750ml ( 12 Bottles )

★★★★ (0 customer reviews) | 0 sold

₹361,800.00

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Quantity selector: - 1 +

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BUY NOW


Categories: Kona Nigari Water, Premium Water

- Description +
- Additional information +
- Reviews (0) +


<https://www.thewaterstore.com/shop/kona-nigari-water-750ml-12-bottles/>

#### Related Products


<
>




10 Thousand BC – 750ml ( 12bottles )  
₹12,600.00



Bling H2O – 750ml ( 12 Bottles )  
₹36,000.00



Laquen Artes – 750ml ( 12 bottles )  
₹5,400.00



Aqua Deco – 750ml ( 12 bottles )  
₹10,800.00

<b>S. No</b>	<b>Brand of water</b>	<b>Source of water</b>	<b>Country</b>	<b>Price per Litre</b>
1	<b>Bisleri</b>	Ground water	India	<b>20.00</b>
2	<b>Evian</b>	Evian-less-Bains	France	<b>600.00</b>
3	<b>Kona Nigari</b>	Kona Hawaii pacific sea	Japan	<b>40,200.00</b>
4	<b>Bling H2O</b>	Tennessee	United States	<b>4000.00</b>
5	<b>Veen</b>	VEEN source, Konisaajo	Finland	<b>1500.00</b>
6	<b>10 Thousand BC</b>	Vankleek hills /mountains	Canada	<b>1400.00</b>
7	<b>AquaDeco</b>	Spring	New York, United States	<b>1200.00</b>
8	<b>Lauquen Artes</b>	Artesian	Argentina	<b>600.00</b>

- Artesian Water
- Fresh Water
- Imported Water
- Medicinal Water
- Packaged Water
- Premium Water
- Spring Water
- Water Cooler
- Water Dispenser
- Water Purifiers
- Water stations

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Clear Pani	Dasani	Eternal	eVamor	Evian	Evocus H2O	
Iji water	Hige - Natural Mineral Water	Himalayan	Kelzi	Kingfisher water	Kinley	kinley
Kamin waterQua	Naturally Alkaline Water	Ocean Fruit	Oxyrich	Perrier	Plus Waters	WATER
Pure Aqua water	Qua	S Pellegrino	San Benedetto	shunya	shunya	Smart Water
Tata Copper Water	The Mountain Valley	Voss	Voss	Rani	Responsible water	whQtr
					Jucoupp	JUCOUPP

Exchange offer - water cooler, Water purifier, Water dispenser, Water Station Etc.

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## MAN MADE FOREST BY KAREEM

**Kasaragod  
Kerala**

HOW AN ECCENTRIC,  
MIDDLE-AGED VILLAGER WAS  
ABLE TO INSPIRE  
INDIA'S LARGEST OIL COMPANY.

In the Kerala of the early 70s Abdul Kareem was a bit of a joke.

"Money doesn't grow on trees, Saar," amused friends said, as he put down all his savings for a piece of rocky lateritic wasteland in a remote corner of Kasargode.

After all, the barren region had hardly ever seen water and was barely habitable.

But here was this eccentric man wasting good money to bore deep holes into the hard rock face to plant saplings!

None of them survived the first year, of course.



Kareem's Model - from barren rock to lush forest

Time passed, his family grew and all his earnings evaporated into the parched rock that had become his obsession.

Yet Kareem simply clenched his jaw and toiled harder.

Single mindedly. Single handedly.

You can grow a forest in your mind if you think hard enough, he believed.

Then one afternoon, he noticed a defiant 'Mamuhu' sapling burst through the scorched surface. Encouraged, he began planting even more. And slowly, Mother Nature

And the water levels in all the villages around began to rise.

Today the lush 32 acre forest growing out of hard rock is globally acknowledged as an ecological miracle.

And several institutions are trying to replicate the 'Kareem Model'. Which has become an important research project for visiting environmentalists.

