

WORKING PAPER NO. 51

Promoting Early Childhood Development through a Public Programme: Wawa Wasi in Peru

July 2009

Santiago Cueto

Gabriela Guerrero

Juan Leon

Alvaro Zevallos

Claudia Sugimaru



Promoting Early Childhood Development through a Public Programme: Wawa Wasi in Peru

July 2009

Santiago Cueto

Gabriela Guerrero

Juan Leon

Alvaro Zevallos

Claudia Sugimaru

Promoting Early Childhood Development through a Public Programme:
Wawa Wasi in Peru

Santiago Cueto, Gabriela Guerrero, Juan Leon, Alvaro Zevallos and
Claudia Sugimaru

First published by Young Lives in July 2009
© Young Lives 2009
978-1-904427-57-5

A catalogue record for this publication is available from the British Library.
All rights reserved. Reproduction, copy, transmission, or translation of any
part of this publication may be made only under the following conditions:

- with the prior permission of the publisher; or
- with a licence from the Copyright Licensing Agency Ltd.,
90 Tottenham Court Road, London W1P 9HE, UK, or from another national
licensing agency; or
- under the terms set out below.

This publication is copyright, but may be reproduced by any method without
fee for teaching or non-profit purposes, but not for resale. Formal permission
is required for all such uses, but normally will be granted immediately. For
copying in any other circumstances, or for re-use in other publications, or for
translation or adaptation, prior written permission must be obtained from the
publisher and a fee may be payable.

Available from:
Young Lives
Department of International Development
University of Oxford
3 Mansfield Road
Oxford OX1 3TB, UK
Tel: +44 (0)1865 281751
Fax: +44 (0)1865 281801
E-mail: younglives@younglives.org.uk
Web: www.younglives.org.uk

Printed on FSC-certified paper from traceable and sustainable sources.

Contents

Abstract	ii
Acknowledgements	ii
The Authors	ii
1. Introduction	1
2. The Programa Nacional Wawa Wasi	2
2.1 Research on Wawa Wasi	5
3. Methods	8
3.1 Design	8
3.2 Sample characteristics	9
3.3 Variables and procedures	12
4. Quantitative results	13
4.1 Outcome variables	15
4.2 Independent variables	15
5. Qualitative results	18
5.1 Functioning of Wawa Wasis	18
5.1.1 Food service	19
5.1.2 The Mother-Carers' relationship with children and their parents	20
5.2 Programme staff training	21
5.2.1 Training of Mother-Carers	21
5.2.2 Training of Field Coordinators	23
5.2.3 Training of Management Committees	23
5.3 Role of Field Coordinators	23
5.4 Role of the Management Committee	25
5.5 Job satisfaction of a Mother-Carer	27
5.6 Wawa Wasi Programme as work and/or study opportunities for local mothers	29
5.7 Assessment of the Wawa Wasi Programme by treatment families and programme staff	31
5.8 Assessment of the Wawa Wasi programme by contrast families	33
6. Conclusion and recommendations	34
References	36
Appendix 1 Summary of main studies for Wawa Wasi	38
Appendix 2 Probit regression and matching results at different levels of confidence	40
Appendix 3 Abilities/skills that Mother-Carers stimulate in the children during routine activities in the Wawa Wasi.	42
Appendix 4 Coefficients of Variation for variables in Table 1 (p.7).	43

Abstract

This paper presents the results of a Young Lives study into the impact and perceptions of the Programa Nacional Wawa Wasi, a Peruvian government programme for impoverished children aged six to 48 months. Up to eight children spend five days a week at a Wawa Wasi centre where they are assisted by a carer carefully selected from the local community. The results suggest that children who have spent at least six months at a centre have similar indicators in gross motor, language and fine motor development to children who have stayed at home. Interviews with several key actors indicated a positive outcome: centres are environments where children are kept safe and fed nutritious meals, freeing mothers of worries and enabling them to work or study. However, Wawa Wasi's goal of improving children's development is not sufficiently prioritised. There is a need for Wawa Wasi managers to strengthen early learning components of the programme, to enhance the skills of those who provide care and to recognise the dedication of paid carers and volunteers who have contributed to Wawa Wasi's success.

Acknowledgements

The authors would like to thank all personnel from the Wawa Wasi office for assistance during this study, especially Amparo Muguruza, the National Director, and Víctor Acero. Thanks also to Wawa Wasi personnel at the different sites where interviews were conducted. We are grateful for the comments from Ernesto Pollitt, Robert Myers and Martin Woodhead on a draft version of this paper.

The Authors

Santiago Cueto is Senior Researcher at Peru's Grupo de Análisis para el Desarrollo (GRADE), Senior Researcher and Policy Coordinator of the Young Lives International Project, and professor in the Psychology Department at the Pontificia Universidad Católica del Perú.

Gabriela Guerrero is researcher at GRADE.

Juan Leon is a doctoral student in the Department of Educational Theory and Policy Analysis at Pennsylvania State University.

Claudia Sugimaru and **Alvaro Zevallos** are research assistants at GRADE.

Young Lives is core-funded by the UK Department for International Development (DFID) for the benefit of developing countries, with sub-studies funded by International Development Research Centre (IDRC) in Ethiopia, UNICEF in India, Irish Aid in Vietnam and the Bernard van Leer Foundation.

The views expressed here are those of the author(s). They are not necessarily those of the Young Lives project, the University of Oxford, DFID or other funders.

1. Introduction

In 1993, the Peruvian government created the Wawa Wasi National Programme to promote the optimal development of children aged six to 48 months in impoverished areas.¹ It is the largest programme of its kind in Peru but only a few studies have analysed its impact on the lives of participating children and their families. This paper presents and discusses information on the subsequent development of a sample of children who went to Wawa Wasi in comparison to children who did not participate. It also provides qualitative information on the implementation of the programme and on ways key actors believe the functioning of Wawa Wasi could be improved. Both quantitative and qualitative information are combined to suggest some policy alternatives and future research on Wawa Wasi.

Research has established that early childhood development has consequences in adult life in diverse areas such as education, income, health, fertility rates, delinquency and the development of their own children (Myers 1992). A recent study suggests that 200 million children around the world are not developing to their full cognitive developmental potential (Grantham-McGregor et al. 2007). This figure is based on the number of children who grow up in poverty and/or are stunted (in view of the scarcity of data on levels of cognitive development with nationally representative samples). In Peru, according to the National Institute of Statistics (INEI 2006), 65.4 per cent of children under five are growing up in poverty and 25.4 per cent are stunted (Cordero 2007). The issue of poor children's development is thus highly pertinent.

As well as estimating the number of children not fulfilling their developmental potential, there is a need to establish what types of interventions are effective. These need to be organised and/or sponsored by the state, since poor populations will not generally be able to access private services for young children. Engle et al. (2007) have reviewed research and impact evaluations on early child development programmes, concluding that the most effective interventions 'provide direct learning experiences to children and families, are targeted toward younger and disadvantaged children, are of longer duration, high quality and high intensity, and are integrated with family support, health, nutrition, or educational systems and services' (p. 229). Wawa Wasi seeks to include all of the above.

