ANNUAL REPORT

1. BACKGROUND INFORMATION

Title of RPC: **The DFID Communicable Disease Programme: (TARGETS) Team for Applied Research to Generate Effective Tools and Strategies for Communicable Disease Control**

Reference Number: **HD205**

Period covered by report: **June 2008 – May 2009**

Name of Lead Institution and Director: **London School of Hygiene and Tropical Medicine, Professor John Porter.**

Key partners: **Centre for Health Research and Development, India**
Ifakara Health Institute, Tanzania
INDEPTH Network, Accra and worldwide
KNCV-Tuberculosis Foundation, Netherlands
Makerere Medical College and Infectious Diseases Institute, Uganda
The Zambian AIDS-related TB (ZAMBART) Project

Countries covered by research so far: **India, Afghanistan, Tanzania, Ghana, Uganda, Zambia, Malawi, Benin, The Sudan, South Africa, Argentina, Cuba, Peru, Brazil, East Timor, Kenya, The Gambia**, **Senegal.**

2. ONE PAGE SUMMARY

How far have intended outputs as listed in the logframe been achieved?
1. Knowledge generation has been achieved through the following indicators (OVIs)**:**
A Scaling up. Achievements include**:** development of a web-based decision support tool for policy maker decisions on IPTi implementation; testing of a new delivery system for TB treatment through home-based DOTS in Tanzania which resulted in the strategy being taken to scale at the national level; development of new methods for calculating the number of long lasting insecticidal nets (LLINS) needed to achieve universal access, taking into account the multiplicity of delivery systems and resultant overlap in receipt by some target groups.

B New Tools and Strategies. Achievements include**:** further interventions to reduce the burden of malaria in children and during pregnancy. Evidence suggests that IPT with sulphadoxine pyrimethhamine (SP) will not be effective in areas of high SP resistance. Acceptance by stakeholders in Zambia of a new grade of laboratory technician to aid TB diagnosis by microscopy.

C Vulnerability. Achievements include: highlighted the burden of malaria in pregnancy in India and the need to prioritise control strategies; flagged the vulnerability of tribal communities to communicable diseases; contributed anthropological and epidemiological insights to the relationship between TB, HIV and poverty, reinforcing the necessity of tackling poverty whilst aiming to reduce TB and of more long term food security issues in those co-infected with TB and HIV; illustrated worrying levels of burnout & high levels of stigma associated with accessing HIV treatment amongst health care workers in Lusaka.

D Monitoring and Evaluation. Achievements include: completion of major TB drug resistance surveys in Tanzania and Zambia; publication of key data from TB/HIV prevalence surveys in Zambia and planning of large follow-on surveys for late 2009; publication and dissemination of a systematic review "Provider practice and user behaviour interventions to improve prompt and effective treatment of malaria: do we know what works?"; new recommendations on monitoring and evaluating interventions to eliminate sleeping sickness; and new recommendations on the design of M&E for malaria vaccines.

2. Knowledge dissemination has been achieved through the following indicators (OVIs): Increased capacity to disseminate knowledge through the creations of a full time post of Overseas Communications Officer; a new website to be launched in April 2009; development of plans for the reintroduction of 'brown bag lunches' with DFID; development of links & partnerships with media organisations.

3. Knowledge influences policy and practices (OVIs)
1) Effective partnership within TARGETS and with policy makers, programme and district managers. E.g., partnership with DOMC, Kenya in development of their ITN implementation framework; ZAMSTAR continued work with district health authorities; collaboration with the Malaria Consortium and DFID Nigeria for the control of malaria in Nigeria.
2) Research questions defined to meet stakeholder's needs. E.g., studies on TB drug sensitivity and patient centred treatment in Tanzania initiated by the NTLP; study on number of LLINs required for universal commissioned by DFID and WHO; TNVS study questions shaped by needs of the NMCP; analysis for Ghana Health Services of DSS maternal mortality data.
3) Potential users involved in planning and implementing research activities. E.g., collaboration between MAAS/CHRD and local TB programme managers in planning & implementing research; TNVS stakeholders meet regularly to shape research activities; ZAMSTAR works with district health authorities in research development & implementation.
4) Engagement with national and international policy organisations. E.g., membership of National TB & HIV co-ordinating bodies in Zambia; collaboration with National AIDS Research Institute, India; membership of various WHO Technical Expert Groups; liaison with the UK all party parliamentary group on global TB; technical support to the DOMC, Kenya; membership of national task forces and international policy making bodies.

What is the impact of the research programme so far?
Work undertaken by members of TARGETS has: significantly contributed to shaping the Kenya National Implementation Framework for Insecticide Treated Nets; contributed to the establishment of a task force to produce evidence for WHO to consider the strategy of seasonal IPT for malaria in children in west Africa; led to the development of a web-based support tool for policy maker decisions on IPTi implementation; led to the introduction of a new strategy for patient-centred TB treatment in Tanzania; described the epidemiology of TB in areas of high HIV prevalence in Zambia; demonstrated that the new heptavalent vaccine is safe & effective.

3. KEY THEMES

Theme 3i: What are the research outputs?

Knowledge generated: The list in the table below is illustrative, rather than exhaustive.

What progress has been made on key programme outputs?

Outputs	Verifiable Indicators (OVI)	Progress	Recommendations/Comments
New knowledge for taking interventions to scale and improving access for vulnerable groups.	Decision support tools for taking interventions to scale; reports on new approaches to improving access.	Development of a web-based decision-support tool for policy makers under which epidemiological conditions it may be most appropriate to implement Intermittent Preventive Treatment in infants. (www.iptiwebtool .org)	WHO to make a policy recommendation in April 2009.
		Finalized patient-centred treatment studies in Tanzania. 1: appraisal of strategy 2: formal Pilot study	Outcome study 1: choice of home-based DOT is appreciated by patients and health staff and will contribute to empowerment of patients. Outcome study 2: New treatment delivery strategy has no detrimental effect on formal TB-treatment outcomes. The choice of supporter does not influence treatment outcomes under the new strategy. Result: intervention scaled up nation-wide. Need: additional studies on evaluating actual implementation at scale focusing on relapse cases, drug resistance development, and patient adherence.
		Genetic rifampicin testing in DRS Tanzania.	DRS has finished and now the matching of genetic testing (Antwerp) and conventional testing (Tanzania) has to be performed. This is to inform the NTLP on possible introduction of rapid testing in Tanzania for selected patient groups.
		IPT, Zambia: Piloting for the National TB Control Programme introducing IPT for the prevention of TB in PLHIV.	National Policy for IPT will be based on the pilot.
		Continued evaluation of the new phase of TNVS financed by the Global Fund under Rolling Continuation Channel according to key indicators of national and international importance.	Results from these evaluation studies are being used by the NMCP Tanzanian to guide their scale-up of ITNs , and they provide relevant information on the current debate on the ITN delivery strategies for other African nations.
		In India, intervention research for strengthening referral and feedback system in local municipal corporation run programme, where a referral - feedback system between private medical practitioners and public sector run TB programme was piloted for a period of four months.	Results of the intervention demonstrated that sustained efforts at following up with the private medical practitioners and provision of prompt feedback could positively influence the referral practices of those who were not previously referring TB suspects and patients to the programme. It was also shown that systematic documentation of referrals and feedback could enable the public sector run TB programme to trace the referred patients, who did not reach the programme.
		Patients' perspectives on the Public Private mix (private	Patients preferred private medical practitioners as DOT providers on account of their