Good old Abdul Kareem however still lives in his house in the forest. And is now renowned as the 'Forest Maker'.

Which, come to think of it, is a rather eccentric title.

Sometimes an ordinary Indian can make a Rs 120,000 crore company feel humble. Even if it's a company that has planted over ten lakh trees across India and created green belts at all its refineries.



The Ecological Park at Mathura:  
Home to migratory birds

Or whose refinery at Mathura is the world's first to receive the Occupational Health & Safety Management System Certification. And the first refinery in Asia to achieve the coveted ISO-14001 rating.

And even developed several green fuels like unleaded & ethanol-blended petrols, auto

For every step we take,  
there's an  
inspired Indian  
leading the way.

**Now  
Included  
in 6<sup>th</sup>  
Class  
Syllabus**



Well – in summer  
from 500 litres per day  
to 1 lakh litres per day



“Don’t direct  
Nature – Just  
Enable it and it  
will respond”

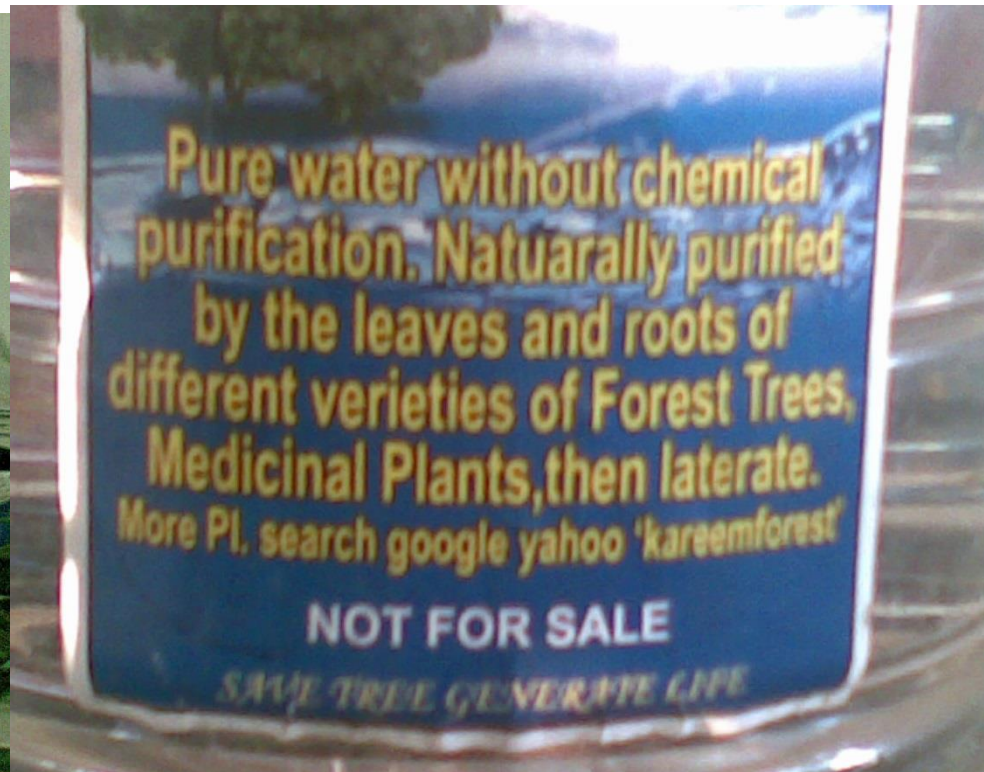
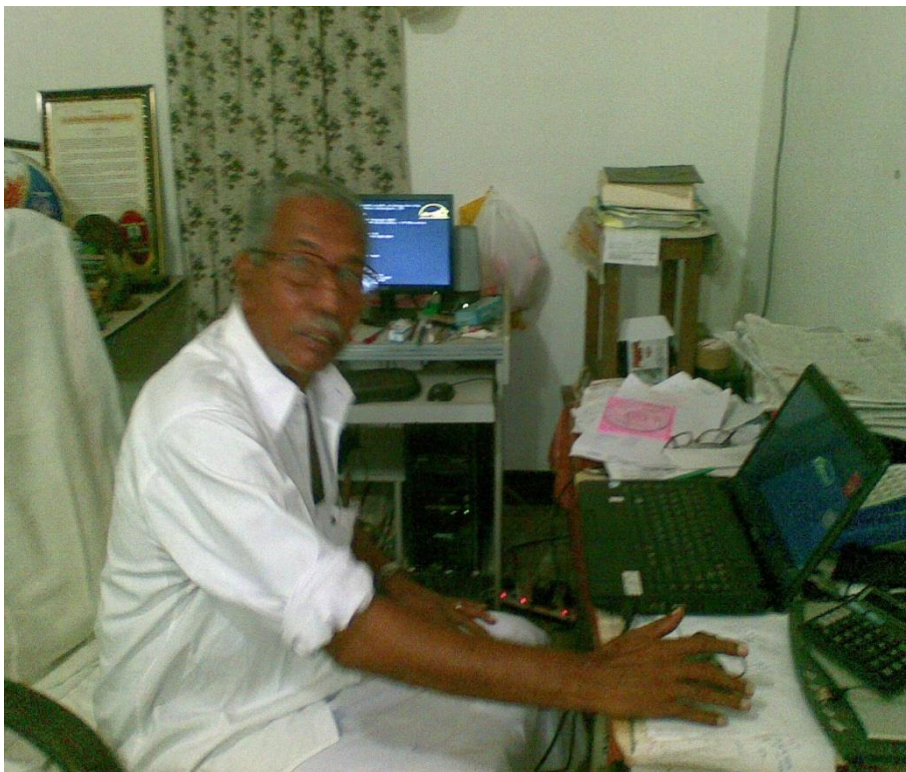






