

# Chapter 3

## Justification for Public Intervention

ToR 2.

Evaluate the degree to which the objectives warrant the allocation of public funding on a current and ongoing basis and hence comment on the current validity of the Programme.

### 3.1 Introduction

Chapter 2 examined the need for a programme for the eradication of bovine tuberculosis and how the objectives of the existing programme support government strategy in meeting these needs. This chapter continues the discussion of rationale by evaluating

- Whether market failures in the eradication of bovine tuberculosis in this country are such as to justify public intervention in the BTEP; and
- Whether the *extent* of public intervention is appropriate, given the nature of the programme under review.

### 3.2 The rationale for public intervention in the BTEP

A useful conceptual approach to the question of the rationale for public intervention is provided by the Economic and Social Research Institute, which reasons that, as all public funding has an opportunity cost, an intervention must address a distortion or market failure sufficient to justify this cost. The ESRI (1997) identifies four separate rationales for public intervention:

- Corrective subsidies to correct for general ongoing externalities [3.2.1];
- Targeted subsidies to overcome specific externalities;
- Spending on a public good [3.2.2]; and
- Spending with a redistributive function.

Separately, in the specific context of animal health and production systems, the types of market failure suggestive of a role for the state have been enumerated (Ekboir) as follows:

- The presence of a strong public good component, such as information on health management;

- Poor transparency in relation to quality;
- The discouragement of private sector involvement due to the existence of high risks and costs; and
- The presence of externalities.

Externalities and public good are much more prevalent in contagious diseases such as bovine tuberculosis than they are in the case of non-contagious diseases, and, as a consequence, it has been argued that the rationale for public sector intervention is stronger in the case of contagious disease than it is for non-contagious disease (ibid.). In the following sections the argument is made that public good and externalities in the eradication of bovine tuberculosis in this country *do* exist and that they are of a magnitude sufficient to justify public intervention.

### **3.2.1 Externalities**

Externalities arise where the actions of one individual or firm affect other individuals or firms without appropriate compensation being paid; for example, where one individual or firm imposes a cost on others but does not compensate them, or, alternatively, where one individual or firm confers a benefit on others but does not reap a reward for providing it (Dept. of Finance, 2007)<sup>1</sup>. The following brief consideration of the nature of bovine TB in this country demonstrates how a market failure in the form of an externality establishes a rationale for public sector involvement in a control and eradication programme.

#### Uneven exposure to disease risk

While overall animal incidence of tuberculosis was as high as 17% in cows at the time of the programme's inception, the distribution of disease within herds and between regions varied considerably. Disease incidence in cows was almost three times that in other cattle, and incidence in the south was over four times that in the west (Watchorn). Dairy enterprises, which were concentrated in the then more heavily diseased southern part of the country, had little need to access the market in Great Britain as the calves from such herds tended to make their way to the west of Ireland for fattening. On the other hand, farmers in the western part of the country, although less likely to be affected by disease

than their southern colleagues, had a much higher dependence on the export trade to Great Britain, the traditional destination for their store cattle. When the geographical distribution of bovine TB and the requirement to access export markets are considered in tandem, it is clear that the asymmetry in the costs and benefits to participants in the original Scheme was such as to threaten the viability of a voluntary eradication programme. In the event, the lack of progress in encouraging voluntary participation in the Scheme led to the introduction of the Diseases of Animals (Bovine Tuberculosis) Act of 1957, which provided the legal basis for a compulsory programme of eradication with compensation. Although disease levels have fallen considerably from the levels pertaining in the 1950s, TB-related economic loss continues to be a significant and persistent reality for many individual farmers. The geographic distribution of the disease has changed over time, but the disease remains a ‘clustered’ phenomenon (White & Frankena), so that the risk to farmers is not evenly distributed across the national territory.

