

## Title: A Critical Analysis of Individual Transferable Quotas as an Instrument for Fisheries Management: an Equity Perspective.

### Abstract

Fish stocks, as common pool resources, are increasingly managed by giving fishermen exclusive access rights as Individual Transferable Quotas (ITQ). ITQs have been widely discussed with a focus on social, economic and ecological issues. Although equity aspects are of great importance for ITQs, there is a very limited analysis about how to assess issues of equity and fair distribution when introducing them. This paper applies an existing framework for assessing equity in resource use systems to tradable quota systems in fisheries. It defines the perspectives of distributive fairness, the stakeholders who are bound by fair practice rules, and instruments of fairness, and identifies metrics to assess equity in practice. Moreover, it provides practical guidance for evaluating whether a given ITQ system operates under an equitable framework programme.

### Long abstract

The use of natural resources such as fish stocks raises issues of intra- and intergenerational justice. The intensity of fishing and its effects on the ecosystem directly influence humanity's short- and long-term prospects on the availability of the stocks. At the moment the FAO classifies approximately 70% of the commercial fish stocks worldwide as fully fished, overfished or in the state of recovery.

In the history of fishing, the idea of fish stocks as common pool resources has often led to overfishing as more and more fishermen, often with the help of governmental subsidies for new vessels, entered certain fisheries. The resources were first treated in many cases as 'open access' with no regulation on fishing effort. Only in functioning small scale community based management systems at the coasts fishing effort was strictly limited. However, following the introduction of the Law of the Sea, the Economic Exclusive Zone was established with some kind of coastal state ownership of the resources. Countries now distribute fishing rights to their fishermen. More and more countries are doing this by giving fishermen exclusive access rights as Individual Transferable Quotas (ITQ).

An ITQ holder is typically an owner of a vessel or a group of vessels which is, in theory, easily controlled at a known cost. After introducing the permits, a market will be created where the recipients can exchange quotas for money. By creating a market for permits the assumption is that the less efficient companies, in terms of costs of catching a certain amount of fish, will sell their permit to the more efficient companies. Proponents of the ITQ system assume that ITQ holders know the costs of catching a unit of fish.

Accordingly, the basic theoretical idea behind ITQs is the economically efficient observance of a target reference point: in this case the allowed catch from a certain fish stock. The owners of the resource decide how they want to define the catch limit. Most often the target is the Maximum Sustainable Yield (MSY), which is officially adopted as the primary management objective for fisheries management worldwide. In this latter case an annual Total Allowable Catch (TAC) for a specific stock is set from an assessment of the stock status by fisheries biologists.

ITQs have been widely discussed with a specific focus on social, economic and ecological issues. Due to their character as individual shares of an overall quota of practical commonly owned resource, the distributional effects are of great importance.

Although equity aspects play a major role when it comes to discussing ITQs, there is a very limited analysis about how to assess issues of equity and fair distribution when

introducing them. Aim of this paper is to shed light on some equity issues and consider whether and under which conditions ITQs can be considered as a fair management instrument in terms of equity. The paper addresses equity issues, such as treatments of newcomers, initial distribution, and market power. It applies an existing framework for assessing equity in resource use systems to tradable quota systems in fisheries.

For example, most country defined a certain timeframe as reference period for the fishermen's share entitlements. Accordingly, fishermen who had landings at that time received the quotas. But what about newcomers in such a fishery? They would have to buy the rights now, which raise questions of equal treatment.

In the paper we distinguish among five (human) members of the stakeholders bound by fair practice rules and identify their claims: the state (manager and owner of the stock), present fishermen, conservationists, the rest of the world, and future generations. We focus on three main claims: the non-wasteful use of the resource and delivery of the resource rents to the state, the access to the resource by fishermen, and the non-destruction of future resources and the ecosystem. We relate these claims to the perspectives of distributive fairness and fairness in exchange.

We analyse the ITQ management scheme as an institution, considered as set of rules with an evolution across time, which must be assessed according to an assigned metric and a particular perspective of fairness.

The paper defines the perspectives of distributive fairness, the stakeholders who are bound by fair practice rules, and instruments of fairness, and identifies metrics to assess equity in practice. It provides practical guidance for evaluating whether a given ITQ system operates under an equitable framework programme.