

<p><b>Institution:</b> University of Cambridge</p>
<p><b>Unit of Assessment:</b> Anthropology and Development Studies</p>
<p><b>Title of case study:</b> Improving health outcomes by alleviation of poverty and undernutrition in women and children in Bangladesh.</p>
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p>
<p>During the last 20 years Mascie-Taylor's research has had a significant influence on both the UK and Bangladesh governments' policy, practice and understanding in relation to food supplementation and the association between poverty and undernutrition. This research was responsible for demonstrating that existing approaches to improving nutrition were not effective, and suggested reasons for this. As a result of this advice, both the policy and programme approach were changed in 2011. By being the catalyst for these changes, the study has benefited the poor of Bangladesh, improving their health and wellbeing while supporting the introduction of these changes which have led to improved levels of nutrition and reduced individual and household poverty. For example participants of the programme (n=250,000 households ~ 1million individuals) reported ten-fold increases in savings and reduced prevalence of chronic illness, from 15.6% to 4.8% between 2010-12.</p>
<p><b>2. Underpinning research</b> (indicative maximum 500 words)</p>
<p><u>Overview:</u> The first United Nations Millennium Development Goal (MDG1) is to eradicate extreme poverty and hunger by 2015. In South Asia 36% of the population live in extreme poverty (less than US\$1.25 a day) and undernutrition is among the highest in the world. Nick Mascie-Taylor, who joined the University of Cambridge in 1974, has been Professor of Human Population Biology and Health since 1999 in the Department of Archaeology and Anthropology, together with members of his research group, have undertaken a wide-reaching programme of research on the effect of poverty and undernutrition in Bangladesh which has underpinned the impact described in this case study.</p>
<p><u>Research:</u> Professor Mascie-Taylor was the overall principal investigator leading the underpinning collaborative research in the period 2000-2012, involving members of his research group and researchers/advisors from NIPSOM - National institute of preventive and social medicine, Dhaka, Bangladesh; DFID and the University of Dhaka, Bangladesh (details below).</p>
<p>Undernutrition is primarily caused by inadequate dietary intake (both quantity and quality) and disease, but the underlying driver is poverty. Mascie-Taylor's initial research evaluated a Government of Bangladesh-funded food supplementation programme (Bangladesh Integrated Nutrition Program, BNIP, later the National Nutrition Program, NNP) involving pregnant mothers and under two years of age children. Under the programme undernourished pregnant women and undernourished children under 2 were given food.</p>
<p>Although the aims of the BNIP programme were considered highly laudable, DFID was concerned that the BNIP was not actually succeeding in improving infant weight gain. Thus, with funding from DFID (distributed through The British Council) Mascie-Taylor was asked to lead a research project to evaluate the programme processes and its outcomes. The research took place between 1999 and 2003 involved local colleagues from the Department of Health Economics, University of Dhaka (Begum) and the National Institute of Preventive and Social Medicine (NIPSOM) (Nahar, S) - the national level public health institute under the University of Dhaka, Bangladesh; which in addition to research supports health policy formulation of the government of Bangladesh and community health programs through research, training and services. . This research showed that the BNIP was not effective in a number of respects. For example, undernourished pregnant mothers were poorly diagnosed, compliance was low and there was no significant impact of food supplementation on improving birth weight (Nahar et al., 2009); infants receiving supplementation did not grow better and there was no evidence of improvement in nutritional status (Begum et al., 2007) <sup>(1)(3)</sup>. The research demonstrated that some of these disappointing outcomes were a</p>

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consequence of the design and implementation of the programme: in particular, targeting of the programme beneficiaries was not appropriate while the food supplement provided to children and pregnant women was of low nutritional quality. Accountability in the programme was sub-optimal and the monitoring and evaluation mechanisms were weak. Furthermore, the programme had not covered any of the cities with substantial slum populations.

In a later study <sup>(2)</sup> Mascie-Taylor led the investigation of the impact of poverty alleviation programmes on nutritional intake and outcomes. In Bangladesh after the planting of the Aman rice crop there is a hunger season (September to November) primarily due to a lack of job opportunities for rural workers. Between September and December 2007, working with DFID colleagues on their Chars Livelihood Programme (Marks, MK and Islam R), Mascie-Taylor's team (involving Dr Rie Goto, Research associate, University of Cambridge, since 2008) conducted a study investigating a policy concern that a cash-for-work programme for mothers might cause undernutrition as women undertook more physical work away from their families. The study looked at households who took part in the cash-for-work programme and similar households not taking part in the programme, and concluded that the cash-for-work programme had led to greater household food expenditure and consumption and women's and children's nutritional status had improved, adding that "over the longer term, the significant reduction of both acute and chronic malnutrition among *chars* dwellers will depend on lifting them out of poverty" (Mascie-Taylor et al., 2010).<sup>(2)</sup>

