**Government Intervention – Tradable Permits**

As an **alternative to taxation and subsidy,** the government can **regulate the level of output** and pollution in a market. A carbon unit (tradable permit) is equal to 1 tonne of CO2 and allows the firm to pollute this much.

In theory, the government could set a **quota** (a physical limit on output) so that output is set at the social optimum. More frequently, minimum or uniform environmental / emission standards are widespread in many industries.

This form of regulation requires **regulatory bodies** to inspect and fine firms that do not meet the standards set for water and air quality. The regulatory body in the tradable permits example is the United Nations.

**Tradable Pollution Permits**

**A tradable permit** gives a business the right to emit a given quantity of waste or pollution into the environment. Ideally, the number of permits that are issued corresponds with the total level of pollution that is admissible at the social optimum level of output i.e. Q\* where the MSB = MSC.

All firms are given an incentive to develop and install pollution control equipment.

• Those firms who find it easy to reduce the level of their emissions will do so and sell some of their permits for cash on the open market.

• Other firms who find pollution abatement measures relatively expensive compared to the price of permits can buy these from other firms.

Permits give firms an economic incentive to control pollution emissions for less than it would cost to buy permits, and there is widespread evidence that the costs of monitoring pollution reduction and administration of the permits system is smaller than when an industry is subject to direct pollution / environmental regulation. Consequently the use of marketable permits allows the cost of pollution control to be minimised. Another advantage is that the revenue from a traded pollution permits scheme can be re-cycled into other schemes for environmental improvement.

The basic idea behind traded pollution permits is to through the incentive to cut pollution directly to the producers themselves. Companies can then make their own decisions about the costs and benefits to them of particular routes to emission reductions. In other words, market forces are brought to bear on the issue of pollution and potential market failure.

**Evaluation: Problems with Pollution Regulation**

Like pollution taxes, it is hard to set an output quota without having accurate and reliable estimates for private benefits, costs and external environmental damage arising from production. Realistically, all regulation can hope to achieve is a reduction in environmental damage and a movement towards the optimum level of output. Compliance with environmental regulations can be costly to enforce and it may be impossible to monitor all firms accurately because of imperfect information.

Some firms may not cut their emissions of pollutants if the fine they receive is less than the benefit they derive from polluting – fines must have some impact. There are plenty of examples where the fines imposed for polluting the environment have been only a miniscule percentage of a firm’s total revenue or profits – Anglia Water was fined £200,000 for river pollution in March 2002, Thames Water only £19,000 in a separate case in August 2000.

If emissions are banned, output will be reduced to below the socially optimal level of output. The optimal level of pollution is unlikely to be zero. These factors can lead to regulatory failure (government failure)