



Talking Pictures



Picture library interface with search filters and a grid of image thumbnails.

Picture type: | |

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Collection: | |

Picture content picture: | |

1 kg maize flour | 1 kg maize meal mix | 1 kg maize meal mix

1 kg maize flour | 1 kg maize meal mix | 1 kg maize meal mix

1 kg maize flour | 1 kg maize meal mix | 1 kg maize meal mix

1 kg maize flour | 1 kg maize meal mix | 1 kg maize meal mix

Filter by picture type: | |

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1 kg maize flour | 1 kg maize meal mix | 1 kg maize meal mix

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DfID-LPP Project R7855 - Final Technical Report
Part I

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Executive Summary

This report and its accompanying appendices describe the activities and outcomes of a DfID, LPP-funded research project (R7855) entitled Analysis, Management and Decision Support for Farmers' Feeding Strategies: Talking Pictures Phase II.

Low frequency and lack of flexibility in agricultural knowledge and information flows in developing nations do often not allow farmers to adapt effectively to short-term changes in resource availability and production circumstances. Particularly in smallholder dairy systems, the absence of such links make it difficult to imagine how extension services can promote improved feed management amongst their client-farmers in a way that is flexible enough to meet individual needs and that accounts for the dynamics of feed resource availability.

This project has developed a simple pictorial system for disseminating extension information called Talking Pictures – Dairy (TP-D). This system is based on the DRASTIC software, developed by an earlier LPP-funded project (R6282) and is unique in being able to support *dynamic* decision making *for a wide range of situations*, thereby compensating for the lack of contact between farmers and extension staff.

The participatory development and evaluation of the TP-D in Tanzania, Kenya and India has clearly demonstrated the predictive accuracy of the methodology. It also established that farmers use TP-D as a tool in a true sense, applying it to their own problems in a number of ingenious ways. TP-D thus represents a real innovation in effectively enhancing farmers' personal, dynamic and science-based decision-making capacity that has not been offered by previous static extension materials.

Farmers using TP-D increased milk off-take compared to their controls, augmenting milk-derived income often by as much as 25 per cent. The tool is also widely acceptable and recent information has indicated that 90 per cent of the farmers in Tanzania, originally exposed to TP-D two years ago, still use the methodology. More importantly, this information also confirmed that TP-D's use has been actively spreading amongst farmers.

The ease with which TP-D guides, based on a format originally developed in Tanzania, have been produced for another country (Kenya) and another sub-continent (India) and, the ease with which smallholder farmers in these areas effectively use the guides to address their most significant dairy feeding problems, has clearly demonstrated that TP-D is indeed a generic tool.

The initial success of TP-D will be capitalised upon over the coming two years through pilot-level up-scaling of its use in India. Although DfID itself does not appear to have established systems to facilitate the wider dissemination of its research programme outputs, over the coming six months TP-D will be implemented by a number of other projects, organizations and countries. In addition, funding is being sought for country-level up-scaling by the Ministry of Water and Livestock Development in Tanzania.

Background

The lack of effective links amongst research, extension and farmers is a global problem!

Poorly functioning agricultural knowledge and information systems have been a particular constraint in recent years, when climatic changes combined with a reduction in access to natural resources due to significant population increases have led to dramatic changes in traditional methods of animal management. Often, neither indigenous knowledge systems nor existing advisory mechanisms have been able to keep pace with the rate of change required in such systems.

Although much effort has been spent on improving the communication between stakeholders, most research results are still delivered in a format that is difficult to comprehend and assimilate by extension workers who are frequently not experts in the particular subject area (Greenland et al. 1994; Moris 1991; Østergaard 1994). Without the effective implementation of this link, it is difficult to see how extension services can promote improved feed management amongst their client-farmers in a way that is flexible enough to meet individual needs, and that accounts for the dynamics of feed resource availability in smallholder systems.