**3. References to the research** (indicative maximum of six references)Key Publications

1) Begum HA, Mascie-Taylor CGN & Nahar S. (2007). The impact of food supplementation on infant weight gain in rural Bangladesh; an assessment of the Bangladesh Integrated Nutritional Program (BINP). *Public Health Nutrition* 10, 49-54.  
DOI: <http://dx.doi.org/10.1017/S1368980007219639>

2) Mascie-Taylor, C. G. N., Marks, M. K., Goto, R., & Islam, R. (2010). Impact of a cash-for-work programme on food consumption and nutrition among women and children facing food insecurity in rural Bangladesh. *Bulletin of the World Health Organization*, 88 0, 854–60.  
DOI: <http://dx.doi.org/10.2471/BLT.10.080994>

3) Nahar, S., Mascie-Taylor, C. G. N., & Begum, H. A. (2009). Impact of targeted food supplementation on pregnancy weight gain and birth weight in rural Bangladesh: an assessment of the Bangladesh Integrated Nutrition Program (BINP). *Public Health Nutrition*, 12, 1205–12.  
DOI: <http://dx.doi.org/10.1017/S1368980008003765>

Research Grants

The British Council/DFID: 2000-3 – £135'000, Professor Nick Mascie-Taylor

DFID/UKAid – SHIREE Project £75 million 2008-15 ([www.shiree.org](http://www.shiree.org))

DFID/ UKAid – Chars Livelihoods Programme (CLP) phases 1 and 2 £138 million 2004-16 (including £10 million AusAid) [www.clp-bangladesh.org](http://www.clp-bangladesh.org)

**4. Details of the impact** (indicative maximum 750 words)

Mascie-Taylor's research has been widely recognised as having had a significant influence on UK and Bangladesh government policy, practice and understanding in relation to food supplementation and the association between poverty and undernutrition. By being instrumental in bringing about changes in government policy and practice, the study has benefited the poor of Bangladesh and improved their health, wellbeing and nutrition and reduced individual and household poverty through new programmes involving 250,000 households (~1 million participants).

Professor Mascie-Taylor and his research team were invited to initially disseminate the research findings in 2003 through a half-day symposium held at the National Institute of Preventive and Social Medicine (NIPSOM), Dhaka with key stakeholders as well as at meetings with World Bank

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and DFID personnel. Naturally, the findings from NMT's research around the lack of impact of the BINP on infant weight gain caused significant concern. Following this and with input from Professor Taylor and citing the above research (p.155), the Operations Evaluation Department (OED) an independent unit within the World Bank; carried out a re-analysis of the BINP outcome data and published the report '*Maintaining Momentum to 2015? An Impact Evaluation of Interventions to Improve Maternal and Child Health and Nutrition in Bangladesh*' (February 2005, OED, World Bank)<sup>(a)</sup>, drawing similar conclusions (e.g. p.38 '*However, nutritional outcomes in terms of low birth weight have been disappointing*'. p211 '*Participation in supplementary feeding was not found to have a significant impact*')<sup>(b)</sup>

This report then led to a second World Bank report in 2005 '*The Bangladesh Integrated Nutrition Project, Effectiveness and Lessons*' aiming to address this controversial issue. The report states 'p.iii

*'There has been considerable debate in the press and the scientific community and among development partners about the impact of BINP. This study tries to lay that debate to rest by critically reviewing the various evaluations and trying to explain the variation across the results that were obtained.'*

The report repeatedly cites the findings of the above research as well as the OED re-analysis, and reluctantly acknowledged the validity of NMT's findings on supplementary feeding and weight gain. For example it states

*'the available evidence from BINP does not show that it improved growth in BINP children, weight gain in pregnant women, or birth weight in infants.'* (p.37).

Eventually, a clear impact of the research on policy and practice was the ending of the National Nutrition Programme in 2011 as a result of the recognition by the Government of Bangladesh (GoB) and The World Bank that Mascie-Taylor's independent research had shown a number of significant weaknesses in the programme's design and implementation. In the light of these weaknesses, the GoB, in the new Health, Population and Nutrition Sector Development Programme (HPNSDP, 2011-2016), closed the NNP<sup>(c)</sup> and decided to implement a new policy incorporating the outcomes of Mascie-Taylor's earlier research

Subsequently, DFID has collaborated with the Government of Bangladesh in two projects designed to meet MDG1, again building on Mascie-Taylor and team's evaluations of the BINP/NNP and CFW programme. These programmes, Shiree/Economic Empowerment of the Poorest Programme (EEP), aim to bring 1.5 million people out of poverty by 2015 and involve a number of NGOs. As a result of the importance attached to his research outcomes, Mascie-Taylor was invited to become the Nutrition Advisor on these projects and also to lead the evaluation of the effectiveness of the programmes. His engagement on the project has extended to capacity building for local staff to undertake monitoring and evaluation. Evidence from the programme evaluation (being undertaken by Mascie-Taylor and Goto for DFID) has already shown significant benefits to programme participants (DFID, 2011, 2012 and 2013)<sup>(d,e)</sup>. Improvements were also found in wealth and income, expenditure, nutrition and health.