**This used to be a 32-acre dry laterite hillside in Parappa, Kerala.  
Now it is a thick, green wooded area.**

# ECOSYSTEM SERVICE – WATER HARVESTING









# Ishopanishad - Need for RWH\*

*“Akashat Patitam Toyam*

*Yatha Samrakshayati Bhumiparam*

*Thatheva Sarvatra Krishmit Krishwa*

*Idameya jeevanam shreyasam*

*Bahujana Manyaha”*

- Whatever water falls on earth from sky If it is conserved suitably **above and below the earth surface**, it may be available everywhere **for all living beings** – be it Plants or Animals.

*\*Rain Water Harvesting*

# Does Commercial Fishing Recognise the Value of Coral Reefs



# Coral Reefs - largest living structure on the planet

- Coral reefs cover less than 1% of the Earth's surface, they are home to 25% of all marine fish species.
- 500 million people rely on coral reefs for their food and livelihoods.
- Protect shorelines from the eroding forces of the sea, thereby protecting coastal dwellings, agricultural land and beaches.
- Used for treatment of cancer, HIV, cardiovascular diseases and ulcers.
- Corals' porous limestone skeletons have been used for human bone grafts.
- It is estimated that coral reefs provide \$375 billion per year around the world in goods and services. (Rs. 170,000 Crores per year)
- If the present rate of destruction continues, 70% of the world's coral reefs will be destroyed by the year 2050.

Source :<http://briansfreewebpromotion.blogspot.com/2007/09/top-ten-coral-reef-facts-plus-reef-fish.html>

# In the service of Humanity *since* *Ramayana days*



# Role of Birds – Friends or Foes ?

*Agriculture / Horticulture / Apiculture  
/ Animal Husbandry / Forestry /  
Fisheries*

“Whatever you may do may seem insignificant to you, but it is most important that you do it”.

