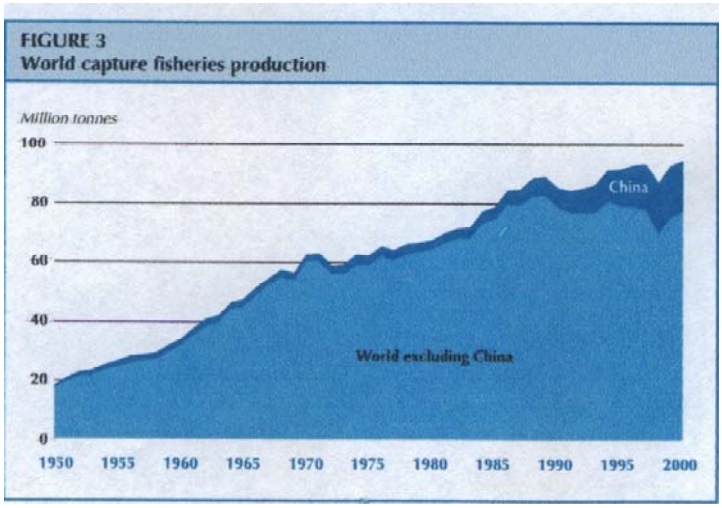
Thorvald Stoltenberg seminar Kirkenes 1.10.2007

Marine Value Adding in the Barents region -A research project proposal

By
Torbjorn Trondsen
Norwegian College of Fishery Science
University of Tromsø

The global supply of capture fish does not grow any more



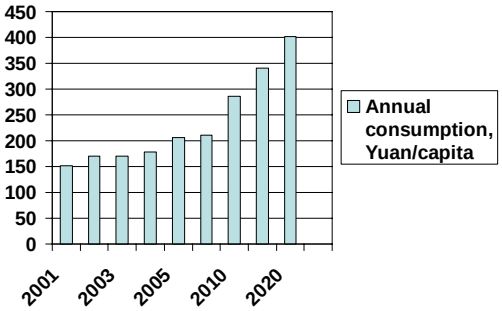
1.10

Knut Bjørn Lindkvist: Tragedy of the commons

2

2

Global seafood demand is growing China in the lead



Income elasticity 0,98 (Zhong 2005).

Growth from 25 kg to 50 kg/capita= +30 millions MT/year = 23 % increasing world demand (Lindkvist & Trondsen 2005).

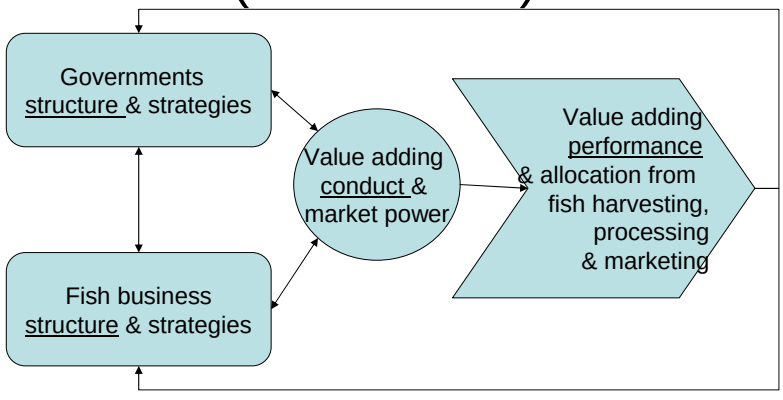
More focus on value adding in fisheries

- Health conscious consumers drive seafood demand globally
- Limited supplies
  - drive increasing prices of traditional seafood,
  - increase demand for new products
- Huge potential for better utilization of by-products, by-catch and underutilized fish & krill species
  - Aquaculture: upgrading low value protein to human food
    - 20% protein & oil recovery rate
  - Marine biotechnology: processing of food supplement, food additives and pharmaceuticals
    - Fish components: Omega3 – gelatin – protein – peptides - amino acids- phospholipids etc.
    - 50-100% protein & oil recovery rate