		practitioners partnering with the Revised National Tuberculosis Control Programme)	familiarity, easy accessibility and convenience, maintenance of privacy and confidentiality and relief from symptoms.
New tools and strategies for disease diagnosis, treatment and prevention and overcoming obstacles to scaling-up.	Reports on the efficacy of new tools and strategies, and of their effectiveness under field conditions.	Showed that intermittent preventive treatment for malaria in children (three courses during the rainy season) is effective and safe.	This intervention will reduce the burden of malaria and anaemia in children in areas with high seasonal transmission
		Showed that the mechanism of action of IPT with SP in infants is by chemoprophylaxis and that this intervention will not be useful in areas with high SP resistance.	Evidence against use of IPT with SP in areas of high resistance.
		Conceptualised that Azithromycin+chloroquine has the potential to replace SP for IPT in areas of high SP resistance.	Potential intervention to reduce burden of malaria in areas of high resistance.
		Demonstrated that Amodiaquine alone or in combination with sulphadoxine pyrimethamine (SP) is useful for intermittent preventive treatment for malaria in pregnancy (IPTp).	Will assist reduction of malaria during pregnancy. Dissemination underway.
		Showed that rapid diagnostic tests may be useful for screening and treatment of malaria in pregnancy as an alternative strategy to IPTp in areas with SP resistance.	This intervention may reduce burden of malaria in pregnancy and reduce drug use in areas with high SP resistance.
		Showed the new heptavalent vaccine is effective and safe and it will be useful to prevent meningitis epidemic in the meningitis belt.	Dissemination underway. Vaccine likely to reduce childhood mortality.
		Diagnostic supporters to support individuals undergoing investigation for TB in Zambia: Fieldwork complete, analysis on going.	WHO interested in suspect drop out; this study could help contribute to understanding the level of the problem and potentially could help provide some solutions.
		TB Microscopists, Zambia: Trainings have continued nationally with different stakeholders, using curriculum developed in the study. Another 100 trained in this period. Publication due to submitted by May 2009.	Microscopist as a cadre for labs have been well accepted by different stakeholders and is a realistic model in human resource poor countries.
		Work towards a point-of-care test for TB continues.	This is now acknowledged as a high priority by international stakeholders.
		New patient centred educational tool to improve TB diagnosis developed.	This novel low cost intervention to improve TB case finding is to be evaluated in Uganda.
New knowledge on risk and vulnerability and how it can be used to target interventions.	Disease specific guidelines for risk mapping and targeting strategies. Tool kits for rapid assessment.	Completion of the analysis of the age-pattern of malaria disease and death in children under different epidemiological conditions.	This study will help identify which age-groups are most vulnerable to severe disease and death in different epidemiological settings.
		Completion of epidemiological study on associations	Findings from poverty and TB study fed directly into a wider discussion of poverty and TB

		between poverty, health seeking behaviour and TB in Zambia.	within FIND and WHO.
		Completion of anthropological study on the converging impact of TB, HIV and food insecurity in rural Zambia and peri-urban South Africa. Findings highlighted glaring absence of state welfare in Zambia, special food needs of TB patients and the path to ART amongst co-infected patients in two contrasting public health systems.	Study demonstrated capacity building of two African social scientists who were both awarded MPhils in Social Anthropology from University of Cape Town based on this research. Findings dovetailed publication of two reports on the nutritional needs of TB patients and PLWH.
		Completion of study on burnout, attrition and barriers to accessing HIV care and treatment amongst health care workers in Lusaka, Zambia highlighted worryingly high levels of burnout, reasons for attrition and issues around uptake of VCT and ART amongst health care workers.	Findings fed back to district health authorities through a local dissemination meeting with sisters-in-charge and through producing a leaflet summarising results which were distributed and presented at clinic level to all respondents. Findings were fed directly into a HIV workplace policy and helped reinforce the need for anti-stigma education.
		Initiated a proposal for the development of a comprehensive database on tribal health focussing on communicable diseases in tribal dominant and inaccessible areas to assist in evidence-based programme planning and action measures for improving tribal health.	In the absence of methods for the development of such models, MAAS CHRD followed a multi-pronged strategy including: secondary data analysis of major communicable diseases; health resource mapping for the public and NGO sectors; local print media analysis of newspaper items on tribal health; and a series of research studies on tribal health system issues in the community.
Indicators and tools to monitor and evaluate the impact of communicable disease programmes through existing systems.	Guidelines for measurement of morbidity attributable to communicable diseases, and for robust estimates of coverage and impact of control programmes and delivery systems.	A major TB drug resistance survey has been completed in Tanzania, generating new knowledge on low levels of resistance among new patients and those requiring retreatment.	Results are being used for planning purposes for second line treatment. Urban retreatment patients have high risk of MDR; this has important implications when future planning surveillance activities.
		Sample collection for a large TB drug resistance study in Zambia is complete; laboratory work in progress and local and international dissemination of findings planned.	New data will enable us to track changes in TB drug resistance since 2000 and to examine drug resistance by HIV status. These data are vital for planning treatment policy.
		Important new knowledge generated on the epidemiology of TB in areas of high HIV prevalence (Zambia).	Results have significant implications for TB control. Activities being scaled up from 4 to 24 districts in Zambia and South Africa
		Protocols for comparing the performance of a variety of M&E indicators for malaria transmission in epidemic settings have been finalized and field studies initiated.	This work is being nested within an effectiveness trial of ITN/IRS combinations in highland areas.
		New knowledge generated on correct methodology for evaluating malaria vaccines.	Study highlighted the effect of over-dispersion of malaria in low transmission areas and suggested that further trials of RTSS vaccine should focus on high transmission areas.
		New methods to evaluate control strategies for sleeping sickness, a major neglected tropical disease, proposed.	Our models indicate that the second stage of sleeping sickness typically lasts 2-3 years. As such, active case detection would be needed to eliminate sleeping sickness.
		A new method has been developed to evaluate delivery systems at scale.	This novel approach uses attribution of the product to its source plus process evaluation of the causal pathway to achieve a plausibility inference.