- Mahatma Gandhi

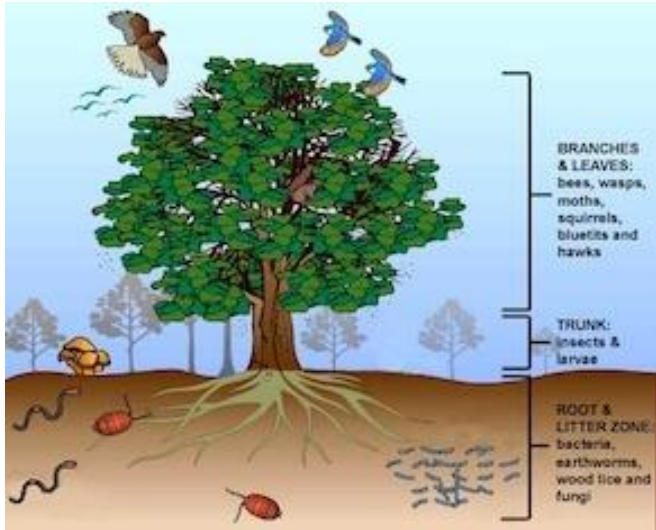








© Rose Dammelin



# Value of Services by a Bird

- Seed dispersal, Pollination, or pest regulation.
- **Replacement Cost** for natural **Oak** forest regeneration by **Eurasian Jays** is US \$ 9400 per ha (Stockholm National Urban Park, Sweden – 655 ha = **US \$ 6.2 million or Rs. 48 Crores !**)
- *The acorns form a valuable food resource for several small mammals and some birds, notably Eurasian Jays *Garrulus glandarius*.*
- *Jays are the primary propagators of oaks because of their habit of taking acorns from the umbra of its parent tree and burying it undamaged elsewhere*

# Road Widening

What is the value of “Ashoka’s Trees” ?



## Avenue Plantation - Value

- Green Belt, Toronto, Canada
  - **\$2.6 billion** - \$3,487 per hectare or Rs.1.57 lakh / ha or **Rs. 1170 Crores** worth of Services **per year**

**Table 10: Total Value of Greenbelt's Ecosystem Services by Ecosystem Service**

<b>ECOSYSTEM SERVICE</b>	<b>TOTAL VALUE</b>
Air quality	\$68,868,821
Climate regulation (stored carbon)	\$366,451,342
Climate regulation (annual carbon uptake)	\$10,982,151
Flood control (wetlands)	\$379,676,010
Water regulation (control of runoff – forests)	\$278,103,520
Water filtration	\$131,107,489
Erosion control and sediment retention	\$532,417
Soil formation	\$6,005,164
Nutrient cycling	\$2,141,547
Waste treatment	\$294,360,279
Pollination (agriculture)	\$298,235,257
Natural regeneration	\$98,001,705
Biological control	\$8,175,746
Habitat/Refugia	\$548,184,172
Genetic resources	n/a
Recreation and aesthetics	\$95,207,535
Cultural/Spiritual (agriculture)	\$65,674,796
Total value (\$/year)	\$2,651,707,951

**Preservation of Biodiversity is  
integral to any strategy  
aiming at improving quality  
of life.**

# Fund Requirement for better NRM

How Valuation can help ?

# National Forest Policy envisages

- Improving Tree Cover
- Checking soil erosion in catchment areas of rivers, lakes, reservoirs
- Increasing Forest Productivity
- Involving people in greening India
- Greater thrust on forestry extension, education, research and training
- Strengthening network of Protected Areas



# National Forest Policy 1988

## 4.16 Financial Support for Forestry

- The objectives of this revised Policy cannot be achieved without the **investment** of financial and other resources on a **substantial scale**.
- Such investment is indeed fully justified considering the contribution of forests in **maintaining essential ecological processes and life support systems and in preserving genetic diversity**.
- Forests should **not** be looked upon as **a source of revenue**.
- Forests are a renewable natural resource. They are a **national asset to be protected and enhanced** for the well-being of the people and the Nation.