1 Wawa Wasi means 'house of children' in Quechua, the most widespread indigenous language in Peru.

2. The Programa Nacional Wawa Wasi

The Programa Nacional Wawa Wasi was created in 1993.^{2,3} Initially the responsibility of the Ministry of Education, in 1996 it was passed to the Ministry of Women and Social Development of Peru. Wawa Wasi's overarching aim is 'to promote around the country actions oriented towards generating favourable conditions for the optimal development of children below the age of four, especially those at risk'. The specific objectives are to:

- a) Provide holistic support for infants who live in poverty or extreme poverty
- b) Promote and develop, with families and communities, an adequate culture of child-rearing
- c) Promote management and pro-child volunteerism at the community level
- d) Contribute to the personal development of women and raise their quality of life, facilitating their search for opportunities in education and work.

The intervention includes several components:

- Safety: Providing a safe environment for all participating children.
- Early childhood learning: There is an emphasis on the importance of children developing in the motor, cognitive (including linguistic), affective and social domains (including identity). Each centre plans activities and has toys and learning materials appropriate to different ages. They also have a developmental chart with several milestones to be filled out monthly for each child. The overall approach sees each child as the main agent in his/her own development and not as a passive learner of lessons taught by the Mother-Carer of the Wawa Wasi. Wawa Wasi seeks to promote the potential of each child individually. Each centre is expected to incorporate local customs and traditions in promoting children's development.
- Nutrition: Children receive three meals a day (at mid-morning, lunchtime and in the afternoon), usually prepared at local community kitchens. The menus are created by nutritionists, so as to provide balanced meals. The concept of *active feeding* is promoted to generate a positive attitude towards food amongst children and let them experience new tastes, shapes, colours and flavours. Children are expected to gradually learn to feed themselves. Overall, these meals are expected to cover 70 per cent of a child's daily nutritional requirements for calories, 100 per cent for proteins, 70 per cent for iron and 60 per cent for other micronutrients. Finally, the children are encouraged to follow personal hygiene practices (washing hands, brushing teeth, putting towels away in a clean place, etc.).
- Health: Following World Health Organisation guidelines, Wawa Wasi follows a 'healthy approach' whereby children participate in a government programme (known as

2 www.mimdes.gob.pe/wawawasi

3 There have been previous programmes also called Wawa Wasi. Pollitt (1980), for example, reports on a rural programme aimed at children in Puno. Called PROPEDEINE, it has centres called Wawa Wasi (Quechua) and Wawa Uta (Aymara) for children aged three to five. The current Wawa Wasi, however, are for children from six to 48 months of age.

CRED – Control of Growth and Development) which checks them for height, weight and vaccination status. Training activities for Mother-Carers and parents involve topics on health and security. An emergency programme for children is in place for Wawa Wasi children at the local health post or hospital.

- Parental practices: The Wawa Wasis not only care for children at their premises, but also work with parents to promote child-rearing practices centred on the children's needs.

Each Wawa Wasi is attended by a Mother-Carer (*Madre Cuidadora*) who is a member of the community interested in providing the service. They are all screened to ensure they are accepted by the community, show love and care for children and can read and write fluently. Mother-Carers receive between 120 and 180 *nuevos soles* (approximately US\$37.50–\$56.25) a month depending on experience. At some Wawa Wasis parents may give additional funding to support extra pay for the Mother-Carer and/or the purchase of extra materials, but this is not regulated by the central Wawa Wasi office. Mother-Carers receive initial training and are periodically visited by Field Coordinators (see below). They are also scheduled to receive further training every year.

There are three types of Wawa Wasi. The first, and most common, is the family Wawa Wasi, where a Mother-Carer takes care of a maximum of eight children from the community at her home. The second is the community Wawa Wasi, where local authorities provide premises that may care for up to 16 children in the charge of two Mother-Carers. Finally, there are institutional Wawa Wasis, which are sponsored by institutions that wish to adopt the practice in their own locale and which can meet all expenses. The institutions could be municipalities, NGOs, local organisations or other public or private organisations. Recently, however, the programme has started a fourth type of Wawa Wasi, called *Qatari Wawa*, aimed at children in rural communities in the Andes. These Wawa Wasis do not care for children daily but target parental practices through home visits; workshops with children, older siblings and parents and with local authorities; and other participatory activities. They do, however, establish a local community centre (*Yachay Was*) where parents and children may come and participate in activities. Wawa Wasi are trying out this model in rural areas as they have found that the traditional model is better suited to urban, Spanish-speaking parents, while rural Andean mothers are often unwilling to leave their young children with another person for several hours each day.

The Programa Nacional Wawa Wasi has 33 offices around the country for closer supervision of the activities. Each of these offices supervised several Management Committees, depending on the number of Wawa Wasis implemented. A Management Committee (*Comité de Gestión*) is set up to run each Wawa Wasi centre. Once they are approved for participation, the Management Committee will receive funds to employ Mother-Carers and pay for meals and other materials and expenses. They are required to report how they have spent these funds periodically. The members of the Management Committee are all volunteers. Each Management Committee assumes responsibility for around 12 Wawa Wasis. The organisation of Wawa Wasis also includes Field Coordinators (*Coordinadoras de Campo*), who are teachers or other professionals. Each is trained to work with two Management Committees and their Wawa Wasis. Field Coordinators are expected to supervise the all-round functioning of Wawa Wasis in their visits. They provide information to the central office which helps keep the programme up to date on the number of children enrolled, activities, the needs of specific Wawa Wasis and other issues that arise. According to the programme, children's development indicators should improve after three to six months of participation (we used six months as the criteria for this study as it is more stringent). In many sites there is a Guide Mother (*Madre Guía*) who is a former Mother-Carer

with several years of experience who is well acquainted with the programme and is in a position to help other Mother-Carers with their work. A Guide Mother monitors the Mother-Carer along with the Field Coordinator, and is also responsible for arranging cover if a Mother-Carer is on holiday or sick.

The Wawa Wasi programme is continuously revised to improve its quality. One example of this is the creation of Wawa Net, a database with information about the assets of all centres and children, their mothers and Mother-Carers. Such databases are seldom available in Peru.

In 2006, the Wawa Wasi programme had 443 Management Committees, 5,539 Wawa Wasis, 5,751 Mother-Carers and 45,895 children. By December 2007, the programme had 510 Management Committees, 6,005 Wawa Wasis, 6,678 Mother-Carers and 52,199 children. Table 1 includes information on the regions, programme beneficiaries, target population, coverage, the percentage of the population that is poor and the region's poverty ranking.