Knowledge disseminated:

What progress has been made on key programme outputs?

Outputs	Verifiable Indicators (OVI)	Progress	Recommendations/Comments
Innovative and dynamic communication strategy with effective dissemination plans.	Communication strategy updated.	Communications made central focus of discussions and workshops at annual TARGETS meeting, December 2008. Strategy revised and action plan developed in view of updated project priorities and planned outputs (see Annex 4 for details).	Day 1 provided a dissemination platform for the Indian hosts (MAAS CHRD) and Consortium partners to communicate research findings to each other and large number of Indian stakeholders also present. Days 2&3 featured a programme of communications workshops by theme, facilitated by resource persons from IDS; exercises were adapted to suit each theme group and complement concurrent sessions on the TARGETS final report. The activities culminated in a group discussion of the communications strategy and priorities for outputs/activities in the final year of the RPC.
		Recruitment of additional communications staff and expertise.	Full time Overseas Communications Officer recruited, TARGETS (LSHTM) Nov 2008. Policy, Advocacy and Communications Officer recruited by ZAMBART, March 2009.
		Dissemination strategies for local, national and international level stakeholders	Planned dissemination workshops in Tanzania (KNCV), findings reported directly to the Ministry of Health due to KNCV key role in TB Programme at MoH level. Preliminary resistance estimates communicated to WHO to be included in global report on MDR: wide dissemination; highly referenced. Regular communication of findings to implementers and policy makers at district, national and international level, through combination of identified effective media channels (Ifakara Health Institute) Brochure prepared by MAAS CHRD in Marathi (local language) with information about HIV-related services in and around the study area in an easy, visually-assisted format. Distributed to public sector pre-school workers, representatives of local government bodies in villages and private practitioners in order to strengthen referral and networking between private, public and NGO sectors for dealing with HIV at the local level. Positive feedback received from community. Results from Tanzania IPTi study presented to policy makers both in MoH and WHO. These data are now published in peer reviewed journals.
		Developing links and initiating formal partnerships with media organisations.	1. Panos Relay Programme: Mishal Khan literature review for Panos media toolkit for reporting on TB in developing countries. Formal partnership created to deliver media workshop joint facilitated by TARGETS (ZAMBART) and Panos (London and Southern Africa), to be held in June 2009. 2. Guardian Katine Project: TARGETS researcher Ruth McNerney interview and opinion piece for Katine blog, plus contribution of TB/malaria/HIV 'Explainers' for website.
		Strengthened partnerships leading to joint activities with other development organisations and RPCs.	1. COMDIS: Joint address to the All Party Parliamentary Group on TB with introduction by DFID, to be held in May 2009. Presentation of field work on the implementation of

			the WHO policy for collaborative TB/HIV activities with ZAMBART. 2. CREHS (LSHTM): TARGETS researchers contributing to CREHS workshop for special issue publication on joint theme of Scaling Up. 3. LIDC: Increased participation in communications-focused workshops, meetings and exchange.
		Web-based Dissemination	New website in development for launch in April 2009. See: www.targetsconsortium.org Research on the age-pattern of malaria culminated in development of web-based decision-making tool to aid policy makers in deciding where to implement Intermittent Preventive Treatment in infants. See: www.iptiwebtool.org
		Presentations at national and international conferences (see annex 5 for details)	The participation at conferences and workshops at national and international levels has helped MAAS-CHRD in disseminating its research findings to wider audiences and, in the process, has also helped establish its credentials as a research team which is proficient in undertaking policy and programme-relevant research work in India.

Knowledge influences policy and practice:

What progress has been made on key programme outputs?

Outputs	Verifiable Indicators (OVI)	Progress	Recommendations/Comments
Effective partnerships within TARGETS and with policy makers, programme and district managers developed.	Number of studies with user involvement in each aspect.	The great majority of the projects being undertaken by TARGETS partners continue to have user involvement in each aspect of the project.	External partners involved in these projects include the Ministry of Health in: Zambia, Tanzania, Uganda, Kenya, Ghana, and Cambodia and national TB and/or malaria control programme teams in Zambia, Tanzania, Uganda, Ghana, Cambodia and India. Other key users involved in TARGETS projects include District Health Management Teams in Zambia, Ghana, Kenya, Tanzania and Uganda; national and international NGOs in India, Senegal, Kenya, Zambia and Ghana; medical training centres and hospitals in India, Uganda, Ghana, Zambia and Tanzania.
Research questions defined to meet stakeholders' needs.	Studies responding to documented stakeholder concerns.	Examples: Studies on drug sensitivity (DRS) and patient centred treatment in Tanzania were initiated by NTLP to address questions and challenges within its programme. Diagnostic Supporter Study in Zambia is responding to gap between laboratory diagnosis and treatment identified by the National TB Programme Manager and study to support TB in prisons is responding to demand for TB infection prevention in Prisons by DHMTs and National TB Programme.	DRS is designed in close collaboration with WHO. NTP waiting for results and recommendations on diagnostic supporters

		M&E studies on ITN coverage & use respond to scheme's implementers. E.g., the new sampled districts for TNVS M+E activities were selected with input from stakeholders from the MOH. Study on the number of LLINs required to achieve universal coverage commissioned by DFID & WHO.	Regular feedback to the TNVS implementers has shaped the research agenda to meet their needs. Report produced and being disseminated by WHO
Potential users involved in planning and implementing research activities.	Number of studies involving stakeholders.	Well over half of the studies conducted under the TARGETS programme involve the key stakeholders in planning and implementing the research activities. E.g.: In Zambia, the DRS Survey was planned in collaboration with the National TB Programme and there is continued work with district health authorities through ZAMSTAR Trials. In India, MAAS/CHRD has collaborated with Inter Aide, India, an NGO and the Mumbai District TB Control Society to undertake a baseline study for the GFATM-funded Urban DOTS Project. MAAS-CHRD has also collaborated with the local TB programme manager in the planning and implementation of operational research on increasing access and utilization of DOTS through strengthening of the Public-Private-Mix in the RNTCP.	 Most of the ZAMBART studies are planned in conjunction with the potential users and are fulfilling the aims & objectives of the National Strategic Plan for TB This collaboration has helped strengthen the capacity of the NGO to conduct quality operational research. The collaborative interaction with the programme manager during planning and implementing the operational research gradually led to the easier acceptance of the research findings and thereby recommendations.
Engagement with national and international policy organisations.	Membership of national and international policy influencing bodies.	ZAMBART: Member of NAC, Treatment and Care Working Group, TB/HIV Coordinating Body, DATFS, WHO TB/HIV working group. Presence on District AIDS Task Forces (DATFs) in 5 provinces, membership of National TB and HIV Coordinating Body, Committee on National TB Prevalence Survey. MAAS-CHRD: a partner in "The NGO Tuberculosis Consortium in India" Ifakara & LSHTM staff are members of the TNVS stakeholder group in Tanzania. TARGETS staff are members of several international policy influencing bodies and are frequently asked to contribute to specific Task Forces and Working Groups.	Technical support also given to MOH and National AIDS Council in Zambia. Involvement in these technical groups allows interactions with policy makers & other relevant stakeholders. International policy bodies of which TARGETS staff are members (or have contributed to) include: The IPTi Consortium; the Technical Review Panel of the Global Fund; the TBG/HIV core group of the Stop TB partnership; the WHO technical advisory group on pesticide evaluation; the WHO technical expert group on ITNs; WHO-WPRO and WHO-SEARO planning group on regional risk mapping and disease burden estimation.