Paper-based nutrition extension literature - in tabular or other formats - is not easily used by extension staff who are not generally experts in nutrition. The development of DRASTIC, by an earlier LPP-funded project (R6282; Appendix 1), directly addressed this problem. However, DRASTIC still relies heavily on frequent contact between extension systems, which are often poorly functioning, and farmers. Deficiencies in this process may mean that the outputs produced by tools such as DRASTIC will not always be sufficiently responsive to changing seasons, resource endowments, local markets and production objectives. This may compromise the extent to which farmers can base their management decisions on these and other factors.

The project reported here has developed further the approach taken by a one-year pilot phase (R7431; Appendix 2) to develop a dynamic, pictorial extension tool for dairy cow feeding. The system, based on DRASTIC, is unique in supporting *dynamic* decision making *for a wide range of situations*, thereby compensating for contact between farmers and extension staff, that is often infrequent.

Project Purpose

Agricultural knowledge and information flows in developing nations are, generally, not frequent or flexible enough to meet individual needs and to allow farmers to adapt effectively to short-term changes in resource availability and production levels.

This project has addressed the need to generate information in a form that reduces the complexity of the interaction between extension services and farmers, and that allows farmers to take a more active part in the evaluation of alternative strategies. This is particularly important for enterprises such as dairying, in which changes in activities on a daily basis can influence production and incomes in the short-term. Static recommendations prevent farmers from adapting effectively to short-term changes in resource availability and production levels.



A Tanzanian beneficiary discusses visual indicators of fodder quality with project collaborators

The development of TP-D has taken the scientific information on dairy nutrition packaged by DRASTIC and used it to generate a methodology for presenting it dynamically to farmers in an easily-understood pictorial format. Uniquely, TP-D allows development professionals to provide their client farmers with a decision tool that can be carefully tailored to solving their own problems.

At the purpose level, the project addressed the following specific programme outputs:

1. Develop and promote strategies to improve the seasonal availability of livestock feeds (HPPS 1.2.);
2. Develop and promote strategies for the allocation and management of on-farm and locally available resources in order to optimise livestock production and improve their contribution to the crop/livestock farming system (SAPS 1.2);
3. Validate and promote improved feeding and management strategies (FAPS 1.5).



A group of farmers in southern Andhra Pradesh discuss the format adaptations required

Research Activities

The project delivered its outputs through the implementation of the following, specific activities.