Underutilized value adding potential in fisheries

- Although all opportunities in markets & new products
- Nevertheless: huge amount of seafood resources are economically wasted globally (still huge economic potentials to be exploited)
  - Over-exploitation of fish stocks, lack of sustainability
  - Too much catch of too small & less valuable fish
  - Low exploitation of by-catch, by-product and underutilized species
  - Still much food waste due to bad fish quality handling
  - Lack of value adding consideration when available fish quotas are allocated
  - Low long term market oriented innovation activities, management focus on fish quota shares
- Because: Lack of sufficient motivation for value adding in the governing & management structures
  - Low degree of flexibility and openness for innovations which require new strategic orientation and investments

How management strategies influence value adding (SCP model)



Research project proposal

Barents Institute & Finnmark Fylkeskommune & Norwegian College of Fishery Science/University of Tromsø

1. Building a Norwegian & Russian market-economic database
   - Linking governing strategies to catch & value adding business profiles
     - How TAC, fleet, landings & trade are regulated & managed
     - Strategies followed in fishing, processing and marketing
     - Value adding conduct, performance and allocation
2. Analyzes of the relationships between regulation strategies and value adding conduct & performance
   - Norwegian district quota
   - Norwegian fleet structure policy
   - Marine co-management between Norway and Russia
3. Communication knowledge and building consensus
   - Communication between researchers, legislators, regional managers and business entrepreneurs in Norway & Russia
   - Motivate common research, management & business development

Research questions

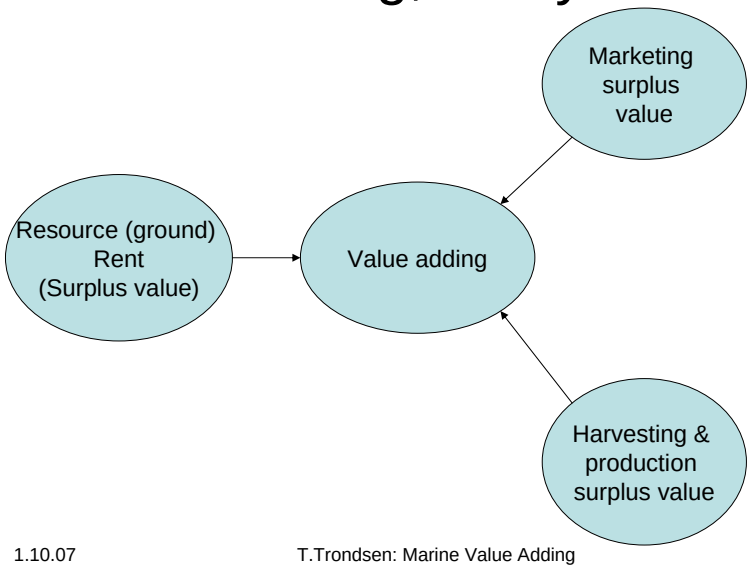
1. How value adding priorities between government & enterprises are different?
2. How to measure value adding on society and business levels?
3. Who benefit from of value adding in fisheries?
4. How is fisheries management motivated?
5. How does management motivation & resources influence strategies and value adding?

1. How value adding priorities in government & enterprises are different?

- Governments strategic responsibility
  - Maximize value for the society from limited fish resources
    - Fish stocks/(TAC -Total Allowable Catch) are stationary
    - Capital & Labor flow in the markets over the boarders

- Business strategic responsibility
  - Maximize value for the enterprise from limited input resources: capital, labor & fish quota
  - Influence governmental TAC decision

Value adding, many sources



2a. How to measure <u>value adding</u> in fisheries management

Net Value Adding (NVA)

NVA = Sales value ÷ harvesting costs & capital costs (except labor and finance costs)

= NNP (Net national product) in National accounts

=GDP (Gross Domestic Product) ÷ Depreciation

<u>NVA margin</u>= NVA in % sales value

Resource Rent (RR)

– Super value in fisheries

=NVA ÷ Normal alternative net income from capital & labor in use (for whom?)

- RR of investment=Fish quota price

  =>Expectation of future super return of investment (ROI) (for whom?)