What progress has been made in terms of purpose?

Purpose	Verifiable Indicators (OVI)	Progress	Recommendations/comments
To assist key stakeholders to improve the health of the poor and vulnerable through effective and sustainable communicable disease control.	Reduced morbidity and mortality from communicable diseases.	All of the projects implemented by members of the TARGETS partnership are contributing to a reduction in the burden of communicable diseases, particularly malaria and TB. E.g.: research on the effectiveness of new drug combinations for the prevention of malaria in pregnancy and during infancy will help to reduce the malaria burden in these vulnerable groups; studies in Tanzania have help identify patient clusters with multidrug-resistant TB and projects in Zambia have demonstrated improved case-detection for TB, as well as HIV counselling and testing uptake.	The TARGETS projects being undertaken as part of this DFID funded programme form only a small part of the large number of intervention activities that are being undertaken in the countries in which TARGETS are involved. As such, it is difficult to assign reductions in morbidity & mortality directly to any one particular project in particular or to the TARGETS programme in general. In addition, one of the key features of the TARGETS programme is the large number of collaborations that we enter into with various local, national and international partners. These partnerships & collaborations help to ensure that all of our projects are contributing either directly or indirectly to a reduction in the burden of communicable disease. However, since a key part of our success lies in the development and maintenance of such partnerships, it is difficult to ascribe any particular success to TARGETS alone.
	Better coverage and effectiveness of communicable diseases control programmes.	Several TAREGTS projects are contributing to better coverage and increased effectiveness of communicable disease programme. E.g.; The web-base d tool for IPTi decisions making will help District Health Management Teams achieve better and more effective coverage of this malaria prevention measure; a new method is being developed and tested to evaluate the effectiveness of delivery systems at scale; a large scale drug resistance study in Zambia will help in tracking changes in TB drug resistance.	

Themes 3i: What are the research outputs?

The information presented below provides an indication of the type of work being conducted by each of the partners and also by individual researchers within the TARGETS consortium. This information focuses on the main achievements to date as well as on evolving research that will contribute towards the final research outputs from a sample of the projects that relate to each of the 4 themes.

Generation of new knowledge:

Q. What progress has been made on key programme outputs?

Below is a list of examples of new knowledge generated during the year and the shape of evolving research under the umbrella of each output theme:

1. Knowledge generated (*Verifiable indicator (OVI) – individual projects feeding in to final reports at the end of the programme):*

A. Taking interventions to scale (*OVI: decision support tools)*

The projects that have been implemented under this theme can be divided into three major categories: a) review of documentary evidence for policy, b) identification of the barriers to effective implementation of (new) policy, and c) testing (new) delivery systems. One of the major outputs under category (a) has been the development and launch of a web-based decision-support tool for district & national level policy-makers to help them identify the applicability and likely impact of implementing Intermittent Preventive Treatment for malaria in infants in their district and/or country. In category (b) work is continuing on the development of a tool for diagnosing critical points at which effectiveness in the delivery of an intervention is being lost. Projects in Ghana and Senegal are focussing on losses in delivery effectiveness of treatment of children with fever through the public health system and community, respectively. In Kenya and Mali, similar methods are being employed to identify losses in delivery of malaria control interventions (IPTp, ITNs and case management) through antenatal clinics (ANC). Under the final category (c), projects in India have tested a strategy for the identification of TB suspects through partnership with private providers. The results suggest that a referral-feedback system between the private and public sectors can positively influence the referral practices of those previously not referring TB suspects.

B. New tools and strategies interventions *(OVI: Reports on efficacy and strategies)*

Excellent progress continues to be made to evaluate interventions to reduce the burden of malaria. Project outputs during the last year include: new tools for the prevention of disease in areas of high resistance, one of the key areas to be addressed if control of malaria is to be universal; confirmation that amodiaquine can be used to prevent malaria in pregnant women, providing a valuable alternative to the current therapy which is poorly tolerated; evidence that three courses of intermittent preventative therapy during the rainy season is effective and safe in children, and reduces the burden of malaria and anaemia. In TB research, progress continues to be made towards the acceptance of a new cadre of junior laboratory technicians to aid TB diagnosis in Zambia where school

leavers are provided with microscopy skills. This is an example of a local initiative to overcome human resource shortages that may be transferable to other settings in the region. The development in London of a simple tool to assist sputum production for TB diagnosis has aroused considerable interest. Acceptability and operational studies are to be pursued in the coming year.

C. Vulnerability *(OVI: Disease specific guidelines)*

Combining both anthropological and epidemiological studies on the relationship between TB and poverty has revealed the strong association between food availability and TB in Zambia and South Africa. Prevalent TB cases were much more likely to have a history of not having enough to eat and TB patient households were more likely to spend more on 'special' foods to meet food needs of patients, in the process compromising other household needs and tipping households into deeper poverty. This was particularly evident in rural Zambia where absolute poverty was more prevalent and where state welfare was absent. In South Africa, state welfare combined with NGO support provided an effective buffer in the short term to the impact of TB on household socio-economic status. These studies highlight the need for TB control programmes to consider taking on comprehensive nutritional programmes alongside the provision of treatment and signal difficulties in the long term delivery of ART.

D. Monitoring and Evaluation *(OVI: Guidelines and delivery systems)*

A major TB drug resistance survey has been completed in Tanzania, generating new knowledge on rates of resistance among new patients and those requiring retreatment. Results suggest overall levels of drug resistance are low in both groups – with perhaps as few as 300 MDR patients nationwide. Results are being used for planning policy on second line treatment and will also inform future surveillance strategies.

