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Fish, Aquaculture and Food Security: Sustaining Fish as a Food Supply

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Paper prepared for presentation at the “Fish, Aquaculture and Food Security: Sustaining Fish as Food Supply” conference conducted by the Crawford Fund for International Agricultural Research, Parliament House, Canberra, Australia, August 11, 2004

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Fish, Aquaculture and Food Security: Sustaining Fish as a Food Supply

SUMMARY ADDRESS

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Production, demand and resources

At the beginning of the 21st century the world's total annual capture fisheries and aquaculture production has plateaued at around 100 million metric tonnes (MMT). If China's aquaculture production, which has increased by 20 MMT since 1988, is excluded, the remaining world fisheries production, including aquaculture, has actually declined steadily since that time. Demand for seafood, fuelled by elevated consumer preference, improved product quality and distribution, and growing acknowledgement of health benefits associated with seafood consumption, continues to outstrip even world population growth. Current trends project a global short-fall of up to 80 MMT per annum in seafood supply within the next 30 years.

In Australia, which already imports more than 70% of the seafood it consumes, imports are projected to more than double by 2020 (this projection incorporates the assumption that Australians

will continue to pay global seafood prices which reflect growing tension between supply and demand).

Reported declines in capture fisheries production reflect inadequately-controlled exploitation of target species, including illegal, unreported and unregulated (IUU) fishing, inadvertent or irresponsible damage to non-target organisms, impacts on fish habitats by inappropriate fishing gears and techniques, and a variety of damaging externalities, such as coastal development, regulation of rivers, urban and agriculture runoff and global warming. Coastal and freshwater fisheries resources in areas of greatest population density have been impacted most. The poor once again suffer disproportionately as the food source of last resort, subsistence hunting and gathering in open access waterways, succumbs to external pressures and/or is claimed by the technologically advantaged.

Unfortunately the exploitation of ignorance, the marginalisation of those affected and the deliberate pursuit of short-term gains at the expense of long-term sustainability have further confounded resource management and fuelled social tensions.

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Trade

Trends in trade in seafood highlight their own tensions, particularly those between fish for the wealthy and fish for the poor. Developing countries are net exporters and developed countries importers. Subsidies in developed countries, often coupled with trade barriers against those countries which use their cheaper labour to produce competitive exports, are willingly used to disadvantage poorer countries. Estimates of benefits that could be redistributed to developing countries from the removal of all such biases start at \$100 000 000 000.

While international trade may help to alleviate poverty for some countries, it also tends to make fish as food increasingly unattainable in areas where poor people are concentrated. In many countries, relatively sophisticated industrial exploitation of aquatic resources has replaced traditional hunting and gathering of what were common property or community assets. The poor seldom share proportionally in the redistribution of resources which accompanies 'development', and their subsistence opportunities are being progressively eroded. This is most apparent in developing countries but is still demonstrated in 'recreational' fisheries in developed countries where wealth, expressed in ownership of boats and/or other superior equipment, facilitates greater resource access.

Rights and responsibilities

Unfortunately, the inappropriate use of property rights, often exacerbated by inadequate companion management measures, has further disenfranchised the poor. The assumption that individual ownership of natural resources automatically brings stewardship, which benefits long-term sustainability at the expense of short-term gains, has proven flawed. Allocation of resources is not in itself a panacea for fisheries management problems. Lamentably, allocation is normally not preceded by understanding of the management measures that are necessary to ensure conservation of the resource base and/or the ecosystems that underpin sustainability. Too often allocation and conservation are assumed to be inextricably linked. The 'mileage', often political, that comes from allocation is seldom paralleled by enforcement of the responsibilities that are essential to protect the interests of the broader community and future generations, even on the rare occasions when these interests are fully understood.

Aquaculture

Aquaculture is anticipated to play a greatly increased role in meeting future demand for seafood: indeed it must, as supply-side alternatives have not yet been identified. But it is sobering to note that if China's figures are excluded, global increases in aquaculture production in the last ten years have not even equalled declines in capture fisheries production. If projected seafood demand is to be met, quantum changes are necessary.