1. Participatory Design

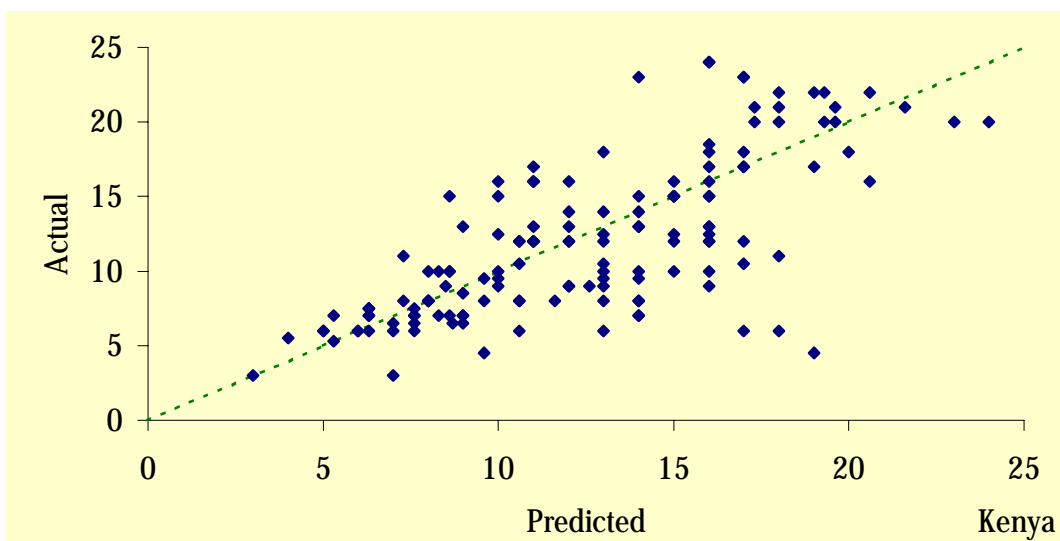
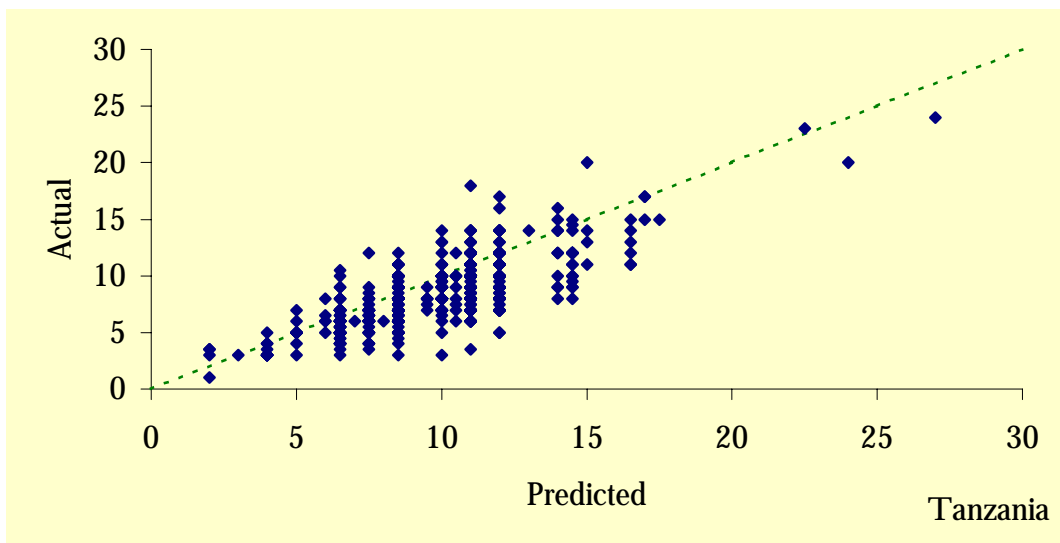
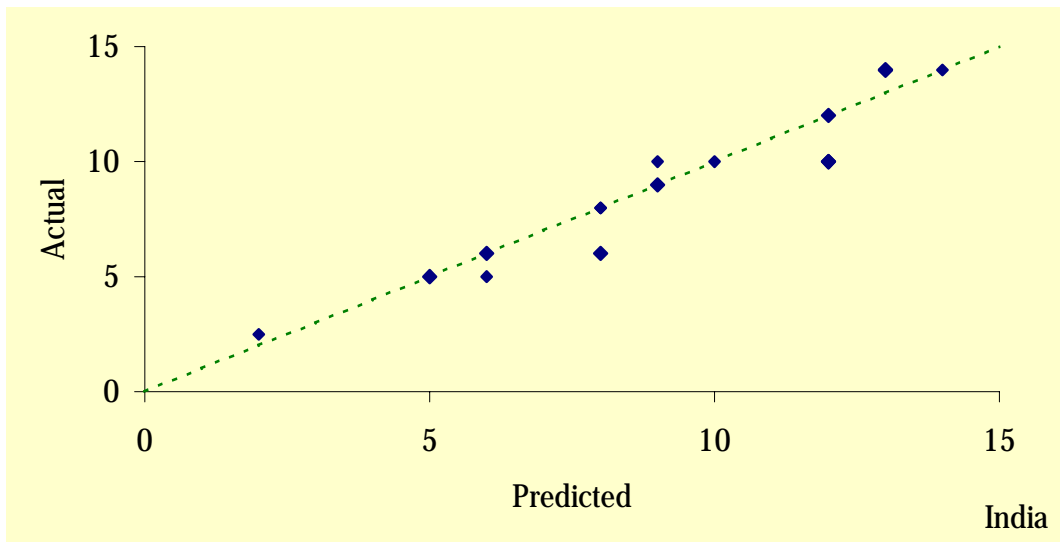
In Kenya, Tanzania and India, participatory design studies concentrated on the refinement of the pictorial information and formats used for the TP-D guides, incorporating the results of the pilot-phase, field-testing of the prototypes.