A large TB drug resistance survey was carried out in Zambia in 2008-9. Sample collection has now been completed, laboratory work is ongoing and it is expected that results will be disseminated by the end of 2009. The survey will generate key knowledge on trends in TB drug resistance since 2000 and will enable examination of drug resistance by HIV status in Zambia.

Also in Zambia, results from TB/HIV prevalence surveys in selected districts have been accepted for publication. This work has generated important new knowledge on the epidemiology of TB in areas of high HIV prevalence and our findings have significant implications for TB control. A much larger survey of 120,000 individuals is in the planning phase and will start in October 2009.

Findings from a systematic review on provider practice and user behaviour interventions for malaria indicate that there are few data on the effectiveness of available interventions to improve the appropriate case management of uncomplicated malaria. While many interventions have been implemented there is huge diversity in the groups targeted, the scale of implementation, and in the evaluation designs and methods. Very few have been evaluated in such a manner that the impact can be ascribed to the intervention. A crucial lesson from this review is that in order to get evidence on the effectiveness of an intervention the methods used in their evaluation should be sufficient to assign, at an absolute minimum, adequacy that an increase in the

relevant outcome has occurred, or more usefully plausibility that the intervention has contributed to the improved outcomes.

A major project addressing the utility of a range of indicators for monitoring changes in malaria transmission in low endemicity, epidemic-prone areas, is now underway in western Kenya. The project will assess the sensitivity and suitability of a number of epidemiological and entomological indicators in the context of mixed ITN- and IRS-based interventions.

Findings from two small, focused pieces of work have major implications for the evaluation of interventions. A study on the methodological caveats in evaluating malaria vaccines has highlighted the importance of over-dispersion of malaria in low transmission areas and results indicate strongly that further trials of RTSS vaccine should be conducted in high transmission areas. A modelling study on sleeping sickness has predicted that the duration of second stage of sleeping sickness (the key parameter needed to decide on the type on intervention for elimination of this disease) is 2-3 years. On this basis it appears likely that active case detection will be necessary in order to eliminate the disease.

2. Knowledge disseminated

2.1 Innovative and dynamic communication strategy with effective dissemination plans (*OVI: Communication strategy updated) – see Annex 4*

The communication strategy has been adapted to the changing outputs, requirements and dynamics of the RPC as it enters its final stage. The capacity of the RPC to disseminate knowledge was increased through the creation of the full time post of Overseas Communications Officer in November 2008. This has opened up opportunities and resources for new ideas and activities that are responsive to the needs and outputs of particular research projects and partners, whilst being managed centrally as a TARGETS-wide resource.

Based on discussions at the annual meeting in December 2008 (see Annex 4), the communication strategy is being implemented by means of two main practical approaches:

1. By capturing and documenting the methods, outputs and impact of TARGETS research, through such platforms as a new website for example. This is to be launched in April 2009, following a review and reorganisation of TARGETS documentation and outputs spanning 4 years of research. The objective of the website is to establish a fully accessible online resource for retrospective and current project information, and to communicate the Consortium's aims and expertise to lay audiences, stakeholders and researchers alike.

2. By developing ideas and providing close practical support and resources to assist researchers in the task of integrating communications into research projects. For example, TARGETS has formed a partnership with the Panos Relay Programme to deliver a joint facilitated workshop with ZAMBART in June 2009. The overall aim is to strengthen the role of development research as a source of information for journalists reporting on social issues, and to build trust and understanding between researchers,

journalists and communities. The workshop will use ZAMBART's research as its content, in particular to raise debate around TB and stigma issues.

3. Knowledge influences policy and practice

3.1 Effective partnerships within TARGETS and with policy makers, programme and district managers developed (*OVI: Number of studies with user involvement in each aspect)*

MAAS-CHRD has been accepted as one of the partners in "The NGO Tuberculosis Consortium in India". This Consortium has been working closely with the Central TB Division, the implementation agency of the Revised National TB Control Programme and the WHO India TB office. The Consortium holds responsibility for developing plans and proposals for submission to the Global Fund and membership of this Consortium will further help MAAS-CHRD to establish its credentials as a research team which has expertise in undertaking TB policy and programme-relevant research work in India. In addition, MAAS/CHRD has developed a collaboration with the National AIDS Research Institute (one of the premier research institutes of the Indian Council of Medical Research) to undertake research on "Current Challenges and Opportunities for the Integration of TB and HIV services for Co-infected Patients". Other partnerships developed by MAAS/CHRD over the past year include: collaboration with the City TB Centre of the Municipal Corporation of Pimpri-Chinchwad Municipal Corporation in Pune; the signing of a Memorandum of Understanding (MoU) with LEPRA Society - Health in Action – to undertake work in Adilabad district in Andhra Pradesh on tribal communities; and collaborative research with the DAC Trust-Network Theni, an NGO providing technical and financial support to six other NGOs providing TB and HIV care with a focus on marginalized communities and women in Theni district of Tamil Nadu. The focus of extending these networks and partnerships have been to develop and strengthen the capacity of NGOs and programme managers to conduct quality operations research and thereby generate evidence to influence programme and policy. Furthermore, this strategy helped MAAS-CHRD to move beyond its base area in Maharashtra to other States in India viz. Andhra Pradesh, Orissa and Tamil Nadu.

Over the past twelve months other groups within the TARGETS RPC have also maintained and built on their existing partnerships and collaborations with various external partners including: other DFID RPCs (notably the COMDIS and CHRES RPCs); Ministries of Health in various countries in sub-Saharan Africa, India and Cambodia; and International NGOs such as Population Services International and IntraHealth.

3.2 Research questions defined to meet stakeholders' needs (*OVI: Studies responding to documents stakeholder concerns)*

Several research projects undertaken over the past 12 months have been carried out at the specific request of key stakeholders. For example: the work on the number of LLINs required to attain universal coverage was requested and commissioned by DFID; the Division of Malaria Control in Kenya & the National Malaria Control programme in Mali were involved in shaping the research questions relating to access to malaria in

pregnancy interventions; the study on access to HIV care in Pune, India was commissioned to feed into the National AIDS control programme; and Malaria Control Programme Managers from several countries were present at the final IPTi Consortium Annual General Meeting in Geneva in January 2009, where the IPTi web-tool was presented, and feedback was received regarding their needs for implementation of an IPTi policy.

