EMPOWERING DOMESTIC ARTISANAL FISHERS INTO BECOMING A SOUND ALTERNATIVE TO DISTANT-WATER FISHING VESSELS

Prof Christopher S. Wright
Faculty of Higher Education, Holmes Institute, Australia

Mr. K.D.M. Gamage
Retired Engineer, Sri Lanka Cement Corporation

&

Dr. Samantha Hettihewa
Business School, Federation University, Victoria, Australia
INTRODUCTION

Small-scale fisheries (per FAO, 2013):

- Generate income and employment for more than 90% of the world’s capture fishers and associated shore-workers (about half of whom are women),
- Provide food (for local, national, and international markets) by contributing almost half of global fish catches—2/3rds of the fish destined for direct human consumption, and
- Make important contributions to nutrition in the form of high quality protein and minerals.
INTRODUCTION (Cont’d)

- Many developing nations lack the technical expertise, capital base and experience to exploit their off-shore, deep-water fisheries.
- Per Article 62 of the United Nations Convention on the Law of the Sea; UNCLOS III, such nations must allow entry to foreign distant-water-fishing vessels (DWFVs).
INTRODUCTION (Cont’d)

- This Presentation discusses:
  - Why Coastal Developing Nations (CDNs) should be enabled to re-exert local control over the mid-to-deep-water fish stocks in their Exclusive Economic Zones (EEZs).
  - Success in creating “right-tech” for CDN artisanal fishers.
  - The benefits, risks, and unintended consequences that may arise from releasing that “right-tech”.
  - Suggestions for how to optimize the benefit/risk mix via local-community control over the resulting fisheries.
DISTANT-WATER FISHING (DWF)

- Has been a source of political and social instability throughout much of the 20th Century.

- Is a phenomena of Emerging Nations:
  - Developing Nations tend to not have enough technology, capital, and/or expertise to project fishing power into distant waters, and
  - Developed Nations usually have wage costs that are too high and find it cheaper to buy the fish.

- In the first quarter of the 21st century, DWFV issues are dominated by China, S. Korea, and Taiwan.
DISTANT-WATER FISHING (Cont’d)

- DWF fleets have long been accused of a callous disregard for the environment, fish stocks, and the rights of other nations (e.g. non-reporting or under-reporting of landings and fishing without permission in the EEZs of other nations).
- The truth and magnitude of the reality driving these accusations are open to debate.
- However, for most of the last 50 years, the world fish imports significantly exceeded world fish exports leaving interesting questions as to source of the surplus fish.
DISTANT-WATER FISHING (Cont’d)
- Handling, storage, processing, etc. should lead to shrinkage rather than accretion.

Figure 3: Accretion/(shrinkage) of World Exported Fish Products (1961-2009)

- Zone of Accretion (Unexpected)
- Iceland’s 12 nautical mile territorial limit is accepted by the UK
- (01 Jan/’77) Canada unilaterally declares a 200 nautical mile fishery-control zone that encompasses most of the Grand Banks
- (16 Nov/’94) UNCLOS III is ratified and 200 nautical miles of contiguous sea and seabed come under national control

Source: Table 2, this study
DISTANT-WATER FISHING (Cont’d)

- It is very interesting that before and after nations gain greater sovereignty/control over fish stocks, the unprovenanced fish leakage into the world-fish-supply chain tends to greatly decline, but only for a while.
- Today, Global “...losses due to Illegal, Unreported, and Unregulated (IUU) ... fishing are estimated to be between US$10 billion and US$23.5 billion per year.”
- Much of this loss accrues to small fishing villages in developing nations.
PROJECT OBJECTIVES (Cont’d)

• In order to increase coastal nation sovereignty over their mid-to-deep-water fish stocks, we developed a means of enhancing long-line gear.

• The first stage of the project focused on crafting a fishing technology to empower artisanal fishers with small-to-medium-sized vessels to cost-effectively fish mid-to-deep-water fish stocks.

• “Right-tech” is using a technology that can be made, used, adapted and maintained in most Developing Nations and reduces the creation of a high-tech dependency on Developed Nations.
PROJECT OBJECTIVES (Cont’d)

- Why long line gear? It has a much smaller environmental footprint than trawlers – especially for deep-water longlining.

- The new technology is also likely to work well with traps – another environmental low footprint gear type.

- After multiple field trials and adjustments, the new technology increased longline-vessel fishing power by 6-to-7 fold, caught more valuable fish species, and increased the fishing depth from 100 to 400 metres.
PROJECT OBJECTIVES (Cont’d)

Figure 2: Depiction of a bottom-pattern long-line setting with a monofilament main line set above the bottom and multifilament side lines set to drop to the bottom.
It’s Not All Good (Cont’d)

• Peer’s Law – The solution to the problem, changes the problem.

• New technologies create new capabilities that along with benefits bring problems.

• The new capabilities give small to medium fishing boats access to mid-to-deep-water fish stocks and that brings:
  ▪ More wealth, more fishing and processing jobs, better diet and a potential for foreign currency.
  ▪ A potential for fisheries management and service jobs along with education opportunities.
  ▪ But all of the above can be put at risk if access to the fish stocks is not adequately controlled.
It’s Not All Good (Cont’d)

- Specifically, overfishing from too many fishers, over-investment in fishing power (e.g. bigger and better fishing boats) can dissipate all of the potential rent gains and leave the fishers and their villages worse off.

- This is an old, contentious and well-debated issue: **Who should own and/or manage the fish stocks and for whose benefit.**

- What is new and very rare is that access to these fish stocks is, in terms of local fishers, new and there are no established rights.
It can be All Good

- The cost-effectiveness of the new fishing technology is not a concern:
  - In traditional fishing grounds, it increases the fishing power of longline vessels by 6-7 fold and increases the value of the fish caught,
  - It increases the depths that can be fished and opens-up new fish stocks for exploitation (currently from 100 to 400 meters and new tests will push at depths of 1,500 meters)
  - The expanded capacity of the small-to-medium boats will enable artisanal fishers to displace distant-water fishing vessel and their very environmentally unfriendly trawl gear.
It can be All Good (Cont’d)

- However, the benefits need to be protected by finding the best owners/managers for the extended and expanded fishers.

- There is extensive debate about local villages being the best owners/managers in that they:
  - Have a long-term stake in the fishery being viable and prosperous,
  - Have children, spouses and other close family members earning a living from those fisheries,
  - Are very close to the fisheries, and
  - (And their relatives) will suffer if the fisheries are mismanaged into depletion.
Conclusions

• We have developed a new and powerful fishing technology,

• If properly managed, its introduction can provide enormous benefits,

• Security and peace are among the benefits in that a more prosperous world can be a safer world (e.g. fewer fishers turning to piracy),

• Local ownership of the fishery is the key to the successful introduction and management of this technology, and
Conclusions (Cont’d)

- Distant-water-fishing nations will be clear losers in this process, but their rights have always been based on the inability of coastal developing nations to exploit mid-to-deep-water fish stocks in their EEZ.

- The *Genie is out of the bottle* – this new fishing technology cannot be undiscovered.
  - The issue is how to optimize its quanta and distribution of benefits and ameliorate and compensate any associated harm.
  - Alternatively, the technology can be left to spread uncontrolled and to hope for the best.
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