In economic terms, the problem outlined above can be described as a market failure arising from the presence of externalities. Within the farming community, externalities can arise between different groups of farmers due to the asymmetric exposure to costs and access to benefits. This may be a function of their geographical location or their pattern of trading, or of some other feature of their enterprises. They also arise between farmers in general and wider society for whom the costs and benefits of the programme are unequally distributed. The argument has been expressed as follows:

If bovine TB control were left to farmers themselves, they would optimise their private positions by controlling up to a point where the extra cost of further control would equal the benefits to them of reduced disease. No consideration would be given to the externalities involved in control which in this case consist of a reduction in the infection of other herds and animals. The optimum control level for farmers would therefore be much lower than the optimum level for society as a whole.

(Sheehy and Christiansen)

### The badger

The designation of the badger (*Meles meles*) as a protected species can be seen as an example of the establishment by the government of a ‘merit good’<sup>2</sup>; namely, the protection of an indigenous species whose survival would have been threatened had the level of its ‘production’ been allowed to be determined by the interaction of private actors alone. This decision, which was given effect under the terms of the Wildlife Act, 1976, was made at a time when the link between tuberculosis in that species and the disease in cattle had yet to be established in Ireland [Appendix B].

One consequence of this intervention by government was to constrain the range of biosecurity measures that would otherwise have been available to farmers once the role of the badger in the epidemiology of bovine tuberculosis had become established. Had the badger not been protected by law, it would not have been illegal (as it is now) for affected farmers to reduce contact between their cattle and infected badgers by disposing of the badger population within the boundaries of their farms. Conversely, the inability to take such direct action against a potential source of infection is perceived to impose an additional cost – the increased risk of disease breakdown – on cattle farmers generally and, because of the clustered nature of disease, on some farmers more than others. The expectation on the part of these farmers for state compensation for losses incurred as a result of bovine TB can thus be seen to have arisen, in large part, as a result of actions taken by the state to protect the badger on behalf of society in general, where other sections of society do not carry such risk.

This is not to suggest that the farmer is powerless to reduce the opportunity for contact between cattle and wildlife. In fact, a number of practical steps can be undertaken by farmers to minimise contact between their livestock and wildlife, and these are described in an information leaflet produced and distributed by the Department. Although the adoption of these measures cannot by itself eliminate contact between cattle and badgers, they are likely to have some risk-reducing effect and it is reasonable to expect that farmers should adopt them. In this regard it is of interest that a recent report by the European Commission’s Directorate General for Health and Consumer Affairs (DG Sanco) on the feasibility of cost-sharing schemes for animal health programmes states that

Operators choose an efficient level of bio-security when they are forced to consider public benefits, besides their own costs and benefits, of bio-security investments.

(European Commission)

### **3.2.2 Public Good**

A public good is a type of market failure; it is a good or service for which it is not possible or convenient to charge all beneficiaries. Making it available for one effectively makes it available for many<sup>3</sup>. Private producers will tend to undersupply such goods or services relative to what is socially optimal. As a result, it is appropriate for the Government to act to ensure that such goods or services are made available (Dept. of Finance, 2007). As has been mentioned at the beginning of this section, control programmes for animal diseases may contain public good elements that justify government intervention. Information on health management or disease research contain a public good component, in that they are available to all regardless of whether or not the individual has contributed to the cost of providing them. In these circumstances, each agent has an incentive to contribute less than his/her share, since he/she would still enjoy the benefits derived from the collective effort at a lower personal cost. Because this is true for all agents, the aggregate of individual contributions to disease control will be smaller than that required to control the disease at national level (Ekboir).

The cost of mobilising and organising the many private actors that comprise the farming sector may be seen as another form of public good<sup>4</sup>. National programmes for the eradication of endemic, contagious diseases are unlikely to be successful in the absence of a concerted action by a large number of individual actors, and international experience tends to support the view that the cost of organising the private sector at this scale is prohibitively high. Previous analysis of the Irish Tuberculosis Eradication Programme concluded that

the provision of (these) organisational services itself is a public good requiring compulsion for its production.