3.3 Potential users involved in planning and implementing research activities *(OVI: Number of studies involving stakeholders)*

Over half of the studies being conducted as part of the TARGETS programme involve potential users in their planning and implementation. For example: The ZAMSTAR study on the effectiveness and cost-effectiveness of novel strategies to reduce the prevalence of tuberculosis at community level was developed through consultations within the Zambian and South African national TB programmes. The MOH , district health authorities and national reference laboratory were involved in the design of the study and are involved in implementation and the research teams are embedded in the district health teams and health clinics; the National Institute of Medical Research and National Malaria Control Programme in Tanzania were fully involved in programme development workshops and contributed to the evolution of the design of the research on alternatives drugs to SP for IPT in infants. Members of DHMTs also contributed to the implementation design; the Division of Malaria Control in Kenya is contributing directly to the design of the studies concerned with monitoring and evaluating malaria interventions in epidemic prone districts in Kenya; the Lusaka District Health Management Team were co-investigators on the study on factors affecting the retention of health workers in resource poor settings;

3.4 Engagement with national and international policy organisations *(OVI: Membership of national and international policy and influencing bodies)*

International policy bodies of which TARGETS staff are members (or have contributed to) include: The IPTi Consortium; the Technical Review Panel of the Global Fund; the TBG/HIV core group of the Stop TB partnership; the WHO TB/HIV working group; the WHO technical advisory group on pesticide evaluation; the WHO technical expert group on ITNs; WHO-WPRO and WHO-SEARO planning group on regional risk mapping and disease burden estimation.

At national level examples of influencing bodies that TARGETS personnel are members of, or have contributed to, include: the TNVS stakeholder group in Tanzania (ITN strategy); the NAC, Treatment and Care Working Group, the TB/HIV Coordinating Body, the Committee on National TB Prevalence Survey and the District AIDS Task Forces (DATFs) in 5 provinces in Zambia; the ITN Strategy Task Force in Kenya.

Q. What progress has been made in terms of purpose?

Purpose: To assist key stakeholders to improve the health of the poor and vulnerable through effective and sustainable communicable disease control.

Some examples of how our research is contributing to achieving our purpose are outlined below:

- In Tanzania, the TARGETS research on the Tanzania Net Voucher Scheme is contracted by the Ministry of Health of Tanzania and results are fed back promptly and directly to the Ministry and other implementing partners. As such, there is excellent scope for results to be translated quickly into practical action that benefits the populations at risk – pregnant women and children under five.
- In Kenya, work by members of the TARGETS RPC has contributed significantly to shaping the National Implementation Framework for Insecticide Treated nets.
- The development of the web-based decision tool for the intermittent presumptive treatment of infants (IPTi) for malaria prevention will assist District Health Management Teams to make informed decisions regarding the value of implementing IPTi in their districts.
- Research by the TARGETS RPC has directly informed the introduction of a new strategy for patient-centred TB treatment in Tanzania which will facilitate access to the poorest & most vulnerable.
- Results from the TB drug resistance survey (DRS) in Tanzania have led to the identification of patient clusters with MDR (retreatment in urban settings). This can lead to much needed improvement of routine surveillance systems in the country.
- In southern Africa, research on the interactions among TB, HIV and food insecurity have helped to highlight the strong association between food availability and TB in Zambia & South Africa. The results emphasise the need for TB programmes to address the nutritional as well as treatment needs of the most vulnerable individuals and households.
- Three years of interventions in 16 sites in Zambia have improved case-detection for TB, HIV counselling and testing uptake, as well as increasing demand for TB services and for TB/HIV integrated services. Anti-stigma education has been rolled out to all 16 sites and a further 3 in Eastern Province.

Q. What evidence is there for interaction with policy makers and other stakeholders?

Below are examples of interactions with policy makers and stakeholders from the bottom up, local to national to international:

LOCAL LEVEL:

- In Tanzania: Regular monthly meetings, workshops, annual conferences and informal interactions with contractors, district and ministry officials on addressing challenges on the voucher distribution, net availability, training and promotion of TNVS.

NATIONAL LEVEL:

- In Uganda: Malaria control programme funded the study with drugs and diagnostic tests
- Staff from TARGETS met DFID Health Advisors during their annual meeting.
- UK STOP TB sent a letter to Gordon Brown about the TB situation nationally.

INTERNATIONAL LEVEL:

- The results of the IPTi studies from Tanzania were presented to the WHO Technical Expert Group and this had a huge impact on the IPTi policy which will be made in May 2009.
- DRS was set up in close collaboration with WHO. Preliminary estimates have been used by WHO to update their global report on drug resistance.
- The involvement of KNCV in drug resistance and their experience in Tanzania enabled membership of the drug-resistance expert meeting of WHO.
- Ruth McNerney continued to contribute to policy formation regarding the development and evaluation of diagnostic tests for TB. This included work with the STOP-TB Working Group and as a consultant to other interested parties.

Good communication of results

Q: Is your research reaching the targets set out in your Communication Strategy?

As set out in the communication strategy, results are disseminated both within and beyond their specific research and policy networks. The consortium continues to publish in peer reviewed journals at international level. The spread of TARGETS research has increased as the consortium's partnerships have expanded. Research expertise is disseminated and developed through collaborations in new countries with other academic institutions, funders, government bodies and NGOs (e.g. Department of Community Health, School of Medical Sciences, Kwame Nkrumah University of Science and Technology Kumasi, Ghana (KNUST)) both with regards to strategy development and new research projects.

Q: Have you faced any particular challenges or successes in implementing your communication strategy?

Comments from partners:
'It is difficult to convince the MoH that outside partners also need to be informed of research findings, which is the reason we organised formal dissemination workshops for both patient-centred treatment and DRS'
'Informing the scientific community is not a priority of the NTLP. Instead, it is left to the TA consultant' **(KNCV)**

'We have always been dedicated at reporting findings back to participants of research at community level with the use of flyers, disseminations and even workshops. But until the recent recruitment of a PAC officer, communicating what we do to a broader audience has been a challenge due to shortage of time and not having the appropriate skills to do this. To a large extent we are opportunistic in this regard – responding to conferences and meetings and training opportunities' **(ZAMBART)**

Researchers from MAAS-CHRD held two meetings to disseminate the findings of the collaborative intervention research study (completed in December 2008). The dissemination to public sector generated a discussion on the involvement and commitment of the private practitioners, and it appeared that they saw the private sector more as an adversary than a partner. There was little discussion on the willingness and commitment of the public sector and its role in strengthening and sustaining of the PPM. The participation of private practitioners was limited in terms of the number of practitioners who attended the meeting and in the less engaged discussion that followed the dissemination event. (**MAAS-CHRD)**

Q: Have any other changes been made to the Communications Strategy other than those described above?

See Annex 4.

Theme 3ii: What are the research impacts?