- <u>RR margin</u>= RR in % of sales value= leasing price

NVA margin (Owner & labor income) in selected Norwegian Industries

(Source: Norwegian Statistics bureau)

<u>Natural resource industries in the lead</u>

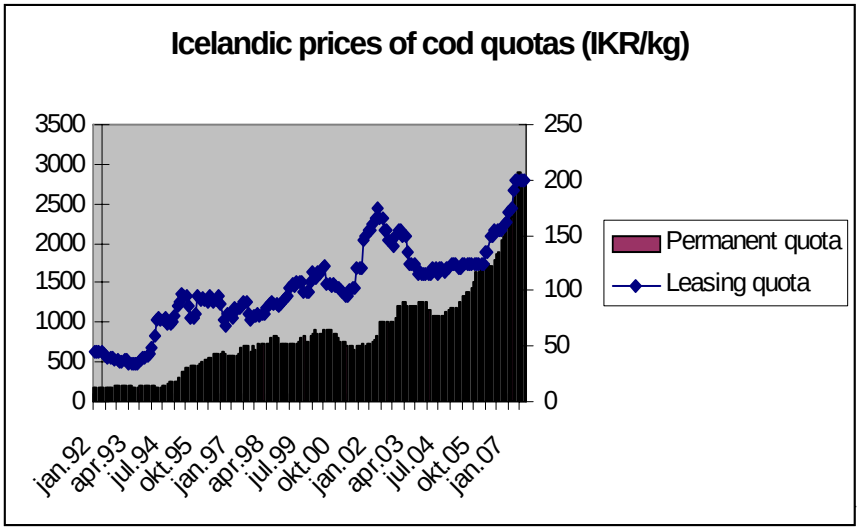
Table 5: NVA% in selected Norwegian Industries (Source: Norwegian Statistical Bureau)

Industry	2000	2001	2002	2003	2004	
	%	%	%	%	%	
Oil & gas	75	72	69	67	72	
Forestry	65	65	67	67	63	
Fishing	41	50	48	39	44	v
Beverage	25	35	33	37	42	
Metals	38	38	40	41	40	
Textile	34	37	36	37	37	
Mining	37	38	38	33	33	
Timber	26	30	29	29	30	
Rubber & plastic	29	30	31	33	30	
Oil & gas services	26	22	26	28	28	
Food processing	18	18	19	20	19	v
Wood processing	24	28	21	20	17	
Oil refinery	14	15	14	17	16	
Fish farming	34	9	1	1	14	v

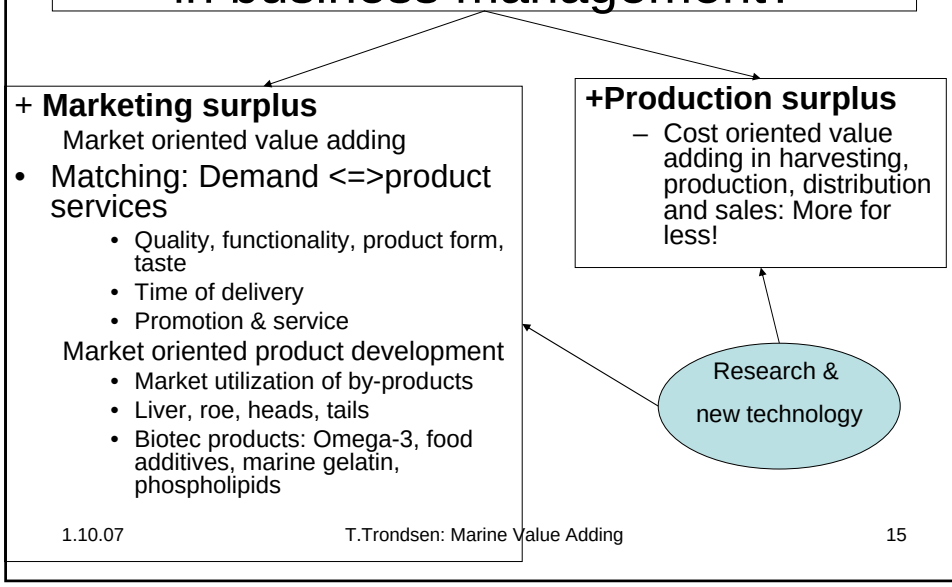
Indications of Norwegian quota prices (Shipbroker data)

Year	**2002**	**2006/2007**
Fishing right:	NOK/kg cod equivalent	
Herring/mackerel	60 -100	200
Bottom trawler	40 - 60	150
10-11 metre coastal vessel	3	7 -10

Icelandic quota market



2b. How to measure value adding in business management?



