

Appendix A

Methodology

A.1 Document discovery

An initial request for documentation was made to the two central Divisions of the Department responsible, respectively, for veterinary management and policy formulation in relation to Bovine Tuberculosis. References to further publications or documentation contained in the material provided by these Divisions were noted and the originals obtained in printed form as required. When a substantial number of documents had been identified in this way, a list was drawn up and circulated to the members of the Review's Steering Committee and to a number of the programme's internal stakeholders, who were requested to make good any significant omissions. Material identified in this way, together with that which came to light in subsequent phases of the research, was brought together to form a comprehensive documentary database.

A.2 Programme Logic Model

The Programme Logic Model (PLM) provides a framework for the definition of the various constituent elements of the programme under review and for articulating the relationship between them. The PLM of the Bovine Tuberculosis Eradication Programme (BTEP) establishes the conceptual framework for the evaluation carried out in this review and assists the process of attaching of unambiguous meaning to the concepts of efficiency and effectiveness, two of the core elements of any economic and financial evaluation (see below).

A.3 Efficiency and Effectiveness

Efficiency

In this review, the achievement of efficiency and economy is examined mostly through quantitative analysis of secondary data. The definitions used in this report are consistent with those provided by the Department of Finance, which defines efficiency as being the optimisation of the ratio of inputs to outputs and economy (a subset of efficiency) as the securing of the appropriate quality of inputs at the best price. While evaluation of economy will have regard to issues of the cost and quality of inputs, evaluation of efficiency requires an examination of the level of output; the cost and quality of outputs;

the timeliness of their production; and the manner in which resources are allocated (Dept. of Finance, 2007).

Effectiveness

The achievement of effectiveness, on the other hand, is dealt with principally through the examination of primary data, mostly of a qualitative nature, collected by means of consultation with stakeholders. The Programme Logic Model shows that the Programme's effects can be differentiated – by reference to the time frame over which they manifest themselves and the societal groupings they benefit – into *results* and *impacts*. Evaluation of effectiveness at the *results* level requires an examination of the programme's success in transforming its outputs into beneficial effects for the targeted beneficiaries in the short to medium term. Evaluation of programme *impact*, on the other hand, requires that the focus be broadened to include not just the targeted beneficiaries, but society as a whole, and extended to encompass the medium to long-term.

A.4 Data analysis

VFM reviews examine costs from the point of view of flows into or out of the Exchequer – the Exchequer Cost. This is in contrast to the perspective adopted in Cost-Benefit Analyses, which examine the extent to which National Income is reduced by resources in a given programme, rather than in their best alternative use (Sheehy and Christiansen).

A.4.1 Data management

Documentation from the policy Division responsible for the Programme provided the starting point for the quantitative analysis carried out in this review. These documents establish the details of the annual expenditure on the TB and brucellosis programmes over the period of interest (1996-2006) and set out certain of the programmes' key outputs. The data included figures that had previously been published by the Department as well as others, at much lower levels of aggregation, which originated from internal documents prepared for the purpose of this review, or for the purpose of previous internal management exercises. The former dataset, which represents the Department's formal account of its expenditure, was regarded as being the most reliable point of

reference against which all other sources of data or any of the subsequent technical adjustments were checked.

Internal consistency was enhanced by using a single worksheet in a spreadsheet application (Microsoft Excel ©) as the unique point of entry for all data used in the quantitative analysis of the Programme. Where detailed analysis was required (for example, under individual expenditure headings), this was carried out on linked worksheets using the data held on the unique source sheet. In this way, the need for duplicate data entry was eliminated and recalculations necessitated by changes to the primary dataset were carried out automatically across all linked worksheets.

A.4.2 Disaggregation and apportionment

The primary expenditure data on which the quantitative analysis is based are aggregate-level, relating to the combined expenditure on the TB and Brucellosis Eradication Programmes. This reflects the fact that the Department has traditionally reported expenditure under these programmes conjointly. One of the principal tasks of the review was, for the first time, to provide disaggregated expenditure data for the TB Eradication Programme as a separate entity.

In the first instance, and insofar as was possible, expenditure on the Brucellosis Eradication Programme was disaggregated from that relating to the BTEP. The process of disaggregation was subject to two constraints. Firstly, as referred to previously, data at higher levels of disaggregation were used only where it was possible to show their consistency with published figures. Secondly, disaggregated data were used only if they could be shown to be available in comparable form across the eleven years of the Review's Terms of Reference. Thus, although the SAP accounting system now provides for a high level of disaggregation of expenditure, it was not fully functional in the Department until 2005, and the data currently available from the system are not always comparable right across the period of interest.