Q: What methods are being used to collect and monitor baseline evidence in order to track programme impact on poverty?

Below are examples of tracking the impact on poverty:

- In Tanzania (KNCV)**:** The TB-prevalence study will most likely start this year. The assessment of poverty on the household level is still seen as a major component of the survey. There are ideas developing (outside TARGETS) to use this information to plan interventions for improving health systems in relation to identified SES.
- In Zambia**:** Inadequate health services and limited access to health services highlighted through various studies – namely a TB prevalence survey in two communities, an epidemiological study of TB and poverty in the same communities, an anthropological study of TB and food insecurity and more recently, rapid qualitative work in three rural districts looking at the quality of encounters between patients and health providers. A variety of methods were used in these studies including: cross-sectional methodology and structured questionnaires along with the collection of specimens for TB and HIV.
- In Tanzania (Ifakara): Population based household survey and voucher tracking studies collects data on net coverage/use and information/health knowledge in different socio-economic quintiles. Our studies have found that the distribution of vouchers is relatively equal across socioeconomic groups but voucher redemption (voucher use) is higher among the least poor. This evidence has been used to support the case for an additional "equity voucher" to assist those women who cannot afford to pay the required top-up. But experience from the pilot of the voucher proved too difficult for implementation at national scale due mainly to management issues.
- In Tanzania (Ifakara): the reported additional analysis of the socioeconomic distribution of nets through different channels in the districts which had both the voucher scheme and a distribution of free nets in 2005 has not been implemented. This will be undertaken as a PhD study by Hadji Mponda with results expected by the end of November 2009.

Q: What evidence is there that policy makers and stakeholders have increased awareness of your research findings and that this has led to changed attitudes and practice?

Below are examples of changes in attitudes and practice associated with TARGETS research:

- In Tanzania (KNCV) the results of the patient centred treatment has led to a nation-wide scale up of the strategy.
- In Tanzania (KNCV) the results of the DRS and its projection of the number of MDR cases has informed the Green Light Committee and made it possible for the NTLP to order 2nd line treatment for reduced prices. It has also identified challenges that need to be overcome in MDR treatment.
- In Zambia: use of microscopists within districts and continued uptake of microscopist training.
- In Tanzania (Ifakara) results from the first round of TNVS M&E (2005–2007) on the voucher based delivery system for bednets in Tanzania revealed four key findings: (i) there were specific health system based variables that affected coverage of the bednet vouchers and, once identified and addressed, coverage could be considerably improved. (ii) there were significant year on year increases in household ownership of any bednet (iii) besides increased bednet coverage, re-treatment remained a significant challenge to achieving full public health impact (iv) the voucher scheme in itself was not sufficient to redress the inequity in ownership of bednets: the most poor socio-economic strata of Tanzania continued to have the lowest coverage estimates. Our study results have raised awareness and drawn attention that the scheme is only slowly increasing rates of net coverage and use. Hence, the National Malaria Control Programme has developed a plan of work for the next five years which focuses on addressing this issue. Their activity plan will include a multiple bednet delivery system involving a voucher approach and free bednets to under fives to work simultaneously and at scale with mass media education campaigns, re-training of clinic staff and a country-wide free bednet dipping campaign.
- In India: a four-month intervention for strengthening the referral and feedback system and encouraging zonal referrals was piloted in five out of eight administrative zones in Pimpri Chinchwad Municipal Corporation. Special referral and feedback slips were printed for the project. Referral and feedbacks made during the pilot period were documented and analysed. Post intervention evaluation interviews were carried out with a sample of private practitioners who participated in the project and with programme staff who were involved in the project. The findings suggested that frequent visits to urge practitioners to refer patients to the zonal microscopy centres, assurance regarding receipt of feedback and receipt of written feedback encouraged practitioners to refer to the zonal microscopy centres. The project highlighted the fact that even though referrals made to designated zones received more feedback, overall feedback was not provided for almost half of the referrals made by private practitioners. The referral and feedback slips were well received and found convenient to document detailed information of the patients referred. The pilot project was useful in highlighting the feasibility of a systematic referral and feedback

system, while pointing out the areas that needed strengthening for its effective implementation.

Q: What progress has been made in terms of north-south, south-south and south-north learning?

Below are examples of linked learning:

North- South:

- At ZAMBART, seven northern based researchers actively engaged in studies in Zambia.
- MAAS-CHRD, in collaboration with LSHTM, held the TARGETS annual partners meeting in Pune between 15 to 17 December 2008. This meeting provided an opportunity for all MAAS-CHRD researchers to listen and learn from the work undertaken by researchers from the lead partner institution (LSHTM), the European partner (KNCV TB Foundation) and African partners from Tanzania (Ifakara Health Institute) , Uganda (Makerere Medical College and the Infectious Diseases Institute) and Ghana (INDEPTH Network of Demographic Surveillance Systems).

South-South:

- KNCV, In Tanzania, possible add-on study on patient centred treatment tries to link another Tanzanian research group with the NTLP.
- A link has been established through which laboratory scientists from Kampala visited the Zambian TB National Reference Laboratory and Zambart to exchange experiences working with liquid culture systems and testing for TB drug resistance. An exchange visit is planned for 2009.

South-North:

- There are now 6 Zambian staff registered to do PhDs at LSHTM, 1 Zambian staff registered at Basle University to do a PhD, and 5 registered to do MScs at LSHTM.

3. LESSONS LEARNT

Working with partners

Stories and anecdotes have been collected from partners about experiences, both positive and negative. A few are listed below:

- ZAMBART: Disappointed that we never managed to carry out comparative work with India after the good relationship established with MAAS-CHRD.
- In Tanzania at Ifakara, initially, partners were unsure about the role of monitoring and evaluation within the framework of national implementation. Time was taken to ensure that the global environment of increasing ITN

coverage was understood. The role of M+E as an information tool rather than an auditing process was emphasised.