The main focus of this work was on the participatory definition and collection of input data required to develop suitable and useable thumbnail libraries for the production of TP-D guides and on the formats of the hard-copy guides. The key, component activities were:

- Identification and analysis of modifications required to the prototype TP-D guides;
- Evaluation workshop with all stakeholders;
- Finalisation of revised prototypes;
- Definition and collection of required input data (India);
- Development and testing of component pictorial example outputs for recognition, assimilation, effectiveness and user-friendliness (India);
- Adaptation of the TP-D approach to smallholder, milch buffalo systems found widely in India;
- Production of thumbnail libraries for India.



Defining input data for forage quantities in India.



Milk yield prediction accuracy (litres day⁻¹) of TP-D guides assessed in the three countries.

2. Participatory Testing and Evaluation

Following the revision of prototypes, copies of the hard copy guides were produced (using the TP-D software; see below) for five locations in Kenya, four locations in Tanzania and four locations in India.

At each location, extension workers received training in the use of the guides and approaches to supporting farmers in their use. A participatory evaluation and monitoring process was implemented over a period of six months in order to assess the user-friendliness and effectiveness of the guides under on-farm conditions. The recommendations and alterations suggested during these activities were incorporated into the final dynamic pictorial dissemination tool. In India, testing of the TP-D guides followed the same approach and was started in project year three. Key, component activities were:

- Production of hard copy guides;
- Training of extension workers;
- Delivery of guides to farmers and training in their use;
- Participatory evaluation of hard copy guides;
- Analysis of evaluation results and incorporation of recommendations and alterations in hard copy guides and TP software.



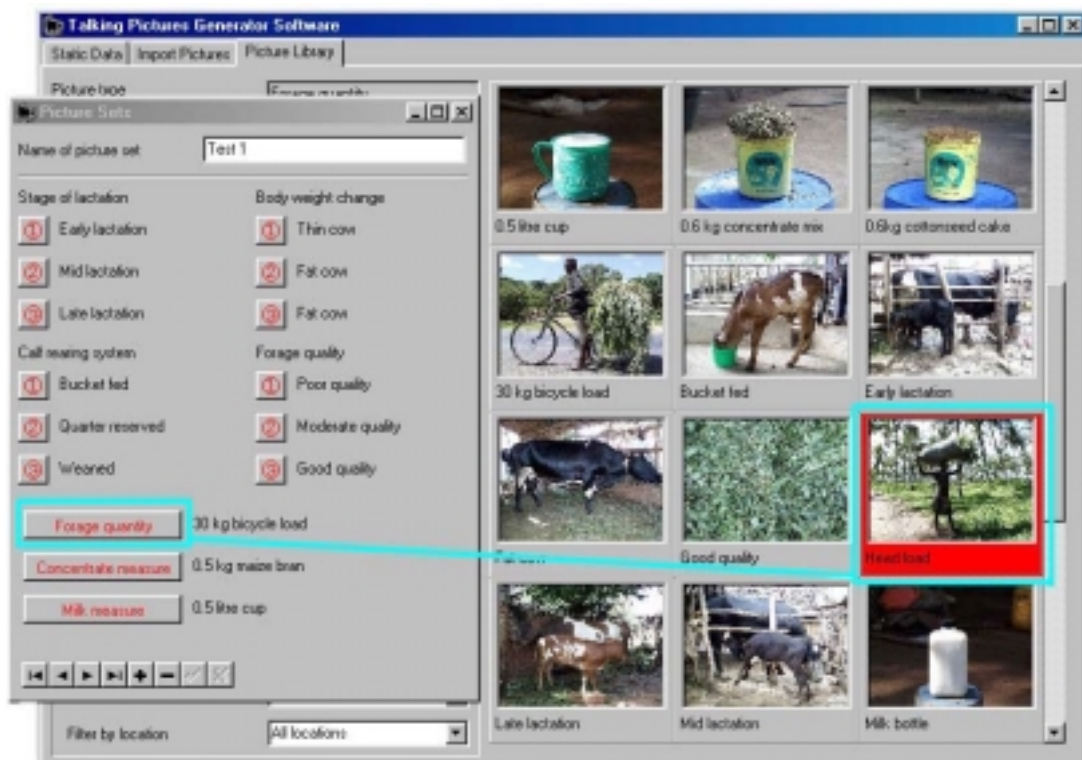
Training of trainers during the participatory testing and evaluation phase in Maharashtra, India.