# Forest Resource in AP - Inventory

- Growing Stock - Volume of **Standing Trees** in the forests of AP is **232 million cubic metres** as per the latest inventory
- Value varies from Rs.500 to Rs.50,000 per cum - depending on the type of species - we may adopt a conservative figure of **Rs.1000 per cum**
- We also have **2053 million bamboo** culms in the forests of AP
- Value varies from Rs.2 to Rs. 20 per culm - for valuation we may take **Rs.5 per culm**

# Value of Forest Resource - AMC

- The value of **growing stock** would be Rs.232,000 million or **Rs.23,200 crores**
- The value of **bamboo** would be Rs.10,265 million or **Rs.1026.5 crores** -
- Total value is Rs. 24,226.5 crores - this is only **tangible** value of **timber and bamboo** - *Ecological services, herbs, shrubs, NTFP not included*
- Annual maintenance cost of forest @ **10%** would be **Rs.2422 crores**.
- Current allocation on forestry sector - **Rs.265 crores** per annum (Plan + Non Plan) and we give a *revenue of Rs. 87 crores per annum*

# Impact

Increased Allocation to  
Forestry Sector under  
**13<sup>th</sup> Finance Commission**

12<sup>th</sup> FC – Rs. 65 Crores

13<sup>th</sup> FC – Rs. 268 Crores

**FOUR FOLD INCREASE**

# **Non Timber Forest Produce**

**NTFP – Contribution to Rural  
Economy**

# NTFP – broad classes

- **Edibles** – Amla, Mushroom, Berries
- Medicinal Plants
- **Animal Products** – Honey, Lac, Insects,  
Fish, Earthworm
- Miscellaneous – Dyes, Flowers, Gums
- **MORE THAN 150 NTFP IN FORESTS**

# NTFP Survey in Warangal Circle

- 570 Villages covered in April 2000
- All the types of NTFP being removed listed out
- Looked at the total number of families in the village and then estimated each family's requirement.
- How many people are going for NTFP collection for how many days and how much quantity each one can collect in a day - so that the quantity estimated is closer to the reality.

## Result of Survey – Conservative Estimates

- **Ramakrishnapur (Wgl/N) - Rs.1,61,250 per annum**
  - **65 families - Rs.2500 per annum**
- **Maddimalla (Knr/W) - Rs.1,86,550 per annum**
  - **150 families - Rs.1245 per annum**
- **110 Villages in Warangal (South) – collect 24 types of NTFP – Value – Rs. 96.62 lakhs per annum**



# Impact of Focussing on Provisioning Service

Better Co-ordination  
Better Participation  
Functional Sub-Committees

# Environmental Impact Assessment

## Medaram Jathara – Management Issues



# Background

- Medaram located in Tadvai Mandal of Warangal district
- 250+ households
- Famous for the bi-ennial Sammakka-Saralamma Jathara
- Over 400 years old tradition
- Over 40 lakh visitors in 3 days
- Middle of Wildlife Sanctuary