Table 1. *Coverage of Wawa Wasis by regions, ordered by coverage rate*

Regions	Number of children in Wawa Wasi ^{1/} (A)	Target Population ^{2/} (B)	Coverage Rate (A / B)*100	Percentage of population that is poor ^{3/}	Poverty Ranking ^{4/}
Moquegua	1104	3372	32.7	29.5	21
Tacna	1224	6640	18.4	25.2	23
Tumbes	1272	8180	15.5	46.8	16
Apurimac	2904	22016	13.2	47.5	14
Arequipa	3696	31172	11.9	29.1	22
Ica	1516	16712	9.1	30.9	20
Huancavelica	2896	36809	7.9	83.2	2
Lima and Callao	10789	143846	7.5	21.3	24
Puno	3428	50253	6.8	46.9	15
Ancash	3048	45353	6.7	47.7	13
Ayacucho	2066	32633	6.3	56.8	10
Pasco	1000	16595	6.0	77.5	5
Lambayeque	1848	41607	4.4	32.9	19
Cusco	2338	60888	3.8	50.7	12
Junín	1760	50156	3.5	52.2	11
Cajamarca	2688	80085	3.4	63.2	7
Ucayali	1248	39437	3.2	87.8	1
Huánuco	1442	54158	2.7	75.5	6
Piura	1784	79856	2.2	43.0	17
Loreto	1912	85953	2.2	79.3	4
Amazonas	576	25954	2.2	59.8	9
La Libertad	948	44583	2.1	34.8	18
San Martín	712	43316	1.6	60.8	8
Madre de Dios	0	8244	0.0	80.0	3
Perú	52199	1027819	5.1	41.8	

1. Source: Wawanet - *Reportes indicadores Administración de Recursos/Subvenciones sociales, Diciembre 2007* (http://WawaWasiws.mimdes.gob.pe/wawawasi/jspme/jspml/mapas/mapSub/indicador_depa2.jsp)

2. Target Population is defined as children between six and 47 months of age who live in a household with at least one Unsatisfied Basic Need as defined by the National Institute of Statistics and Informatics of Peru, INEI. (These refer to family characteristics such as parental education, crowding and services available at home.) The numbers were estimated by the authors using the ENAHO 2007 – Annual Survey. See Appendix 4 for the Coefficients of Variation, which give an indication of the precision of the estimates included above.

3. The percentage of the population that is poor is defined as persons of any age who live in households with at least one Unsatisfied Basic Need. The numbers were estimated using the survey ENAHO 2007 – Annual. See Appendix 4 for the Coefficients of Variation.

4. Based on the 'Percentage of population that is poor' presented in column 4 of this table.

Overall, the programme has higher coverage and greater numbers of enrolled children in predominantly urban coastal regions, although it also covers children in rural areas, especially in the Andes, where poverty is generally greater. Recently the programme has begun to try several models for inclusion of children in rural areas. Table 1 shows that the correlation between coverage rate and poverty ranking is 0.54, which indicates that coverage is contrary to what would be expected in being lower in the poorest regions.

The Wawa Wasi programme has a good reputation in Peru. In 2005 it received an honorary mention in the *Creative Businesses* competition in the public services award, and in 2006 its internal information service (Wawa Net) was recognised with the *Best Governmental Practices Award* in the category Internal Management Services.⁴ Also in 2006, it received an award for Social Investment in the Future at the *International Conference Cities XXI Century*, organised by a local private university. The Peruvian Ministry of Foreign Affairs has recently promoted the creation of Wawa Wasi for the children of Peruvian citizens in Chile and Italy. From 1999 to 2005, the programme received funding support from the Inter American Development Bank, but before and after was funded mainly with public money. Wawa Wasi's 2006 budget was 46,013,169 *nuevos soles* (US\$14.38 million) and the target population was 50,000 children. Including administrative and direct costs, per child expenditure was 920 soles per annum (US\$287.50).

2.1 Research on Wawa Wasi

There have only been a few external studies on the functioning or impact of Wawa Wasi.

In 1996, the Ministry of Education, the Inter American Bank for Development and UNICEF jointly published a study aimed at evaluating the Wawa Wasi programme from the perspective of key actors (MED-BID-UNICEF 1996). The study was conducted in Lima. The results showed that 90 per cent of staff working in communal kitchens thought the children in the programme were receiving balanced and nutritious food that was contributing to their healthy development. Participant families and Mother-Carers had similar opinions. Around 70 per cent of the Mother-Carers and participant families thought the service provided by the Community Health Centre to the Wawa Wasi was appropriate because they regularly checked children's height and weight, organised vaccination campaigns and provided training for the Mother-Carers on treating diarrhoea and respiratory infections. Observation of sessions conducted in the Wawa Wasis showed that only 54 per cent of the Mother-Carers carried out activities specifically aimed at stimulating the children. Most (85 per cent) of centres had toys and materials within the reach of the children, but only 68 per cent arranged the materials according to the age and needs of the children. Ninety eight per cent of participant families said they were satisfied with the service provided by the Wawa Wasi because the Mother-Carer took good care of their children, gave them appropriate food and took them to a health centre when sick. They also mentioned the progress observed in their children's development as one of the reasons for their satisfaction.

In 2001, the *Instituto de Información y Metodologías para el Desarrollo Organizacional* (INFORMET) evaluated the Wawa Wasi programme. The evaluation sought to assess the effects of the activities and services provided on the optimal development of children, especially those at risk. The evaluation was conducted in ten sites around the country. Using stratified sampling, 100 Wawa Wasis were selected. One child per Wawa Wasi was

⁴ Creative Businesses (*Creatividad Empresarial*) and Best Practices in Government (*Mejores Prácticas Gubernamentales*) are two prestigious independent awards, each organized by several private institutions annually.

observed to evaluate his/her development. All the Mother-Carers in the selected Wawa Wasis were interviewed, as were four participant parents per Wawa Wasi and two non-participant parents per community sampled. Focus groups were held with Field Coordinators, members of the Management Committees and local authorities, and official documents were analysed. No baseline was available and no control group was set up for purposes of comparison of results. The results showed that only 38 per cent of the checks of weight and height planned for the children in the programme were actually carried out. Assessment of the menus served in the Wawa Wasis showed the presence of food high in energy and animal proteins as part of the regular diet, but food rich in vitamin C and vitamin A and dairy products was less frequent. According to the results of the evaluation, 79.4 per cent of the children showed no stunting. Regarding the stimulation component of the programme, the authors found that 63 per cent of the children observed were alert and curious (90 per cent was expected). Many Mother-Carers did not show adequate knowledge of child development and stimulation. Many complained about the quality of the Wawa Wasi and the lack of toys. When asked, most parents (98 per cent) were satisfied with the Wawa Wasi, but perceived it as a programme that helped parents who worked and gave nutritious meals to children, thus helping the economy of the family. Only 30.2 per cent of participant families said they had received information about positive child-rearing practices from Mother-Carers and Field Coordinators. Only 15 per cent of participant families were familiar with the work of the Management Committee.

In 2003, Alva, Asalde and Ospina published an analysis of the working conditions of women in Wawa Wasis, which recommended that Mother-Carers receive better training and should be regarded as civil servants entitled to better incomes and social benefits (Alva et al. 2003).

In 2004, Arroyo, Reategui and Gamero published a study assessing the efficiency of Wawa Wasis. The sample included 67 Wawa Wasis in 13 sites. Four hundred children, their parents, Wawa Wasi staff and members of Management Committees were surveyed or interviewed. The evaluation used both quantitative and qualitative methods and then triangulated the information. The study found that the Wawa Wasi programme had only had a partial impact on its target population because of the institutional instability that affected it in 1999-2003. Results showed that compared to baseline data from Wawa Wasi, 58 per cent of children who had been in the programme for at least six months had a higher height/age Z score, and 62.8 per cent had a higher weight/height Z score. Development was measured by comparing achievement in several areas (language, fine motor, gross motor and personal social skills) against expected, theoretical trajectories, with mixed results. However, these are hard to interpret due to the lack of baseline information or a control group. The study found that dissemination of good child-rearing practices among parents was one of the weakest aspects of the programme. Most dissemination activities had been oriented towards improving the institutional image of the programme instead of working with parents on child-rearing practices (Arroyo et al. 2004).