3. Development of the TP-D Software

The TP-D software produced by the project is based on an existing version of DRASTIC, modified to allow it to produce location and situation specific sets of TP-D guides.

The major modifications carried out to DRASTIC in order to develop the TP-D software included:

- Introduction and development of various options to specify pictorial input data using thumbnail libraries of cow genotype, calf rearing systems, recognisable quantities of feed and milk, types of concentrates etc., linked to the appropriate biological data in the DRASTIC software;
- Further development and optimisation of a simple pictorial user interface;
- Further construction of visual interface for reviewing Talking Pictures outputs prior to the production of hard copies;
- Further development and optimisation of visual reporting routines to allow the generation of hard copy Talking Pictures using a printer attached to the PC that is running the system;
- Adaptation of model to predict the impacts of different management strategies for milch buffalo.



Using the TP-D software to construct customised picture sets

4. Impact Assessment

Following the release and testing of the successive versions of the TP-D guides in the three countries, preliminary impact evaluations were conducted to determine use, acceptance and effectiveness of the tool.

Key components of the activities related to impact assessment were:

- quantitative and qualitative post release surveys;
- evaluation workshops

Outputs

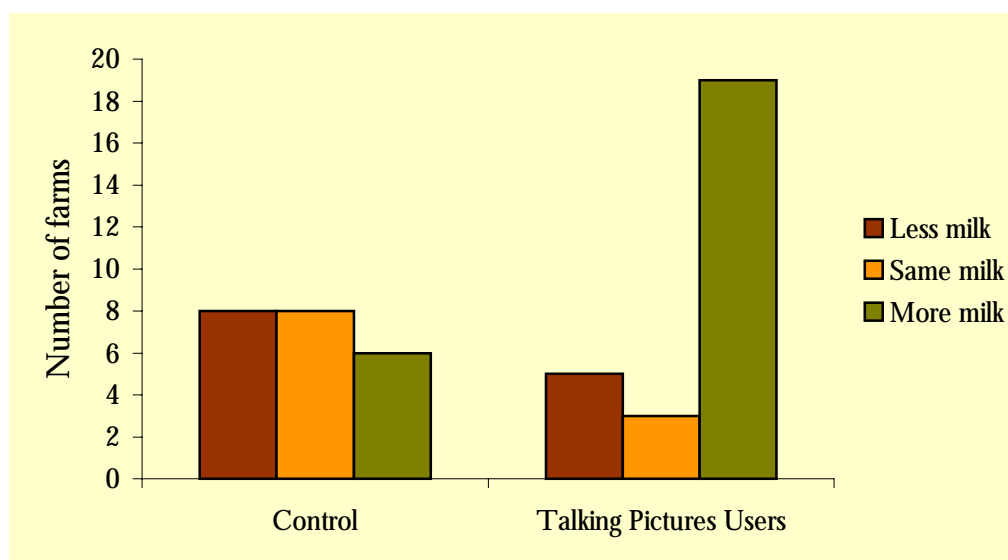
- *Talking Pictures – Dairy*. A dynamic, pictorial guide for evaluating the impact of feed management decisions in smallholder dairy systems. These guides are readily customisable for different production systems and locations and are easily applied by farmers themselves to the analysis and solution of their own problems;
- *The Talking Pictures – Dairy Guide Generator*. A software programme allowing the customisation and printing of TP-D Guides based on readily obtainable input information (distributed via internet download or on CD-ROM);
- Evaluation of the methodology, use of the guides and software in three countries (Tanzania, Kenya and India);
- Preliminary impact assessment of TP-D in three countries (Tanzania, Kenya, India);
- Customised TP-D guides for six dairy cow and three dairy buffalo smallholder systems in Tanzania, Kenya and India (Appendix 3);
- Manuals describing the use of the TP-D guides and generator software (Appendix 4);
- Other publications describing project activities and outputs (appendix 5);
- Workshops and workshop reports (Appendices 6 and 7).