(Sheehy and Christiansen)

### 3.3 The extent of public intervention in the Programme

The arguments presented in Section 3.2, demonstrating a strong rationale for public *involvement* in the BTEP, do not amount to a prescription for public *control* of the Programme. Many aspects of programmes for the eradication of animal diseases can be organised with strong private sector involvement (Ekboir; Schillhorn van Veen and de Haan; Umali). Globally, the trend in recent times has been to shift implementation, and to a lesser extent responsibility, from the public to the private sector. This may be manifested by a decreasing emphasis by government on the execution of technical ventures, accompanied by a greater focus on the creation of an environment in which private enterprise can foster (Schillhorn van Veen and de Haan). Active partnership between public and private sectors can result in improved efficiency by increasing producer and industry participation, providing more accurate information for programme design and implementation, co-financing of public programmes, and greater sharing of disease information (Ekboir).

The following sections will examine the extent to which changing patterns of public-private interaction in the delivery of animal disease eradication programmes, as described above, are reflected in the manner in which the BTEP is currently configured. Separately, the potential for further private sector involvement in the Programme is also considered.

#### 3.3.1 Existing market-type mechanisms in the BTEP

Market-type mechanisms can be defined as those in *which 'at least one significant characteristic of the market is present'* (OECD). The principal instruments include outsourcing (contracting out), public-private partnerships (PPPs), vouchers, user charges and transferable permits. The BTEP, as currently configured, makes use of two of these mechanisms, which are discussed below.

##### User charges

User charges, which are mechanisms used to assign to specific consumers the full or partial cost of providing a given service, introduce a different type of market orientation by creating a direct link between the benefits and costs of consuming public services, thereby removing excess demand for previously 'free' public services (ibid.).

The principal user charge facing farming consumers of the BTEP is the cost of the annual monitoring ('round') test programme. Up until 1996 all tuberculin testing, with the exception of private tests<sup>5</sup>, was paid for from Exchequer funds. Revised arrangements, introduced in 1996, saw the charge for the majority of tuberculin tests revert to farmers, who now bear the cost of one full herd test per annum. Because herd size determines the magnitude both of the cost to the farmer of the annual herd test as well as the benefits that flow from the BTEP in the form of market access and animal productivity, the charge on tuberculin testing provides a means of directly linking the costs and benefits of the Programme for users. Based on the rate at which the Department pays PVPs for tuberculin testing, farmers relieved the Exchequer of an estimated €23m in expenditure on such testing in 2006, and an estimated €235m over the eleven-year period under review [Table 5.8]. However, as discussed elsewhere [5.7.1], this reduction in state expenditure in respect of tuberculin testing fees was accompanied by a reduction in state income in the form of Bovine Disease Levies (BDL), which are paid by farmers in respect of animals slaughtered or exported and in respect of milk delivered to creameries [5.4.1].

Despite the reductions in BDL that coincided with the implementation of the revised arrangements in 1996, the disease levies continue to provide significant levels of relief to the Exchequer, as they have since their inception in 1979. They may be seen as another form of user charge, designed to relieve the general taxpayer of the cost of providing a service that predominantly benefits specific users. Over the period under review, BDL attributable exclusively to the BTEP amounted to ca. €125m, equivalent to approximately 42% of the cost of TB compensation over the eleven-year period. This proportion fell somewhat short of the policy objective, established by agreement with the farming community in 1995, that levies should contribute 50% of the cost of compensation. However, the difficult market conditions resulting from the BSE crises of 1996 and 2000/01 limited farmers' ability to comply fully with this agreement, to the extent that the level of contribution actually achieved can be regarded as a satisfactory outcome in the circumstances [5.4.1].

### Outsourcing

Outsourcing is the practice whereby governments contract with private sector operators for the provision of services to government ministries and agencies, or directly to

citizens, on behalf of the government' (ibid.). It provides the opportunity to expose certain programme elements to the process of competitive tendering, thereby creating the potential for achieving significant cost reductions. Data from the United States places average cost savings resulting from outsourcing at 33% (with the same or higher levels of service), while estimates from other countries indicate cost savings in the range of 5-30% (ibid.). International experience would therefore suggest that the use of outsourcing in the delivery of the BTEP is likely to have improved its efficiency.