In 2004, the Cuanto Institute published an evaluation of the impact the programme had had since its implementation in 2003. Its objective was to measure the effects of the programme in relation to children's health, nutrition and psychomotor development, as well as its contribution in terms of promoting good child-rearing practices among the participant families and helping participant mothers' personal development. The results of the treatment group (649 children) were compared to those of a contrast group (562 children). The Mother-Carers, members of the Management Committee and participant families were also interviewed. While the treatment and contrast groups were chosen to be as similar as possible, no statistical adjustments were made for any differences in relevant variables among the groups. This is

important given that there was no baseline. Some of the results attributed to Wawa Wasi could be confounded with background characteristics of children participating in the study. Results showed that more than 90 per cent of the children in the treatment group had been vaccinated, 78 per cent had had at least one height and weight check in the previous year and 65 per cent were registered with the public health insurance system. The prevalence of chronic malnutrition in the treatment group was 26.8 per cent, the prevalence of anaemia was 62.4 per cent and 42 per cent of the children had a deficit in their psychomotor development. No statistically significant differences were found between the treatment and the contrast group in any of these characteristics. The authors found that Mother-Carers lacked sufficient knowledge and did not show expected good practices in stimulating the children. The Field Coordinators mentioned lack of good training as an important problem for Mother-Carers. The authors also found insufficient stimulating materials and attention to personal and food hygiene. Most participant families' expressed satisfaction and considered the programme to offer a safe place to leave their children while they worked or undertook other activities. Most mothers identified food as the main service provided by the programme, whilst just 38 per cent thought of Wawa Wasi as a place where their children received stimulation.

In 2004, Chacaltana published a baseline study of Wawa Wasi using the information from Wawa Net which established a baseline for several indicators. The proportion of children with complete vaccination by the time they started the programme is relatively high (86 per cent) but the rate of children having an illness such as diarrhoea or a respiratory infection is also high (77.6 per cent). The rates are higher among children whose mothers have lower educational levels. Regarding nutrition, the information in Wawa Net indicates that 80 per cent of the children have an adequate nutritional status. If this is true, it means that the children in the programme have already reached the target established in the log frame which outlines its national goals. The author pointed out that either the programme's definition of adequate nutritional status or the target need to be revised. In relation to psychomotor development, the information available also shows that 86 per cent of the children have a level of development considered normal at the time of joining the programme (the programme uses several psychomotor tests to evaluate the children periodically and, based on that information, classifies children's development as normal, at-risk, delayed or in deficit). The fact that the target is achieved before the programme has even been started suggests that there might be an error in measurement or in the targeting process, or that the target needs to be revised. Chacaltana suggests that some of the measurements may not be reliable indicators of the status of children and proposed a control group for future measurements of impact. The author pointed out the need to distinguish the main aim of the programme: either target poor children, or their mothers, or both (Chacaltana 2004).

In 2004, Calderon did a comparative study of the development of three groups of children: those attending a Wawa Wasi, those attending private centres for which expenses are paid (*cunas*), and controls (those who stay at home). The study used an instrument developed by the Wawa Wasi programme which gave results in seven areas: basic habits, social-personal, gross motor, fine motor, object relation, time-space and communication, plus an overall score. The sample of Wawa Wasi and controls included seven sites nationally, but the private centre information was collected in Lima only. The number of children from Wawa Wasi was 1,500, whilst the combined number from private centres and the control group was 452. The author tried to collect the information from children comparable in age and gender to those in Wawa Wasi, but no statistical controls were included in the analysis. These would have been especially important in the comparison between Wawa Wasi and private centres, as parents have to pay for the latter. Also, the large number of children in each group

generates a tendency for even small differences to be statistically significant. The results should therefore be interpreted with caution. The author found better results for the children in private centres, followed by those in Wawa Wasis and then controls. Better results were found for Wawa Wasi children especially in the areas of basic habits and fine motor skills, though there was less impact in time-space. The results were higher for older Wawa Wasi children (24 to 36 months of age). The author attributes this to the fact that these children may have spent more time there (Calderon 2004).

In 2007, Boza did a comparative analysis of Wawa Wasi and another public programme. She reported that Wawa Wasis in different regions were open from 8:00 a.m. to 4:00 p.m. In some cases, parents were required to contribute to the functioning of the centre – in cash, through in-kind donations or through work. In several Wawa Wasis, they found that the rule of not having more than one child under 12 months per carer was not followed. Overall they found that Wawa Wasi worked quite well, with national directives applied so as to ensure efficiency and uniform operation across the board. The programme was recognised for its strict regulation and its system of information and accountability (i.e. the Wawa Net database and website information) (Boza 2007).

All these studies are positive about Wawa Wasi's potential to achieve its objectives. Unfortunately, the impact evaluations had severe flaws in the design or quantitative analysis which prevent causal conclusions. They had no baseline or control group, and where they had a control group, there was a lack of statistical techniques to isolate the contribution of Wawa Wasi to the outcome variables.

The studies suggest that parents and community members have positive attitudes towards Wawa Wasi. While this is not an objective measurement of the impact of the study, it does suggest that the programme has become a recognised initiative for children in Peru. The positive perceptions of the programme seem more associated with the fact that the programme provides a safe space for children, meals and health checkups, allowing mothers free time to work or study, rather than with the cognitive or motor development of children.

For a summary of the main findings of each of the studies reviewed in this section, see Appendix 1.

3. Methods

3.1 Design

Young Lives is an international study of childhood poverty tracking the changing lives of 12,000 children in Ethiopia, India (in the state of Andhra Pradesh), Peru and Vietnam over a 15-year period. Through interviews, group work and case studies with the children, their parents, teachers, community representatives and others, it collects a wealth of information not only about their material and social circumstances, but also their perspectives on their lives and aspirations for the futures, set against the environmental and social realities of their communities.

The first round of this study took place in Peru between August and December 2002 and the second between mid-2006 and May 2007. There are two cohorts in the project: a Younger Cohort who were aged six to 18 months at enrolment and an Older Cohort aged 7.5 to 8.5 years. The current report refers to the children from the Younger Cohort. The data presented here come from two main sources: the first round of the project, which provides information

about the children from the Younger Cohort, their families and communities; and, secondly, quantitative and qualitative data gathered between May and June 2006.

We used children's information from the first round project sites where more families reported that their child was attending a nursery institution (not necessarily a Wawa Wasi because the questionnaire for Round 1 of Young Lives didn't ask specifically about Wawa Wasi attendance). We then reduced the selection of sites to those where the Wawa Wasi was being implemented. We finally selected five of these to carry out the study, with emphasis placed on variety in settings (coastal and Andean regions, urban and rural settings and Spanish-indigenous-language populations).

We visited all children in each site to assign them to the two study groups: contrast and treatment. To be assigned to the contrast group, a child should not have participated in the Wawa Wasi programme or any other public or private programme until the age of three; i.e. they were children who had stayed at home. To be assigned to the treatment group, a child had to have participated in the Wawa Wasi programme for at least six months continuously, which, according to the programme officers, is the minimum time a child would have to stay in the programme to benefit from it. Other children were not considered for the sample.

The effect of participating in the programme is estimated as the difference in outcome between the treatment and contrast group. The outcomes evaluated in the study were psychomotor development (encompassing fine motor coordination, gross motor coordination and verbal ability), and time in a pre-school programme (either CEI or PRONOEI, the former being the regular pre-schools run by professional certified teachers and the latter non-formal pre-schools run mainly by women from the community). It was expected that children who had attended a Wawa Wasi would be more aware of the importance of pre-school and hence would send their own children there.