- MAAS/CHRD and NARI: We initiated a collaborative study on family care givers for HIV in urban Pune with NARI. This study was an attempt to replicate a similar study undertaken by the MAAS-CHRD team a year back. Both the institutes worked together on developing the protocol and study tools and are implementing the study. The challenge in implementing this study from the beginning was the busy schedule of the co-investigators from NARI which resulted in low priority setting and quality time accorded by them to facilitate the study. Another problem was the inadequate training and experience of field investigators at NARI to carry out this qualitative research study. Both these factors influenced the time-line of the study, and the four-month data collection phase has now extended beyond eight months. This has implications on all our future collaborative undertakings with NARI.
- MAAS/CHRD and NARI**:** The second study on HIV-TB integration for which we have again collaborated with NARI is supported through the DFID EFA consortium. For this study, Dr. Karina Kielmann, from the EFA consortium who is also one of the staff of TARGETS, is the Principal Investigator. Right from the planning stages of this project, the Principal Investigator and Co-Investigator from NARI failed to prioritize the project and failed to meet the deadlines. This resulted in tensions between Dr. Karina Kielmann, the administration at the EFA consortium and the NARI team as a whole and as one of the partners, we have been caught in this tussle of politics and power dynamics. These dynamics, at one point of time this year, even strained our relations with NARI and to reduce tensions finally, the institutional heads of both NARI and MAAS had to sit together and chart out plans to restore harmony. In this episode, we as a small organization, had to do a lot of balancing as we were constantly 'being sandwiched' between two powerful actors. This was not an easy situation to be in; we did not want to get onto the wrong side of NARI because it is a premier AIDS research institute in India and as one of the partners of TARGETS working with Dr. Karina Kielmann, we were not in a position to help her out as well. After the intervention by the MAAS Executives, we were able to overcome some of the problems and are now looking forward to launch this important study. This experience is a good example of how international and national power structures fail to understand and accept local realities, constraints and the potential adverse implications of their politics on the survival and sustenance of local organizations.

Good practice/innovation

- In Tanzania**:** difficult data management in DRS had led to installing a formal data management unit in the central TB-lab with new equipment and a separate server for data, financed by PATH.
- At ZAMBART, a TB stigma module has been produced.
- In Tanzania: engaging with implementers of the system at all stages of this research has engendered trust and appreciation of the process. While retaining all independence, partners were regularly invited to review survey tools prior to implementation. In November 2008, we had an M&E workshop to discuss new

requirements and strategies. One of the recommendations from the workshop was the need to harmonise the national household surveys.

Project/programme management

- In Tanzania**:** Positive: DRS identified poor data management throughout the TB-lab and NTLP. KNCV kept stressing this point, arguing that the planned TB-prevalence survey would require high-quality data management. This resulted in a full-time data manager being employed by NTLP**.** Negative: communication in the NTLP is channelled exclusively through the programme manager who is often away and does not delegate. Thus, the decision making process is delayed along with the implementation of studies.
- At ZAMBART, apart from the last Pune meeting, we have always participated at the Consortium meetings and agendas and minutes of meetings in London are sent on a monthly basis so we know what is happening.

Communication

Internal communication is sometimes difficult across partners in different geographical locations and between disciplines and disease specialisations. The annual meeting was conceived as a prime opportunity to elicit information and ideas on the outputs of specific projects and possible relevant communications activities to be developed. The facilitation of workshops by IDS communications resource people at the meeting was intended to structure and guide this process. However, bringing facilitators in from an external organisation unfamiliar with the particular structure and projects of the TARGETS RPC proved to be a barrier to the relevance and level of expertise they might otherwise have been able to provide. Any future consultations would need to be planned by TARGETS according to more specific objectives, and according to a less general communications remit.

Comments from partners:

'Communication with most Southern based partners and with the malaria group has been difficult. The exception to this would be communication with Indian partners (MAAS) which has been facilitated by exchange visits' **ZAMBART**

4. PROGRAMME MANAGEMENT

How are researchable problems/themes being defined and prioritised?

Through the communication strategy and links with stakeholders. For example, at Zambart, 'researchable problems are discussed with local stakeholders such as national programme managers and reference is made to national documents to ensure that the research is relevant to the programme and the country. Peer review of the TARGETS funded projects, helps to ensure that the agreed research questions are relevant to the consortium. The design of the RPC allows for flexibility to respond to emerging research questions and to be able to contribute to building the research capacity of stakeholders (See previous annual report)

What mechanisms are there for partners to contribute to programme management?

There are monthly TARGETS meeting held in London. Each partner has the opportunity of attending the meeting through Skype. Minutes are sent to all members of the consortium

Have there been any changes to the programme during the reporting period?
There have been staff changes. Ms Alex Miller the RPC Manager has been on maternity leave and her position is being filled by Ms Suzanne Welsh.

How do these changes address gaps between achievements, outputs and purpose?
The main change to the format of the RCP has been the appointment of a new communications officer. Alex Hyde has been focussing on communication plans for the final year of the RPC

Have any key assumptions changed which lead to a re-assessment of risks? If so, please ensure details are included in Annex 3 (Risk Assessment).
The main concerns for the RPC in its final year, is what next?

Effectiveness of on-going monitoring arrangements.
The annual review of the RPC took place in Pune in December and was hosted by MAAS/CHRD. Presentations to Indian stakeholders were followed by discussions on outputs for the RPC and the final year of funding.

Progress of expenditure and steps taken to ensure research budget was fully spent. Any problems areas? Any significant changes in plan?
There was an underspend of approximately £70,000 which has been carried over to the next year. There need to be discussions with DFID about the next call for funding and the process to be undertaken to manage the transition.

Has any multiplier funding been obtained? If so, summarise here and provide information in Annex 2.
Year 4 has seen over **£4 million** in additional external funding obtained for TARGETS activities. Details of this and ongoing multiplier funding worth more than £**48,000,000** are provided in Annex 2.

Comment on the pattern of expenditure by quarter and the reasons for any significant periodic concentrations of expenditure and significant under or overspends.
No comment.

Staff changes:
Several staff members have left the programme:
Dr Dirk Mueller, the economist/ health systems analyst has taken up a new position in Germany
Dr Ilona Carneiro has moved to Spain
Dr Jo Lines has been appointed to the Malaria Division at WHO and left the programme in March. His position, as coordinator of the malaria group, has been filled jointly by Professor Daniel Chandramohan and Dr Caroline Jones.

Ms Alex Miller has been on maternity leave since November 2008 and her position as TARGETS RPC Manager is being filled by Ms Suzanne Welsh in addition to her other duties.
Ms Clare Sullivan left the programme in November 2008. Her position was filled by Bernadette Henson in March 2009.
Ms Alex Hyde was appointed as the new communications officer in November 2008.

Links with other RPCs:
There are now strong links with the CREHS consortium as well as EFA and with COMDIS through the CAG

The CAG
The CAG meetings occur annually and have been an important focus for the RPC in terms of monitoring and discussions with experts as well as DFID.

ANNEXES

1. **LOGICAL FRAMEWORK**
2. **FINANCIAL SUMMARY (including multiplier funding received)**
3. **RISK ASSESSMENT MATRIX**
4. **COMMUNICATIONS STRATEGY**
5. **PRODUCTS AND PUBLICATIONS**
6. **DEVELOPING CAPACITY**
7. **LIST OF ABBREVIATIONS**