When data had been disaggregated to the maximum extent possible, subject to the constraints described above, the remaining aggregate-level data were adjusted by a process of apportionment to provide a proxy for the expenditure attributable to the BTEP alone. Various output parameters were used as the basis for this process, the choice of

metric depending on the appropriateness of its relationship to the item undergoing apportionment. Thus, for example, the aggregate expenditure on the haulage of reactor animals was apportioned on the basis of the relative numbers of reactors disclosed under the TB and Brucellosis Eradication Programmes, respectively. Expenditure on computerisation, on the other hand, was apportioned on the basis of the relative numbers of animal tests carried out under each programme. A full schedule of expenditure items that were derived by apportionment, together with the basis for such apportionment, is provided in Appendix D.

A.4.3 Data adjustment

Exchange rate

Data for the years 1996-2000 (inclusive), which were provided in Punts, were converted into Euro at the rate of 1 Punt = 1/0.787564 Euro.

Inflation

The effect of inflation was stripped out using two series of price indices – the Consumer Price Index (CPI) and an index of Total Cattle Output (TCO), both of which are produced by the Central Statistics Office (CSO, 2008, 2008a). The latter index was used to correct expenditure on reactor compensation for movements in cattle prices; all other expenditure was deflated using the CPI. The base year – 2006 – was set equal to 100, and each of the other years in the review period was ascribed a value equal to 100 less the cumulative difference in the respective indices between the year in question and 2006. Nominal data were converted into real (2006) data using the following formula:

$$\text{Real value}_{2006} = (\text{Nominal Value Year}_n \times 100) / \text{Price Index Year}_n$$

The rationale for presenting data in real, rather than nominal, terms is stronger the greater the effect of inflation over the period under review. This being the case, it is noteworthy that the CPI grew by a cumulative rate of almost 33%, while the aggregate increase in the TCO was just 13%. The inflation indices used in the review are reproduced in Appendix E.

A.4.4 Categorisation of expenditure data

The expenditure categories used in this review vary from those used in the Department's usual accounting framework. Thus, for example, in this review expenditure on tuberculin is consolidated with that on TB testing; expenditure on hauliers appears under the specific heading of the Reactor Collection Service; and all expenditure relating to wildlife control has been consolidated under the heading of the Wildlife Unit. Travel and Subsistence payments to permanent staff members and payments to temporary staff have been extracted from programme expenditure and dealt with under the heading of staff costs. The various categories of expenditure used in this report appear below and their relationship to the Department's traditional accounting framework is presented in Appendix F.

Programme expenditure

Compensation
Testing
Wildlife Unit
Research
Reactor Collection Service
Supplies / Miscellaneous
ICT
(Receipts)

Staff expenditure

Permanent Staff Costs
Travel and Subsistence payments
Temporary Staff (wTVI) Costs

Expenditure relating to the Department's permanent staff is generally subsumed under overall payroll costs, but here that portion of the overall charge that relates to the operation of the BTEP has been estimated from a number of sources (see below) and is specifically accounted for under the heading of staff expenditure.

A.5 Research instruments

Certain of the research questions posed in the Terms of Reference [Chapter 1] cannot be addressed by a simple re-examination of pre-existing data. This is particularly true in the case of those evaluation questions whose focus is on *why* the Department and the

government operate the BTE programme, rather than on *how* it is actually operated. Evaluation of the former requires an appraisal of the programme's *objectives* and *outcomes* and of the *effectiveness* with which it operates. Evaluation of questions of the latter type is more straightforward as data on the programme's *inputs*, *activities* and *outputs* are generally more readily available. However, an exception arises in relation to staff costs, which the Department accounts for at an aggregate, rather than programme-specific, level. It was therefore necessary for the purpose of this review to carry out primary research to determine the staff costs attributable to the BTEP.

A.5.1 Staff costs questionnaires

In order to impute an administrative overhead cost, it is necessary to calculate the staff complement in terms of Full-Time Equivalents (FTEs) required to deliver the BTEP for each grade in the staffing structure. The complement of all relevant headquarters staff and that of veterinary staff based in DVOs was estimated from a staff survey, issued in 2007. Information from this survey was supplemented with that from two other sources: a standardised report (ER41) used in the management of two of the technical grades (TAO and SAO) based in DVOs, and a separate survey, carried out by ERAD Division in 2008, in relation to administrative staff based in DVOs.

Calculation of results

Step 1

The first step was to convert the figures provided for the number of full-time equivalents with some involvement in the BTEP (FTE) into the number of notional full-time equivalents that would be required to administer this programme exclusively (FTE_{TB}).

Step 2

The second step was to attribute a staff cost to the time commitment represented by FTE_{TB}. This was done in accordance with Department of Finance guidelines, comprising the following steps:

- A) *Gross Salary Cost* for a given grade was taken to be the median salary on the appropriate salary scale.