Additionally, semi-structured interviews with all relevant stakeholders (Mother-Carers, Field Coordinators, members of the Management Committees and mothers from treatment and contrast families) were conducted as part of this study with the objective of gathering information about the functioning of the programme and its current needs.

3.2 Sample characteristics

Table 2 presents the number of children in the sample by provinces and districts.

Table 2. *Number of children in contrast and treatment groups by province and district*

Province / District	Contrast	Treatment	Total
Apurimac (Central Andes)			
San Jeronimo	2	13	15
Arequipa (Southern Coast)			
Camana	5	10	15
Cajamarca (Northern Andes)			
Cajamarca	10	8	18
Lima (Central Coast)			
Ate	7	0	7
San Juan de Lurigancho	19	3	22
Villa Maria del Triunfo	5	0	5
Tumbes (Northern Coast)			
Tumbes	8	10	18
Total	56	44	100

The research team tried to gather similar numbers of children for the treatment and contrast groups at each site, but this was impossible because the Wawa Wasi programme had different levels of attendance. In addition to this, there was also the limitation of including in the sample only children who had participated in the first round of the Young Lives project.

Several stakeholders were interviewed at each site.

Table 3. *Number of semi-structured interviews conducted by provinces*

	Apurimac	Arequipa	Cajamarca	Lima	Tumbes	Total
Management Committee of Wawa Wasi	2	2	2	7	3	16
Field Coordinator of Wawa Wasi	1	2	2	5	3	13
Mother-Carer of Wawa Wasi	2	2	2	6	4	16
Treatment family mothers	15	10	8	4	10	47
Contrast family mothers	2	5	10	31	8	56

Table 4 shows the average time in the Wawa Wasi for the children in the treatment group. As shown, the 44 children in the treatment group had attended the Wawa Wasi for 22 months on average.

Table 4. *Time in the Wawa Wasi programme in months (average, minimum, and maximum)*

	Child's age when s/he started Wawa Wasi programme (in months)	Child's age when s/he left Wawa Wasi programme (in months)	Time in programme (months)
	Average (min - max)	Average (min - max)	Average
Apurimac (n=13)	11 (6 - 24)	44 (28 - 48)	33
Camana (n=10)	19 (8 - 29)	43 (33 - 50)	24
Cajamarca (n=6)	19 (11 - 35)	34 (18 - 42)	14
Lima (n=3)	18 (12 - 24)	39 (29 - 48)	21
Tumbes (n=10)	23 (11 - 36)	36 (24 - 48)	14
Total (n=44)	18 (6 - 36)	40 (18 - 50)	22

As mentioned, the sample was intentionally selected to retain variety in settings and the children were not randomly assigned to treatment and contrast groups, so it is important to check for differences between groups in terms of children, family or community characteristics. Table 5 presents some characteristics of the sample by group of study.

Table 5. *Characteristics of the sample by group of study (average and standard deviation)*

	Contrast (n=56)	Treatment (n=44)	Total (n=100)
Children's characteristics			
Female (%)	57.1 ^a (49.9)	56.8 ^a (50.1)	57.0 (49.8)
Age (in months) in 2006	59.5 ^a (3.1)	58.4 ^a (3.2)	59.0 (3.1)
Mother tongue is Spanish (%)	91.1 ^a (28.8)	77.3 ^a (42.4)	85.0 (35.9)
Participation in other programmes (PRONOEI or CEI) after 36 months of age (%)	91.1 ^a (28.8)	100.0 ^b (0.0)	95.0 (21.9)
Months in pre-school after 36 months of age	17.1 ^a (7.8)	16.0 ^a (5.8)	16.6 (7.0)
Height for Age Z-score in 2002	-0.8 ^a (0.9)	-1.4 ^b (1.2)	-1.1 (1.1)
Families characteristics			
Two-parent household (%) (in 2006)	76.8 ^a (42.6)	79.5 ^a (40.8)	78.0 (41.6)
Extended family (%) ¹	50.0 ^a (50.5)	50.0 ^a (50.6)	50.0 (50.3)
One or more older siblings (%)	37.5 ^a (48.9)	50.0 ^a (50.6)	43.0 (49.8)
Parents with completed primary education or less (%)	14.3 ^a (35.3)	29.5 ^a (46.2)	21.0 (40.9)
Number of persons who contribute to pay for household expenses	2.2 ^a (1.1)	2.0 ^a (0.9)	2.1 (1.1)
Physically inadequate house (%) ²	17.9 ^a (38.6)	52.3 ^b (50.5)	33.0 (47.3)
Overcrowding index (%) ³	14.3 ^a (35.3)	22.7 ^a (42.4)	18.0 (38.6)
House without sewage (%) ⁴	10.7 ^a (31.2)	52.3 ^b (50.5)	29.0 (45.6)
Communities' characteristics			
Urban (%)	96.4 ^a (18.7)	68.2 ^b (47.1)	84.0 (36.8)

Note: We identified statistical differences between groups using the Kruskal-Wallis one-way analysis of variance. Similar superscripts indicate there are no significant differences ($P > 0.05$).

¹ One or more persons, other than the parents and their children, live in the household.

² Physically inadequate was defined as: a) external walls of the housing made of woven mat; b) housing with soil floor and external walls made of *quincha* (clay), wood or other materials; or c) improvised housing made of cardboard and/or tin.

³ Three or more persons per room at home.

⁴ Toilet without connection to sewer or septic tank.

Table 5 indicates some differences between the two groups in terms of variables related to socioeconomic status. Children in the treatment group are more likely to live in houses with poor infrastructure, without sanitation and which are overcrowded. They also have parents with lower educational levels. As a consequence, they are more likely to be growing up in an

adverse environment than their counterparts in the contrast group. This creates problems in the attempt to isolate the effect of the treatment, given the multiple channels through which poverty affects the development of children (Aber et al. 1997). For this reason, it is important to control for covariates in the multivariate analysis to estimate the net effect of the programme.

3.3 Variables and procedures

The variables included in the analysis were obtained from two main sources. First, the independent variables regarding the children's, their families' and communities' characteristics, which should not have changed over the years, were obtained from the household questionnaires administered in 2002 during the first round of Young Lives. Second, the dependent variables regarding children's psychomotor development and time in pre-school were obtained from the tests, questionnaires and observations conducted during fieldwork.

The Test of Psychomotor Development – TEPSI – was used to evaluate the children.⁵ TEPSI is a standardised test developed in Chile which measures different aspects of the psychomotor development of children between 2.5 and five years. The administration of the test is individual and takes approximately 30 minutes. It was chosen because: (1) it evaluates three areas of development in which the programme seeks to stimulate the children; (2) it is in Spanish; (3) it has a proven record of reliability and validity; and (4) is easy to administer by any trained fieldworker.

The TEPSI test has 52 items divided into three sub-tests:

- Fine motor coordination (16 items): This evaluates the ability of children to grasp and manipulate objects and to draw, through tasks such as building towers with blocks, copying geometric figures and drawing a human figure.
- Language (verbal ability, 24 items): This evaluates children's expressive and comprehensive language through tasks such as naming objects, defining words and describing scenes in a picture.
- Gross motor coordination (12 items): This evaluates the ability of children to manage and control their own body through tasks such as throwing and catching a small ball, hopping on one foot and walking on tip-toe.