Contribution of Outputs

The evaluation of the TP-D development phase in Tanzania, Kenya and India not only clearly indicated the prediction accuracy of the methodology, but also established that farmers used TP-D as a tool in the true sense, applying it to their own problems in a number of ingenious ways.

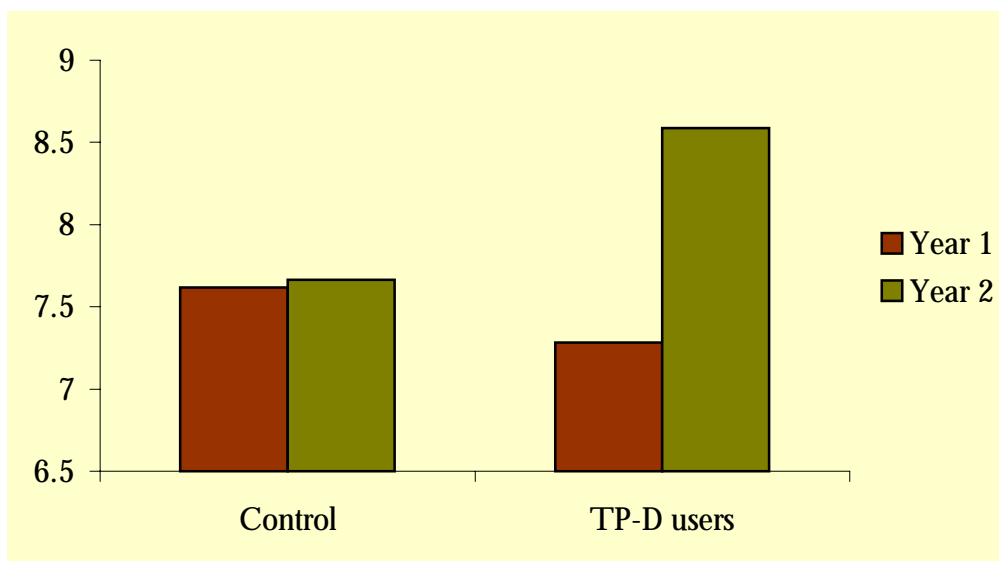
As such we believe that it represents a unique innovation in effectively enhancing farmers personal, dynamic and science-based decision-making capacity that has not been offered by previous static extension materials.

A preliminary impact assessment of the development phase in Tanzania showed that a high proportion of TP-D users derived significant benefit from using it in a year-on-year comparison.



The scope of the impacts. A year-on-year comparison of the number of farms producing less, the same or more milk with and without access to TP-D on smallholder dairy farms in Tanga, Tanzania.