చీరెతో అలంకరించిన సొరలమ్మ గద్దె

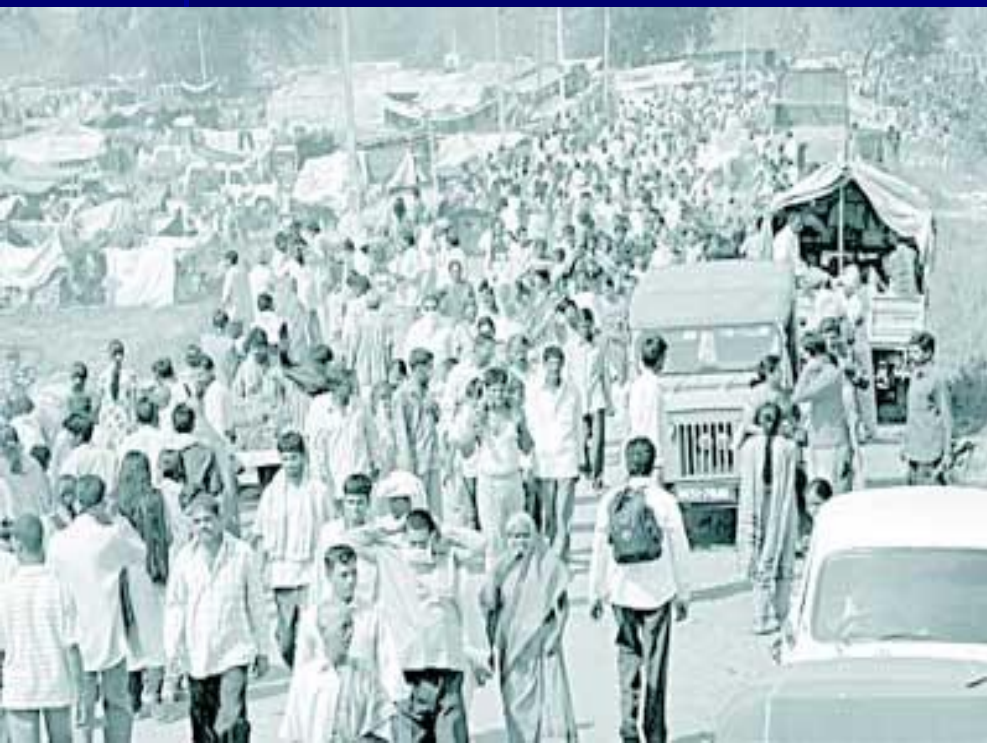


పూనకాలు..  
జంపన్న వాగులో  