Extensive use is made of outsourcing in the delivery of the BTEP. The principal outsourced elements are as follows:

- The great majority of tuberculin testing undertaken in the Programme is carried out by PVPs approved by the Department, rather than by its own permanent or temporary veterinary staff;
- The valuation of reactor animals under the On-Farm Market Valuation Scheme [4.2, Appendix I] is carried out by independent valuers;
- The protein purified derivative (tuberculin), necessary for the performance of the intradermal tuberculin test, is manufactured by a private company based in the Netherlands [5.7.3];
- The Department's wildlife programme [4.4] is, to a large extent, delivered by a nationwide, farmer-owned co-operative organisation (Farm Relief Services), operating under the supervision of Department staff;
- The Reactor Collection Service [4.6] is carried out by independent hauliers acting under the supervision of Department staff; and
- The animal registration and movement system (CMMS), with which the BTEP is interdependent, is maintained by a private company with expertise in Business Process Outsourcing.

### **3.3.2 The limits to private sector involvement**

International experience would suggest that there are very few technical barriers to extending the use of market-type mechanisms in the delivery of government services. However, the adoption of such mechanisms may be constrained by considerations of accountability and equity, by the need to maintain core capacity in areas of strategic importance, or by an absence of consensus between stakeholders as to what constitutes the ‘proper role of government’ (OECD).

Considerations of proper governance, in particular the need to preserve accountability and equity, may have the effect of excluding certain areas of government activity from private sector involvement, or may oblige government to continue to monitor private sector input at levels higher than those consistent with a least-cost approach to service provision (ibid.). Such considerations may be seen to underlie the Department’s retention of a supervisory role in relation to certain of the Programme elements that have been opened up to outsourcing, such as the performance of tuberculin testing by PVPs or the valuation of reactor cattle by independent valuers. The extra cost incurred by the Department as principal in such ‘principal-agent’ relationships can be attributed to the mitigation of so-called ‘moral hazard’ and ‘adverse selection’<sup>6</sup>, which arise due to the existence of information asymmetry between the two parties.

Separately, the extent to which further private sector involvement in the Programme is possible may also be constrained by the need to maintain core capacity now and for the future (ibid.). Certain of the stakeholders interviewed in the preparation of this report suggested that further dilution of state involvement in the BTEP may result in the weakening of the state’s control over the technical and veterinary resources, which they regard as constituting a national resource of strategic importance. This is a view that is supported by the World Animal Health Organisation (OIE), which considers Veterinary Services to represent a Global Public Good<sup>7</sup>.

### **3.3.3 International comparisons**

Cost sharing between government and the private sector in the control and eradication of bovine tuberculosis is considerably more developed in Ireland than is currently the case in those countries against which benchmarking was carried out for the purpose of this review.

Irish farmers pay for the surveillance component of testing, which is determined by changes in the cattle population rather than variations in disease levels. The annual cost to the state of testing for the purpose of disease control, on the other hand, is primarily influenced by prevailing disease levels. Furthermore, although farmer contribution to the cost of compensation, or to general programme costs, through Bovine Disease Levies is only loosely related to the actual level of Exchequer expenditure in these areas, BDL nonetheless comprise a formal and legislatively constituted mechanism that provides significant levels of relief to the Exchequer [5.4.1]. Although no similar mechanisms for alleviating the cost of tuberculin testing or general programme costs were found to exist in the benchmark countries, it is known that the European Commission has been evaluating options for cost-sharing between the State and farmers in relation to epidemic diseases of livestock and may, in due course, bring forward proposals for harmonised cost-sharing arrangements in member states' disease eradication programmes, including those for bovine tuberculosis.

On the basis of the benchmarking exercise carried out for this review, it is evident that outsourcing, too, is utilised to a similar or greater extent in the BTEP than is the case in the equivalent programmes in the benchmark countries. While all of the countries examined make extensive use of PVPs in the delivery of their testing programmes, private sector involvement in the delivery of other programme measures – particularly wildlife control and animal registration and movement – is more developed in Ireland than it is in the benchmark jurisdictions.