In spite of China's absolute domination of world aquaculture production, the world appears to know little of what underpins this achievement and how sustainability of China's output is protected. To meet projected global demands for an extra 80 MMT would require four countries to copy China's 20 MMT increase in production, or the combined aquaculture output from all other countries to increase by 800%. To meet a more modest projection of an extra 40 MMT by 2020 will still require major shifts in attitudes, policies and strategies.

The need for revolution is further underscored by acknowledgement that aquaculture in 2004 consumes, as feed, about twice the weight (live fish equivalent) of fish it produces (Australian aquaculture consumes more than six times as much as the national aquaculture output).

Most recent growth in aquaculture production has occurred in developing countries, suggesting benefits to the poor. However, as the trade trends discussed above indicate, more detailed analyses are less comforting. Key concerns include those associated with destruction of coastal fish habitats in construction of aquaculture enterprises, increased propagation of fish diseases, negative impacts from translocation of species used in aquaculture, and, of direct impact on the poor, the use, as aquaculture feed, of fish that was traditionally available for direct human consumption. An estimated 4 MMT of 'trash' fish, additional to the 20 MMT targeted in reduction fisheries, are now traded fresh to the aquaculture sector. In many countries this trade is rationalised as efficient use of what was waste, and even proclaimed as a win for the environment, but in several international assessments the loss of this fish as food for poor communities is recognised. Furthermore, as the secondary impacts of increased targeting of smaller fish of more species, driven by short-term interests such as the increased demand for aquaculture feed, are assessed, the damage to ecosystems, and even to other existing commercial fisheries, is becoming apparent, albeit slowly.

The world needs aquaculture to develop, but if this development is to be sustainable it must be planned. Long-term benefits and impacts must be assessed within social and environmental constraints. In order to improve food security for future generations and redress the plight of the poor, plans for future development will need to deviate significantly from current practice.

Sustainability

Documentation of recent trends in the world's fisheries can lead to gloomy prognoses, but the optimists among us can find examples of continuing successes. There are fisheries that have been well managed to produce high yields sustainably; the Western Australian rock-lobster fishery is one often-quoted example, and there are aquaculture ventures that have successfully provided increased incomes and food security for the poor. The development of GIFT tilapia and progressive replacement of fishmeal in selected aquaculture feeds are acknowledged. Most successes are based on clear identification of the problems, including acknowledgement of the impact of external influences, cutting-edge research which includes scientific, economic and social evaluation, detailed explanation of the necessary management measures and appropriate and adequate management responses. The problems facing most fisheries are complex. Most will continue to worsen unless the symptoms are carefully assessed to determine the real causes: few will be solved by chance. Research must underpin actions. Multi-disciplinary responses are necessary. Accepted objectives must change from short-term outputs to long-term outcomes.

Addressing the problems

The good news is that science and technological development can meet most challenges that are given sufficient priority by those with relevant authority and resources. Research is a powerful tool to unite efforts in common causes. As the Australian Minister for Foreign Affairs, The Hon. Alexander Downer, noted in opening the seminar, shared research endeavours can not only lead to efficient resolution of short-term problems, but can also deliver great benefits in international cooperation and thus promote harmony. Australian Government action was heralded by the second minister who addressed the Seminar, The Hon. Ian Macdonald, Minister for Fisheries, Forestry and Conservation who, after consideration of the problems caused by IUU fishing, concluded that these are times to address big-picture issues, not just symptoms — times for actions, not just words.

Australia is currently a strong supporter of two proven models for cooperatively addressing complex fisheries issues of international significance, the Consultative Group on International Agricultural Research (CGIAR) and the Australian Centre for International Agricultural Research. Unfortunately neither currently has the resources to resolve the massive global issues of sustainable development of fisheries and aquaculture and fish for the poor. Quantum changes are required.

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