పవిత్ర స్నానాలు





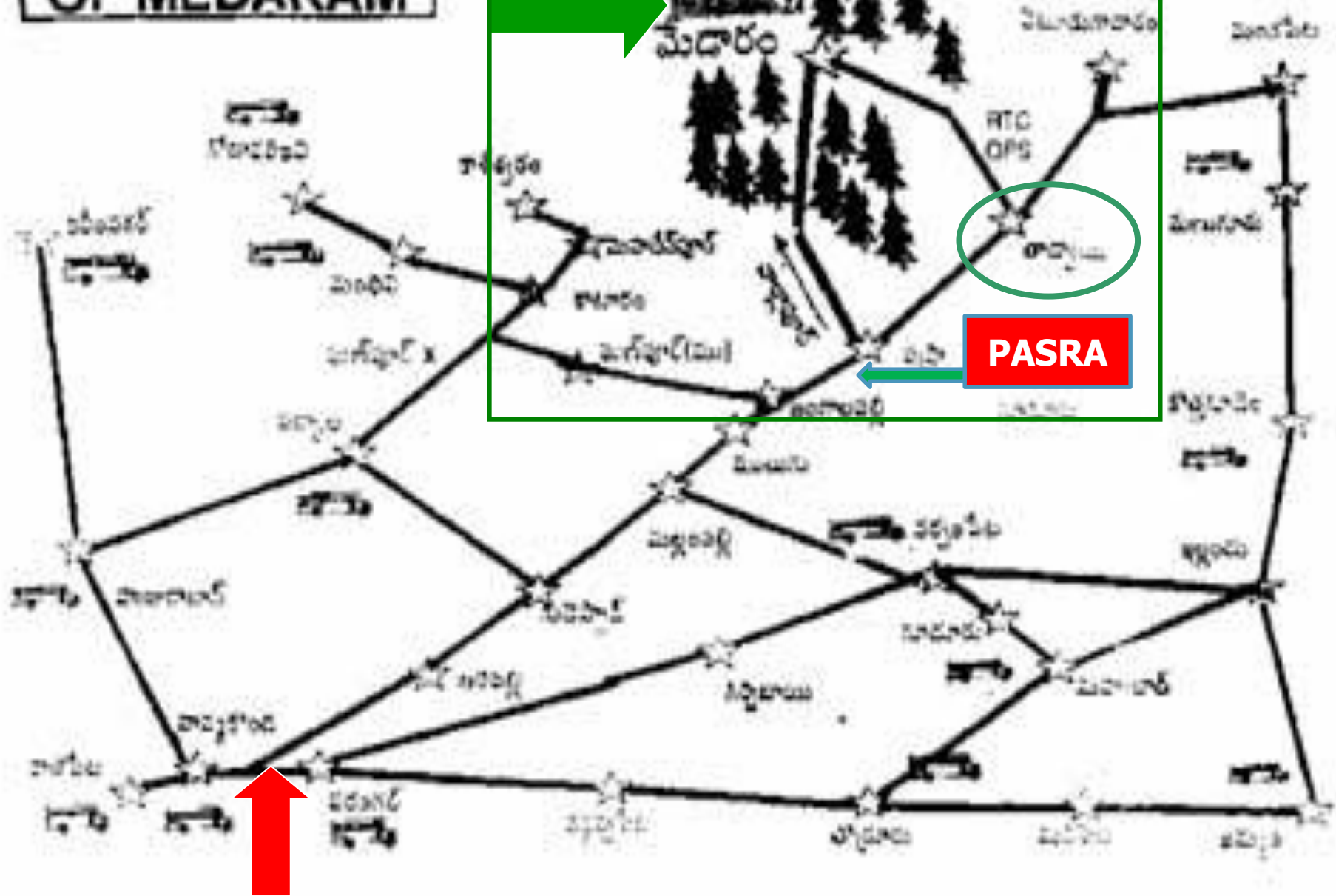
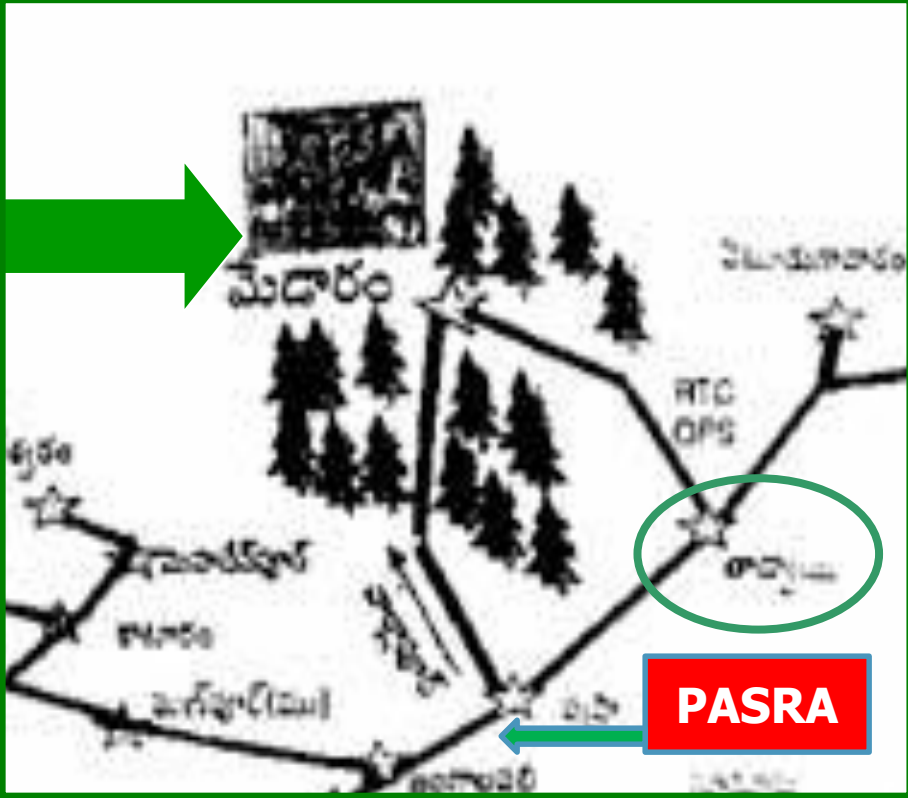