Farmers using TP-D increased milk off-take compared to their controls, augmenting milk-derived income often by as much as 25 per cent. The tool also appears to be widely acceptable. In all of nine study locations, at least 50 per cent of the Tanzanian and Kenyan farmers participating in field-testing stated that they would continue to use TP-D. More recent information has indicated that farmers in Tanzania, originally exposed to TP-D two years ago, have maintained and even extended these improvements over longer time-scales. Follow up with these farmers has actually confirmed that more than 90 per cent of the original 'testers' still use the methodology, and more importantly that its use has been actively spreading amongst other farmers. Our initial findings in India have been consistent with those in east Africa both in terms of the ability of TP-D to represent situations accurately and its potential for generating impact.



The scale of the impacts. Mean impacts of TP-D use over a six month period on daily milk yield (litres) from smallholder dairy cows in Tanga, Tanzania.

TP-D is a generic tool and, as such, can be applied wherever smallholder dairy systems operate. Indeed, the ease with which TP-D guides, based on a format originally developed in Tanzania, can be produced for another country (Kenya) and another sub-continent (India) illustrate this very clearly. More importantly, the guides are actually be used by farmers in these countries to address their most significant problems.

Some comments of TP-D users

- Better than existing extension media as it is more “participatory”; i.e. a users’ own animals are directly considered. (farmer, India).
- Interactive nature of tool builds farmers’ confidence in VAHW and facilitates two-way information exchange (village animal health worker, India).
- “The book is as useful as my panga that cuts napier grass” (female farmers, Kenya)
- “TP-D is a saviour for improving dairy production” (group of farmers, Tanzania)
- “TP-D has greatly helped the dairy enterprise. It has enabled us to know the precise forage requirements thus reducing wastage, helped us to assess milk drop or rise given a change in feeding regime, made the concept of measuring forage and milk quantities simpler and enabled us to detect health or fertility problems since these are reflected by deviations from expected milk yields” (group of farmers, Kenya).

The initial success of the work in India will be capitalised upon over the coming two years by a project aimed at pilot level up-scaling of the use of TP-D in four states (Maharashtra, Andhra Pradesh, Gujerat, Rajasthan). This follow-up project will be implemented through both the dairy cooperative unions and the NGO sector. This project will also support the development of the TP-D website which will be used for disseminating the methodology and as a platform for the exchange of experiences.

It is regrettable that DfID itself does not appear to have established effective systems for facilitating the wider dissemination of research programme outputs such as TP-D through its bilateral programmes. In particular, a relatively small investment in training of trainers could pay considerable dividends in a range of situations .

	Tanzania	India*	Global*
Number of small scale dairy cattle (x 106) #	2.5	6.7	310
Scale of individual impact (litres day -1)	1.26	0.75	0.90
Scope of impacts (% of cattle benefiting)	70	50	35
Economic benefit to sector (US \$ lactation -1 x 106)^	132	1 500	3 590

- FAO (2002) estimates
 * - Scale and scope are based on conservative estimates
 ^ - Assumes 300 day lactations and milk price of 0.2 US \$ litre-1

The potential impacts of up-scaling the application of TP-D to feed management on smallholder dairy farms.

Fortunately, interest from other donors has been encouraging, considering that TP-D is only now completing its development phase. Over the coming six months we are anticipating implementing TP-D through a dairy training project in the Gambia (FAO) and possibly in association with a dairy development project in Uganda (CIRAD). Funding is also being sought for country-level up-scaling by the Ministry of Water and Livestock Development in Tanzania. We have also received expressions of interest with a view to applying the methodology to the smallholder dairy sector in Sri Lanka.

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List of Appendices

The following appendices are available in the companion volume to this report.

- Appendix 1 - Information about the DRASTIC dairy rationing software
- Appendix 2 - FTR for the Talking Pictures Pilot Phase
- Appendix 3 - Example TP-D hard copy guides
- Appendix 4 - TP-D guide generator software manual
- Appendix 5 - Information about the TP-D project and outputs
- Appendix 6 - Final evaluation workshop report – Tanzania
- Appendix 7 - Final evaluation workshop report - Kenya