- B) *Direct Salary Cost* is derived by adding the appropriate amount for employer's PRSI to the Gross Salary Cost. For staff that joined the Department prior to 1995, the appropriate rate is 2.01%, while for those joining from 1995 onward the relevant rate is 10.75 %. Estimates for the percentage of each grade joining post-1995 were obtained from the Department's Personnel Division.
- C) *Total Salary Cost* is derived by adding to the Direct Salary Cost a figure obtained by multiplying the Gross Salary Cost by a constant to take account of the employees' imputed pension entitlements.
- D) *Total Staff Cost* is derived by multiplying the Total Salary Cost by a second constant to take account of overheads such as office space, materials, use of telephones, fax, postage service, security services, recruitment expenses, training expenses, and so forth.

Step 3

The final step in calculating the Total Staff Cost attributable to the BTEP was to multiply the FTE_{TB} figure for each grade by the Total Staff Cost for a single member of that grade. The survey responses were then aggregated to provide an estimation of the overall administrative cost of the Programme at the national level.

A.5.2 Semi-structured interviews

In considering how to design a survey instrument suitable for exploring *why* the Department and the government operate a programme for the eradication of bovine TB, a number of criteria were taken into consideration. The first was that the research instrument should be capable of extracting the information necessary to provide answers to the relevant research questions in the Terms of Reference. It is apparent that, in contrast to the question of imputed staff costs, the data emanating from an exploration of the programme's objectives, outcomes and effectiveness would most likely be poorly-, rather than well-defined, qualitative rather than quantifiable, and subjective rather than objective. Secondly, the research instrument needed to have regard to the perspective adopted in the research questions. As a number of these are prospective rather than retrospective in nature, it seems clear that the survey should present respondents with an opportunity to be both descriptive and prescriptive, allowing them to comment on past

performance while leaving them free to suggest future improvements to the programme. Thirdly, having regard to the proposed sampling frame, which consists in the main of senior programme managers and key stakeholders (both external and internal), the research instrument needed to be capable of tapping into these expert views, leaving respondents free to comment, unhindered by the preconceptions of the researcher. Of the range of survey instruments available, the most appropriate to the purpose of this review was deemed to be the *semi-structured interview*, which is a flexible technique that allows the researcher to refine the instrument over successive interviews (Bryman), thereby capturing greater insight into the subject under investigation than would be possible through a structured interview.

Sample Frame

The sample frame for the semi-structured interviews is provided in Appendix G. It consists of twenty-two individuals, representing a broad range of stakeholders. Interviews were concluded with twenty-one of these individuals. Thirteen of those interviewed are senior managers in the Department with responsibility for various aspects of the delivery of the BTEP. The other eight represented the Irish Farmers' Association, the Irish Creamery Milk Suppliers' Association, Macra na Feirme, the Irish Co-operative Organisation Society¹, Badger Watch Ireland, Veterinary Ireland, and academia.

Interview procedure

An interview guide was drawn up to provide some structure to the interviews. It was based around the key questions posed in the Review's Terms of Reference, and informed by the prior reading of the literature relevant to the Programme. Although the guide was referred to by the researcher in the course of the interviews, this was not done in a mechanistic way, and question formulation was as open as possible in order to avoid closing off relevant avenues of enquiry. With one exception², interviews were carried out face-to-face, generally in the interviewee's place of work.

A.5.3 Benchmarking interviews

Benchmarking was carried out between the Irish programme and the analogous programmes in Great Britain, Northern Ireland and Spain. These programmes, and particularly those in Northern Ireland and Great Britain, are valid comparators because

they operate under conditions broadly similar to those facing the BTEP. Factors such as farming practices, topography and climate, and the existence of a (legally protected) wildlife reservoir for bovine tuberculosis are all important determinants of the design of national eradication programmes. So too is the legislative basis under which it operates; comparison with the New Zealand and Australian programmes was ruled out because these countries, although they have substantial TB eradication programmes, are not members of the European Union.

The benchmarking report on Great Britain is based on a meeting that took place in the TB Division of the Department for Environment, Food and Rural Affairs (Defra) in London on 4th April 2007 and on documentation subsequently supplied by Defra or obtained from the organisation's website. The benchmarking report on Northern Ireland is based on a meeting that took place in Dundonald House, Belfast on 15th March 2007 with senior administrative, technical and veterinary staff from the Department of Agriculture and Rural Development (DARD) and on supporting documentation subsequently supplied by DARD, or obtained from the Department's website. In the case of Spain, a detailed questionnaire was prepared and subsequently translated and delivered to the relevant authorities through the offices of Ireland's Agricultural Attaché in Madrid. An initial response was received on 10th October 2007 and additional information was provided on request.

A6. External evaluation

The evaluative process and methodologies adopted in the review were subject to appraisal by an independent evaluator prior to its finalisation.

NOTES

¹ These four organisations participate in the national social partnership negotiations.

² The interview with Badger Watch Ireland was conducted by telephone