# ROUTE MAP OF MEDARAM



# Context – 2000 Jathara

- Feb 14-16 – scheduled
- Works getting done till last minute
- Pasra case – backhoe to dig soil in sanctuary to strengthen side berms of roads
- Machinery seized on 9<sup>th</sup> Feb
- All Contractors go on strike



# Removal of forest soil for laying / widening of road





# Removal of forest soil for laying / widening of road



# Whose Problem is it ?

- **District Administration** – it is Forest Department's creation – U solve it
- **District Police** – If law and order issues are there – U are responsible for it
- CM scheduled to visit in 4 days
- **Case compounded** – Contractors refuse to pay fine as well – Paid by ITDA from Jathara funds – Rs.50,000



# Environmental Impact Assessment

- Agencies involved
  - REC Warangal (now NIT)
  - Health Dept.
  - NGOs
  - Forest Dept
- Pre and Post Jathara assessment

# Impact on Environment

- Tree felling for
  - transmission lines
  - road widening
  - Erection of stalls (2000+)
  - Fire wood
  - Smuggling on way back – timber
- Natural regeneration adversely affected
- Forest Fires
- Migration of wild animals - poaching

# Adverse Impacts (2)

- Pollution
  - Air (dust)
  - Water (Jampanna Vagu)
  - Noise
- Respiratory Tract Infections - increased
- Night soil – a night mare 4 locals
- Cattle die – polythene bag consumption
- Ag. Lands – loss of productivity

# Arrangements for Shelter









# Cutting of trees for laying electric line



# Quantification of Impact

- Deforestation for laying electric lines:
- Total no. of trees felled between Tadwai and Medaram - distance of 14 km: 202

Girth Class	31 – 45 cm	46 – 60 cm	61 – 90 cm	91 – 120 cm	> 121 cm
No.	85	59	45	10	3

# Total quantity of soil quarried

Route	No. of Pits	Quantity (cu.m.)
Pasra - Tadwai	12	16.344
Tadwai – Medaram	6	1518.361
AK Ghanpur – Tadwai	3	6265.200

**21 pits**

**7800 cmt**

# Tree Fellings for Shelter

- More than 2000 stalls and sheds have been built using 26,261 poles /saplings that were brought illegally from the forest
- 283 cart loads of brushwood for roofing purpose.
- 80 huts were constructed for the shelters with Eucalyptus and Casuarina poles for the policemen who were on security duty.

# Environmental Impact Assessment

Environmental **LOSS** estimated at  
**Rs.153 crores !**



# Disbelief – Questioned first time in 400 years !

- Branded as Anti-Tribal
- Media and Intellectuals – surprised and shocked
- Sensitisation workshop for all stakeholders on 31<sup>st</sup> March 2000
- Visual evidence – creates impact
- Can we do anything differently ?

# Consultations

- At Medaram village – women groups quite positive
- Tribal Associations
- NGOs
- District Administration – all departments
- Task Force set up to plan for 2002
- Extensive coverage in Media
- Focus on minimizing damage

# Result

- 2002 Jathara declared as **ECO-FRIENDLY**
- Focus on alternatives
  - Stalls – pre erected with bamboo
  - LPG in place of firewood
  - paper bags in place of polythene
  - Sulabh complex for cleaner environment
- Lead by Tribal leaders themselves
- Activities started well in advance

# Lessons Learnt

- Better co-ordination mechanism
- Timely Planning
- Involvement of all stakeholders in decision making
- Builds up sense of ownership over implementation of plans

# Bottomline

If we put a **value** on the Contribution of Forest Ecosystems – Better chance for arguing our **case for conservation** and **WINNING** it !



# Summing Up

- We can conserve efficiently only what we know – the **big picture** is to be seen
- **Development vs Conservation** debate can be argued in favor of future generations
- Additional **investments** to flow
- People understand monetary language better – helps in **decision making** !
- Time to look beyond the obvious – out of box thinking to **promote conservation agenda**



*The World is Precious  
take care of it...*

# Thank you

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