Children evaluated by means of TEPSI can be classified according to three levels of development based on their performance in the test: normal, at-risk and delayed. However, we have not transformed the raw scores into scaled scores and used these categories for the purposes of this study because the test did not have standards for a Peruvian population, and also because we did not use some items due to their low reliability. To check for the reliability of the test we ran an analysis of internal consistency. We found a few items with item-rest correlations lower than 0.1, suggesting that these were measuring different constructs. These items were deleted from the estimations of raw scores of children. The final internal consistencies (reliabilities) of the subtests were 0.72, 0.57 and 0.81 for the fine motor, gross motor and language scales respectively, and 0.85 for the whole scale. Thus the language and global score appear to be the most reliable. For ease of interpretation, the raw scores obtained by the children in the test were transformed into T scores (mean of 50 and standard deviation of 10).

5 TEPSI. *Test de Desarrollo Psicomotor 2-5 años* (2003). Developed by Isabel Margarita Haeussler and Teresa Marchant from the Universidad Catolica de Chile.

The propensity score matching technique (Heckman, James, Ichimira and Todd 1997, 1998) was used to estimate the impact of the programme. Detailed information on the application of this statistical technique is included in Section 4.

The information about the functioning of the programme and its current needs was gathered through semi-structured interviews. The Atlas/ti programme (www.atlasti.com) was used to analyse the transcriptions of all the interviews. It facilitated working with the data and organising the coding process. The information was codified using an axial coding (Strauss 1990). Several thematic categories (topics of analysis) were used for the analysis and relationships were built among the different categories.

All the fieldworkers who participated in the study had experience in the administration of tests and surveys. They were educational psychologists, final year students of educational psychology and experienced fieldworkers from the first round of Young Lives. They were trained in the procedures of the evaluation before starting the field work. Several role-playing sessions were carried out during training sessions in order to establish the correct procedures for administering the test and questionnaires. Before sending them for field work, we tested them for knowledge of procedures of administration and checked that they applied them appropriately. For the children in Apurimac, the tests and instructions were given in Quechua if that was the child's maternal language. In other cases, the tests were administered in Spanish. The language of the child could have an impact on the score results, especially for the language subtest, but we attempted to control for this through the statistical analysis. The interviews with the mothers of the children were also carried out in the person's maternal language. During field work, the research team randomly supervised the fieldwork in each of the five sites where the study was conducted and found it was being carried out according to what was planned.

4. Quantitative results

In order to estimate the net effect of the programme, multivariate analysis is required to introduce covariates in the analysis of each dependent variable. This paper uses propensity score matching (Heckman, James, Ichimira and Todd 1997, 1998) to estimate the impact of the programme on children's psychomotor and social development. This statistical technique allows us to find an appropriate contrast group for the treatment group, given that random assignment to each group is not possible. The two groups should be matched on any characteristics that might cause them to differ on the outcomes of interest under conditions where neither received the intervention. The variables used to match the groups are selected based on the review of the existing literature regarding the outcomes in question. The children in the matched contrast group represent the counterfactual, i.e. what would have happened with the children in the treatment group had they not experienced the intervention. This method assigns to each treated individual one contrast individual, i.e. one individual who is not participating in the programme but is very similar to the treated individual on every variable that, according to the literature, is important for determining the outcome variables. By doing this, the technique controls for any selection bias that may be associated with the selected variables.

Given the difficulties of finding two children that are a match in every variable relevant to the programme's outcomes, we followed the alternative proposed by Rubin and Rosenbaum (1983, 1985) of using their propensity score, i.e. their probability of participating in the programme, as the matching variable. Given its dichotomous nature, the propensity of each child to participate in the programme was calculated using a probit model where 'participating

in the programme' was introduced as the dependent variable (Y_i) that takes the value of '1' if the child receives the treatment and '0' if the child is part of the contrast group. All the variables that could bias the comparison between the treatment and contrast groups were introduced as independent variables (X_i 's). The following model was estimated:

$$P(Y_i = 1 | X_i) = F(X_i B_x) + \varepsilon_i \quad [1]$$

where:

- Y_i : takes the value of 1 if the child attended Wawa Wasi and 0 if not.
- X_i : is a matrix that represents the covariates associated with the probability of participating in the programme that could bias the comparison between groups.
- ε_i : is the random error.
- B_x : is the effect of each independent variable over the chance of being part of the treatment or contrast group.
- $F(.)$: is the cumulative distribution function that is a standard normal distribution.

Then, with the parameters estimated ($E(Bx)=b_x$) in the probit regression and the values for each of the covariates (X_i), the probability of participating in the treatment group for each child was estimated using the following model:

$$P_i = F(X_i b_x) \quad [2]$$

where:

- P_i : is the probability or the propensity measure for participating in the Wawa Wasi.
- X_i : is the matrix with the covariates used in the probit model.
- b_x : is a vector with the parameter estimated in the probit regression.

Using this propensity measure as the matching variable, we then found for each child in the treatment group a child in the contrast group who had the same probability of being part of the treatment group, i.e. the same propensity measure.

Children with the same probability of participating in the programme in each group (treatment and contrast) are part of the common support. However, there were some children in the treatment group who didn't have similar children in the contrast group and vice versa. These children were considered to be out of the common support. Once the common support was selected, the difference in the outcome variables between the treatment and contrast group was calculated. The difference can be estimated using different methods. In this case, the one-to-one method was used to calculate the difference between the two groups in the outcome variables. The estimated difference obtained after following this procedure is free of any selection bias due to observed variables and can be considered a good estimation of the net effect of the programme on the outcome (dependent) variables.

The unit of analysis for all the above was each individual child. This means that we do not consider differential treatment between Wawa Wasis. This is because overall, the 44 children in the treatment group came from 26 different Wawa Wasis. This made a cluster analysis by Wawa Wasi impossible.

4.1 Outcome variables

1. *Total Score*: This variable is the standardised score obtained by each child in the TEPSI.
2. *Gross Motor Score*: This variable is the standardised score obtained by each child in the Gross Motor Coordination sub-scale of the TEPSI test.
3. *Fine Motor Score*: This variable is the standardised score obtained by each child in the Fine Motor Coordination sub-scale of the TEPSI test.
4. *Language*: This variable is the standardised score obtained by each child in the Language sub-scale of the TEPSI test.
5. *Months in pre-school*: This variable is the number of months each child has attended a pre-school institution (from 36 months onwards). It was preferred over attending or not attending a pre-school, since most children in both groups had attended a pre-school (see Table 4).

The first four variables are clearly related to the programme's goals; the last, while not mentioned explicitly among them, was included because it is conceivable that children attending Wawa Wasi would be more likely to enrol in pre-school as these centres continue to favour children's development and allow mothers free time to work.

Table 6 presents the association among the dependent variables. As expected, the correlations between the different TEPSI sub-scales, and between each sub-scale and the total score, are positive and statistically significant in all the cases. Finally, the number of months in pre-school is positively and significantly associated with all variables.

Table 6. *Pearson correlations among dependent variables.*

	Total Score	Fine Motor Function	Language	Gross Motor Function
Fine Motor Function	0.84*			
Language	0.91*	0.68*		
Gross Motor Function	0.56*	0.26*	0.29*	
Months pre-school	0.50*	0.45*	0.46*	0.24*

* Correlation is significant at the 0.05 level (2-tailed).