3. Who benefit from value adding in fisheries?

- Many stakeholders in fish harvesting
  - Vessel/ Equity owners
  - Fishers/Crew
  - Processors & distributors
  - Consumers
  - Finance institutions
  - Regional communities & governments (regional policy)
  - National government (national & foreign policy)
- High value adding margin in one group may reduce value adding & benefits in other groups!
  - The Norwegian value adding margin the last 20 years
    - Cod harvesting: No increase, but redistribution among the stakeholders
    - Pelagic harvesting: Increasing and redistribution among the stakeholders

4. How is fisheries management motivated?

Government management

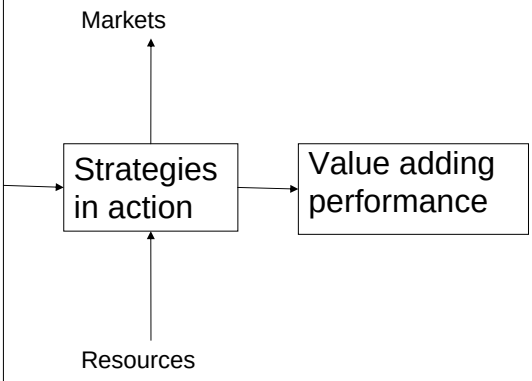
1. Maintain fish stocks
2. Secure MSY
3. Improving value adding
4. Employment?
5. Coastal settlement?
6. Seafood safety, security & public health

Business management

- Value adding?
- Long term sustainability?
  - Expansion?
  - Stability?
  - Survival?

5. How does management motivation & resources influence strategies and value adding?

- Management models in action
- Means & innovative resources
- Aspirations gaps
- Structural environment
- Opportunity and threats



Case 1: District quotas

The Norwegian Government implemented in 2006 a “District quota” to secure value adding activities in preferred local communities.

Research questions:

- Differences from other regimes
  - Total value adding
  - Redistribution of values
  - Management procedures

Case 1: District quotas

- Value adding consequences of different allocation models
- Reallocation between different stakeholder groups
  - Total Norwegian TAC value,
  - TAC each fish stock
  - Different vessel groups
  - Land based processing plants
  - Fish tourism
  - Regional resource enterprises
  - Long term or short term (multi year) leasing contracts

Case 2: Fleet structure policy

The fleet structure channels quotas and value adding activities through value chains (like chain of locks in waterways)

- towards product markets as round fresh fish, fresh filets, salted fish etc,
- influences the manoeuvring room for management of value adding in harvesting, processing & regions

Research questions:

- Relationship between fleet structure and
  - quota allocation and value chain development
  - supply of fresh fish landings
  - value adding between competing fish species as cod, capelin, and king crab?
  - value adding of TAC and for Finnmark?
  - multi specie value adding?
- Regulation of trawler fleet's landing obligations and value adding?

Case 3: Marine co - management between Norway and Russia

- Norway and Russia are the main owners of the fish resources in the Barents Sea.
- A challenge to develop fair models for improved value adding of the limited TAC in the Barents Sea by utilizing the competitive advantages in both countries.
- For example: How to optimize values when
  - The Russian fleet catch smaller and less valuable cod fish in the Eastern Barents Sea
  - Norwegian fisheries take place more adult valuable cod closer to the Norwegian coast

Case 3: Marine co - management between Norway and Russia

Research questions:

- Vessels nationality and value adding in different economic zones in the Barents Sea?
- Alternative co-operation models
  - Can the Russian value adding be increased by opening up for more fishing on adult fish at the Norwegian coast combined with compulsory delivery of fresh fish to Norwegian processing plants?
- Models for common Norwegian- Russian resource enterprises in the Barents Sea
  - cooperation on value adding (by-product, by-catch)
  - catch control, national TAC allocation and better manoeuvring room for the vessels regarding choice of individual catch strategy
- How do the third party quota agreements (EU & Faroe Island) influence value adding in Finnmark?

Progress plan

- Lots of interesting research questions to be addressed:
- Initial financial application under processing in NFR (The Norwegian Research Council). Project start up 2008?
- Research staff in the Barents Institute in support from University of Tromsø/The Norwegian College of Fishery Science.