In the first year of the programme (2010-2011) **average household assets rose** by 7000 Taka/month and again by 3000 Taka/month between 2011 and 2012. Mascie-Taylor's research into this improvement has attributed this to increased animal ownership (an increase of 28.4% to 63.9% of households) and land ownership (15.2% to 31.4%).

**Income also rose** - from 1766 Taka/month to 3298 Taka/month in 2012. Whilst expenditure also rose over the period (from 19.5 Taka pppd to 26.3 Taka pppd), by 2012, nearly all households on the programme devised mainly by Mascie-Taylor had managed to accumulate some cash savings (84%) compared with less than 36% at the outset of the programme in 2010. Furthermore, the amount of savings had increased by over 10 fold (from about £3 to over £30).

The increased household income and in rural areas the promotion of household gardens resulted in nearly all household reporting **improved nutrition**. Most householder members reported eating three meals/day and with greater food diversity, especially increased consumption of fish, eggs

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and green leafy vegetables.

There are positive signs of the programme having fostered **improvements in nutritional status** with adults gaining weight and the prevalence of anaemia falling. In children the prevalence of anaemia, which had been very high at over 60%, fell to only 36%, which is less than the national prevalence.

The programmes have also been associated with **improvements in health**. For example, subsequent analysis of the results has shown that the proportion of programme participants reporting chronic health conditions dropped from 15.6% to during the same period. There were also reported reductions in fever and coughs in children and babies.

A summary of impact is provided below (reproduced from report). (DIFD, 2012) <sup>(d)</sup>

**Summary** ✓✓ = significant improvement, ✓ = trend of improvement

	1&4	1&7	4&7
Family Size	✓	✓✓	✓
Illness	–	✓✓	✓✓
Land	✓✓	✓✓	✓
House ownership	–	✓	–
House Material	–	–	–
Loan	–	–	–
Cash savings	✓✓	✓	✓
Assets	✓✓	✓✓	✓✓
Income	✓✓	✓✓	✓✓
Expenditures	–	–	–
Net Income	✓✓	✓✓	✓✓
Food	✓✓	✓✓	✓✓
Adult weight and BMI	✓✓	✓✓	✓✓
Adult Anaemia	–	–	–
Child z-scores	–	–	–
Child stunting	–	✓✓	–
Child anaemia	✓✓	✓✓	✓✓

In summary Mascie-Taylor's research has directly influenced government policies in a way that has changed the lives of thousands of people in the most profound way possible, helping to alleviate the worst effects of poverty.

### 5. Sources to corroborate the impact (indicative maximum of 10 references)

a) Maintaining Momentum to 2015? An Impact Evaluation of Interventions to Improve Maternal and Child Health and Nutrition in Bangladesh' (February 2005, OED, World Bank)

<https://openknowledge.worldbank.org/handle/10986/7372?show=full>

b) World Bank (2005). The Bangladesh Integrated Nutrition Project, Effectiveness and Lessons, *Bangladesh Development Series – paper no.8*.

<http://siteresources.worldbank.org/NUTRITION/Resources/BNGBINP8.pdf>

c) HNPSP Annual Report; Section 2.9.2 covers some of the limitations of NNP. [www.hsmgdghs-bd.org/Documents/Doc\\_APR%20%20MTR.pdf](http://www.hsmgdghs-bd.org/Documents/Doc_APR%20%20MTR.pdf)

d) Presentation to DFID (2012). CMS-3 Socio-Economic Survey Report. Monitoring the changes in Socio-Economic & Nutritional status of extreme poor households between March 2010 and March 2012. <http://r4d.dfid.gov.uk/pdf/outputs/eep/cms3march2012presentation.pdf>. Full Reports for 2010, 2011 and 2012 also available from HEI on request.

e) Mascie-Taylor, C. G. N. (2013). Analysis of the CLP's Nutritional Monitoring Database. Report to DFID, (3 January 2013) 1-24. <http://r4d.dfid.gov.uk/Output/192146/Default.aspx>