4.2 Independent variables

1. *Gender*: This variable takes the value of 1 for females and 0 for males.
2. *Child's age*: This is a continuous variable that refers to the age of each child in months by the time of testing in 2006.
3. *Households with physically inadequate housing*: This variable takes the value of 1 if: a) the external walls are made of woven mat, b) the housing has a soil floor and the external walls are made of *quincha* (clay mixed with canes), stone and mud (*adobe*) or wood, or c) housing is improvised from cardboard or tin; and 0 in other cases.

4. *Older siblings*: This variable takes the value of 1 if in 2002 the child had brothers or sisters at least five years older and 0 if not.
5. *Parent's educational level*: This variable takes the value of 1 if the educational level of both parents is complete primary or less and 0 in other cases.
6. *Household expenses*: This is a continuous variable indicating the number of household members who contributed to the household expenses in 2002.
7. *Camana*: This variable takes the value of 1 if the child lives in Camana and 0 in other cases.
8. *Cajamarca*: This variable takes the value of 1 if the child lives in Cajamarca and 0 in other cases.
9. *Lima*: This variable takes the value of 1 if the child lives in Lima and 0 in other cases.
10. *Tumbes*: This variable takes the value of 1 if the child lives in Tumbes and 0 in other cases.
11. *Apurimac*: This variable takes the value of 1 if the child lives in Apurimac and 0 in other cases.⁶

After carrying out the matching analysis, six of the 100 observations in the original sample were found to be out of the common support. These observations were part of the treatment group. Table 7 shows the distribution of the observations that are part of the common support.

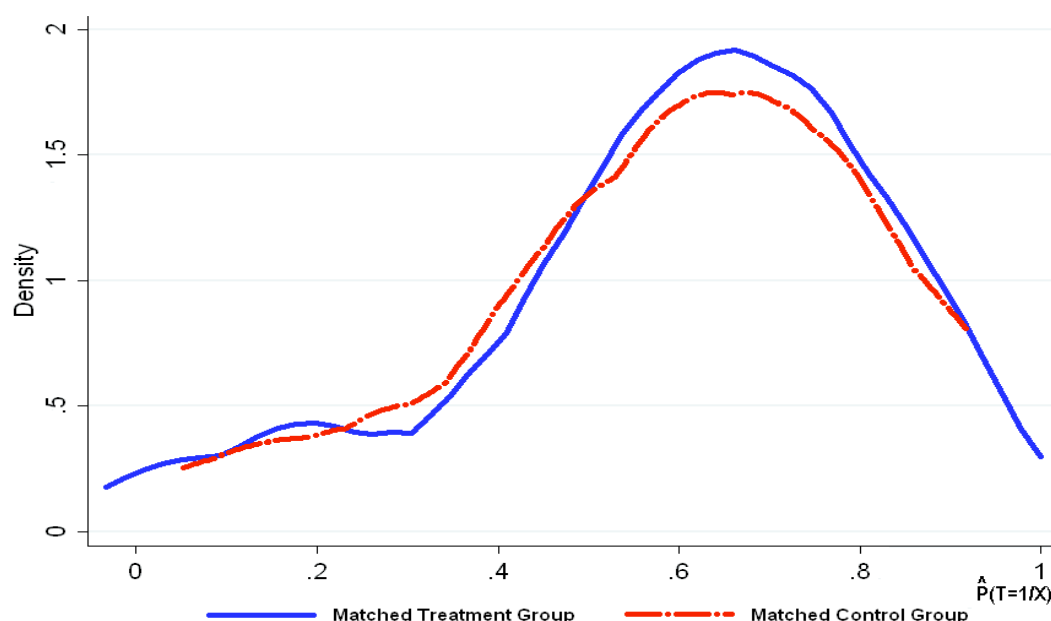
Table 7. *Number of children off and on the common support by group of study.*

	Off support	On support	Total
Contrast	0	56	56
Treatment	6	38	44
Total	6	94	100

The next figure shows the propensity scores for treated and contrast groups.

⁶ In the multivariate analysis, this dummy variable was chosen as the reference group for interpreting the other four dummies regarding place of residence.

Figure 1. Propensity scores for treated and contrast groups.



From the common support, the matching selected the 38 children from the treatment group and found 15 similar children in the comparison group. Table 8 presents the results for these children ('with matching') and the results without matching (with all children) as a reference.⁷

Table 8. Differences in psychomotor development and time spent in a pre-school institution by group of study (with and without matching).

		Treatment	Contrast	Difference		CI 1/ '(90 %)'
Total score	Without matching	47.4	52.1	-4.7	**	[-8.2 -1.6]
	With matching	50.1	49.0	1.1		[-2.0 10.3]
Fine motor score	Without matching	47.3	52.1	-4.8	**	[-8.2 -1.8]
	With matching	49.7	47.6	2.0		[0.0 11.6]
Language	Without matching	47.7	51.8	-4.2	**	[-7.4 -1.0]
	With matching	49.8	48.1	1.7		[-1.6 10.9]
Gross motor score	Without matching	49.0	50.8	-1.7		[-5.5 1.4]
	With matching	51.1	53.4	-2.2		[-10.3 3.4]
Months in pre-school	Without matching	16.0	17.1	-1.0		[-3.2 1.3]
	With matching	16.7	17.4	-0.7		[-5.6 3.7]

Table 8 shows that there are no statistically significant differences between the treatment and contrast groups in the variables relating to children's psychomotor development or in time in a pre-school institution using the matching technique.

⁷ Appendix 2 shows the results for the probit regression, the analysis of the matching using different Confidence Intervals (CI) and the test for equality of means (hotelling) before and after the matching with the purpose of demonstrating how much of the bias is reduced using the matching.

5. Qualitative results

The results of the qualitative analysis of the semi-structured interviews with the main actors of the Wawa Wasi were organised into eight sub-sections corresponding to the topics used as a guideline for the development of the questionnaires. The specific content of each topic is outlined in the beginning of the relevant section. The first five topics are mainly related to the implementation and functioning of the programme and the latter three refer to the local actors' perceptions of the programme and its achievements.

5.1 Functioning of Wawa Wasis

Within this section we describe the daily functioning of a Wawa Wasi, the activities that are carried out and the relationships between all the actors involved. The main themes included are: the organisation of children during the day, the kinds of activities Mother-Carers provide, meals provided and relationships between the Mother-Carer, the children and their parents.

We visited 16 Wawa Wasis and interviewed their Mother-Carers. In all cases, there were eight children per Wawa Wasi and almost all included a child under the age of 1. The rest of the children were between one and 4 years old. There were no children over the age of 4. Children attended the Wawa Wasi from Monday to Friday, generally from 8 a.m. to 5 p.m., although we found two Mother-Carers who reported that children leave right after lunch.

Most Mother-Carers reported carrying out the following activities:

- Teaching children hygiene habits, such as washing their hands or brushing their teeth, or in the case of younger children, teaching them to ask to go to the toilet
- Singing songs and playing with the children
- Teaching children to share toys and play with others
- Ensuring children take a nap every day
- Expanding vocabulary
- Encouraging children to crawl, walk and run during play time.