### 3.4 Key Findings

- Market failures (public good and externalities) are an inherent feature of the control and eradication of bovine tuberculosis in Ireland.
- The Programme utilises outsourcing and user charges to bring a degree of market orientation to the programme. This has the effect of significantly reducing the burden placed on Exchequer resources.
- Producers contribute to the costs of running the Programme to a greater extent than in benchmark countries.

### 3.5 Conclusions

- The existence of significant market failures in the eradication of bovine tuberculosis justifies public intervention in the Programme.
- The level of public participation in the BTEP in the period under review can be regarded as appropriate, when account is taken of the market conditions facing cattle farmers over that time.
- The extent to which programme delivery is outsourced is appropriate and the range of quality control measures in place is sufficient to guarantee an adequate standard of governance and the quality of inputs and outputs. No opportunities for extending the use of outsourcing can currently be identified.

### **3.6 Recommendations**

#### *Recommendation 2*

The Department should keep under review the level at which costs are shared between the state and the private sector in the delivery of the Programme with a view to achieving an appropriate level of private sector participation.

#### *Recommendation 3*

The Department should keep under review the extent to which outsourcing is used in the delivery of the Programme in order to ensure that it does not fall below the high level currently obtaining. Decisions with regard to the further use of outsourcing should have regard to the practicability and cost-effectiveness of any proposed changes and take account of the need to ensure equity, good governance and the maintenance of critical core capacity.

## NOTES

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<sup>1</sup> Externalities have been defined as losses (or gains) that exist when a person (or entity) does not bear the full cost or reap the full benefits of their (its) own actions (Sheehy & Christiansen).

<sup>2</sup> Merit goods are those that society thinks everyone ought to have regardless of whether they are wanted by each individual (Begg et al.)

<sup>3</sup> A Public Good is one, which, even if consumed by one person, is still available for consumption by others (Begg et al.). The consumption of a Public Good is non-rivalrous (one person's consumption of the good does not diminish that of another) and non-excludable (the good cannot be withheld from a potential user) and both the production and consumption of Public Goods is indivisible (Stevens).

<sup>4</sup> In economic terms, the costs of making and enforcing a voluntary agreement are known as transaction costs. Transaction costs include the costs of obtaining and evaluating information, establishing a bargaining position, negotiating a solution and enforcing the agreement made. Where the number of actors is small, transaction costs are low and it is possible for parties affected by an externality to arrive at a costless, bargained solution to their collective problem; as the number of individuals expands, however, transaction costs increase to the point where joint action is impossible in the absence of external compulsion (Rapsomanikis et al.).

<sup>5</sup> Private tests are those tuberculin tests carried out on small groups of animals for the purpose of movement to other farms or marts, or for slaughter. Although there no longer a requirement for pre-movement testing, cattle may only be moved to a mart or other farm if they have been subjected to a tuberculin test in the previous 12 months. In addition, live cattle being exported to another member state of the EU are required to have undergone a tuberculin test in the 30 days prior to exportation.

<sup>6</sup> 'Adverse selection' and 'Moral hazard' occur in 'Principal-Agent' relationships, which are those in which one party – the principal – considers entering into a contractual arrangement with another – the agent – in the expectation that the agent will subsequently choose actions that produce outcomes desired by the principal (Moe, cited in Stevens). 'Adverse selection' arises *ex ante* due to the principal's uncertainty as to which agent would be best to hire or how to define the terms of a contract or the scope of authority. 'Moral hazard' occurs *ex post*, following the making of a contract between principal and agent, when the unobservability of the agent by the principal permits the former to change his behaviour to the detriment of the latter (Stevens).

<sup>7</sup> In a Memorandum of Understanding signed by the OIE and the World Bank in 2001, the strengthening of the legislative, structural and organisational aspects of Veterinary Services and the rationalisation of the role of the private sector and paraprofessionals within such Services is stated to constitute a public investment priority (OIE, 2001).