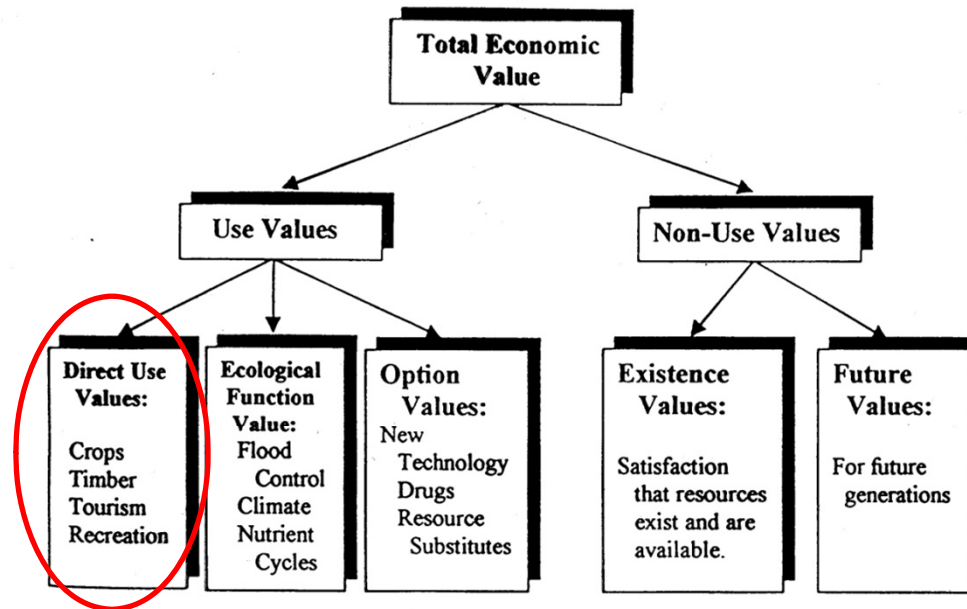


Summary of monetary approaches

H.P. Nachtnebel

Components in Economic evaluation



Various types of economic values sometimes assigned to water and other natural resources.

Pro's and Con's of pure economic assessment

- Monetary assessment is widely applied
- Detailed guidelines exist
- Broad experience in different fields
(irrigation, hydropower, flood protection. navigation, sanitation and health, recreation, water for cooling, food processing, ...)
- Widely accepted approach
- Yields useful results when tradeable products are assessed
- Undisturbed markets are assumed

- It is difficult to assess environmental and social impacts by monetary units
- Thus, often environmental impacts are neglected
- Economic assessment is based on discounting
- This implies that everything has a lifetime and can be reproduced
discounting assigns a lower value to future outcomes

Two „sarcastic“ examples

- The value of an endangered species
- The value of a bird

What is the value of an endangered species ??

- Several species which are close to be extinct in the wild, are hatched and raised on farms in Texas
- These animals can be hunted there
- Their population is much larger than in the wild



Sable Antelope ([*Oryx dammah*](#))



Dama Gazelle (*Nanger dama*)

The value of animals on the red list (hunting permit)

- These animals are not protected in Texas
- Price list

species	price	population	
		at ranches	in wild (Africa)
Dama Gazelle	6 950 \$	900	n * 100
Elands (antelope)	6 400 \$		
Sable Antelope	4 500 \$	11 000	175
Mendes Antelope	5 500 \$	5 000	n * 100
Great Kudu	19 000 \$		

The economic value of a bluethroat (*Luscinia svecica*)

- A „demonstrative example“ from „Friends of Nature (1994 ?)



Value of raw materials

Skelleton (P,Ca,F..)	0,7 Pf
Meat	1,8 Pf
Blood	0,1 Pf
Feathers	0,3 Pf
Mineral compounds	0,2 Pf
<hr/>	
Total	3,1 Pf

Economic assessment considering the „ecosystem services“ (functional values)

Environmental monitoring
Birds are an excellent indicator for environmental loads
Replace a monitoring system **100 DM/a**

Bionics
The study of birds improves aeronautic knowledge **1,6 DM**

Symbiosis
Each bird is part of the regional ecosystem. It is necessary for other species and it maintains the ecosystem **36,5 DM**

National economy
The national economy saves **3 DM**

Biological diversity
Due to its various functions the diversity increases **8 DM**

Recreation
Improved recreational benefits and stress reduction
Less costs for health care **12 DM**

Total benefits

Value of raw materials	0,031 DM
Mind	30,00 DM
Insectivore	60,00 DM
Seeds	20,00 DM
Symbiosis	36,50 DM
Recreation value	12,00 DM
Bionics	1,60 DM
Environment	10,00 DM
National economy	3,00 DM
Species diversity	8,00 DM
Pol. Decision making	0,50 DM
<u>Regeneration</u>	<u>1,50 DM</u>
Total value	301,38 DM/a

Political DM
The increased consideration of env. functions contributes to improved political dm **0,5 DM**

The mind
Birds quiet the mind of people due to the elegant flight and singing: 1 valium tablett/day less **30 DM/a**

Insectivores
Birds live from insects and control them
100000 insects/year which would have to be killed by spraying campaigns **60 DM/a**

Seeder
Birds distribute seeds over larger areas
1 tree /a grows **20 DM/a**

Environment
Reducing spraying results in reduced env. Pollution **10 DM/a**

The economic value of a bluethroat

- per year 301,38 DM

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- Per year 301,38 DM
- But it is a migrant bird: 8 months /a available
- Mean life time: 5 years
- Total benefits: $5 * 8 / 12 * 301,38 = 1357,13$ DM
- But it needs to be discounted to obtain the net present value

Summary

- A market is needed to evaluate something
- But still it will be the use value
- Whats about non use values ?
- Whats about social values ?