Only six of the 16 Mother-Carers reported reading stories to the children as one of their regular activities. Even though a Mother-Carer is supposed to know how to read and write, said they don't feel comfortable reading and prefer to do the activities mentioned above.

It could be said that Mother-Carers are following the programme guidelines but it seems they are not fully aware of what skills could be promoted with each activity and are therefore undertaking activities just because they are part of the daily routine. For instance, several reported singing with children, but only as entertainment. Not one recognised that by doing this they could be stimulating the children's cognitive development by improving their vocabularies and exercising their memories. This could explain the lack of significant differences between groups in cognitive and motor development.

5.1.1 Food service

In addition to caring for and stimulating the children, the programme also provides food. Children receive three meals a day: a morning snack (milk mixed with oats, semolina or some fruit), lunch (different types of meat with rice, cereals or legumes) and an afternoon snack (fruit or rice with milk or purple corn pudding). Meals in the Wawa Wasi are generally organised through communal kitchens, which takes the burden of cooking away from the Mother-Carer.

All Mother-Carers interviewed reported that the food is always delivered on time to the Wawa Wasi and there are enough rations for all children. They described the meals as well prepared, fresh, nutritious and balanced. Some pointed out that the programme allows the children to get some kinds of food that they wouldn't get otherwise because their parents can't afford it or are not used to eating it. As one said:

The food is balanced. We are not used to eating meat in the countryside but there is meat in Wawa Wasi. They also give them milk, puddings... The food is fresh. (Mother-Carer from Andahuaylas, Apurimac)

The programme takes care of three of the five meals which, according to its recommendations to parents, children should have a day. This means that parents have to provide their children with the other two meals of breakfast and dinner. However, it seems that most parents who send their children to a Wawa Wasi don't (or can't) provide breakfast. Thus what the programme calls a morning snack is actually considered breakfast by the children and their parents.

Only a few parents give them breakfast. The morning snack is delivered by 9 a.m. Can you imagine if they fast until then! When the food comes all of them jump for joy: 'Breakfast! Breakfast!' Only a few parents give them food at home. (Mother-Carer from Cajamarca)

The communal kitchen delivers the food in individual containers which are differentiated by age. The decision of what the children are going to eat is not taken by the communal kitchen staff but by a nutritionist who is part of the programme staff. S/he sends a schedule to the communal kitchen every month specifying the meals to be prepared every day.

Despite there being enough food rations for all, some Mother-Carers recommended that portions should be larger because some children, especially the older ones, remain unsatiated after eating. This suggestion is supported by the local mothers.

I've seen they give them small rations of food in the Wawa Wasi and the older children are not full after eating. For instance, they only give them milk in the morning without bread, and that is not enough. (Treatment group mother from Cajamarca)

Most of the Management Committee members interviewed mentioned they usually receive good comments about the food service but some have received criticisms. Sometimes Mother-Carers complain because the food is not palatable (the rice is burned or the food is salty). Kitchen staff often complain about the Mother-Carers, as food containers are not always returned to the kitchen properly cleaned. In order to solve these occasional disagreements, every Management Committee has a complaints book where those concerned can write down their comments for discussion at the end of each month.

5.1.2 *The Mother-Carers' relationship with children and their parents*

When we asked the local mothers about the relationship between their children and the Mother-Carer, almost all of them said their children had a positive relationship because they trusted her and got along with her. The mothers said their children stayed calm when they left them in the Wawa Wasi and that they enjoyed being there so much they cried when they had to stop going. They also mentioned that some children call their Mother-Carer 'mummy' or 'auntie'.

When he left the Wawa Wasi, he missed his Mother-Carer. Whenever he saw her, he ran towards her to say 'Hi' and give her a kiss. (Treatment group mother from Camana, Arequipa)

The children love their Mother-Carer. My child doesn't feel comfortable in the other place. He sneaked out of pre-school to go to the Wawa Wasi. The Mother-Carer is nice. She loves the children and cares about them. (Treatment group mother from Cajamarca)

In general, both Mother-Carers and treatment families reported having good relationships with each other. The treatment families also pointed out that the community in general appreciates the Mother-Carers and their work. They described the Mother-Carers as good people who are humble, collaborative and get along well with everybody.

The Mother-Carer and the parents get together on a regular basis to discuss the progress of the children. These meetings constitute one of the programme strategies for promoting good child-rearing practices among parents. The frequency of these meetings varies from one Wawa Wasi to another; however, most of the treatment families (26 out of 47) reported meeting at least once a week with the Mother-Carer. Only nine treatment families reported never having had a meeting with their Mother-Carer.

The central themes addressed in these meetings are:

- Children's nutrition: Parents want to know what kind of food their children are eating, if they are receiving enough and if they finish what is given to them. Mother-Carers take opportunities to tell the parents about the importance of practising 'active feeding' and make recommendations about the type of food they should give their children at home.⁸
- Children's behaviour: The meetings are also used to inform the parents how the children adapt to the Wawa Wasi, how they interact with other children, whether they fight or get along, and if they cooperate with the Mother-Carer and other children.
- Learning activities during the day: Parents also ask about the types of activities their children are doing in the Wawa Wasi and what they are learning.

Despite the fact that most parents have regular meetings with the Mother-Carers, families are not truly committed to the programme. Only three of the 16 Mother-Carers interviewed said that parents were actively involved in the Wawa Wasi and helped them. The rest of the Mother-Carers said that most of the parents did not help in any way, either by paying the daily fee or by offering their labour (for instance, by washing towels and blankets or fixing broken items). Some Mother-Carers complained because the parents do not even bring their

⁸ Active feeding (*Alimentación Activa*) is using feeding time as an opportunity to stimulate children and communicate with them.

children to the Wawa Wasi on time or ensure they are clean. They also said it was difficult to talk about this situation with them because they react badly.

Parents don't cooperate at all. If we ask them to cooperate with something, they stop sending their child. That's why we can't ask them anything; the children will stop coming.
(Mother-Carer, Cajamarca)

Only six of the 16 Mother-Carers said they received help from the community in the form of donations of water, clothes and other materials.

5.2 Programme staff training

The Wawa Wasi programme offers training to staff both prior to and during their employment.

5.2.1 Training of Mother-Carers

Most Mother-Carers had been trained before they started working. Only four of the 16 reported they had not received any initial training. They said that the key themes addressed in their initial training were:

- Nutrition: Especially how to feed children according to their age and supervise the quality of the food delivered to the Wawa Wasi.
- Childcare: How to look after children, what to do when they cry and the importance of being patient and loving.
- Health: First aid, how to take a child's temperature and treat diarrhoea and coughs.
- Early stimulation: Singing and playing with children, and making toys with recycled materials.

Other themes mentioned by some of the Mother-Carers were hygiene practices (such as purifying the water with chlorine or disinfecting potties after use to avoid contamination); using the public panel to keep measures of and report the progress of the children to parents; filling out the CRED card with information regarding the height and weight of the children; and establishing a relationship with parents.

In addition to this initial training, 14 of the 16 Mother-Carers reported they had received additional training, the two who had not being from Camana, Arequipa. The frequency of these training sessions varies according to the site where the Wawa Wasi is located. Mother-Carers from Cajamarca reported having training sessions once a week while those from Lima and Tumbes reported having them every three or six months.

The Field Coordinators are in charge of the additional training, and for selecting the areas in which this is required. The main topics usually addressed in the additional training sessions are:

- Health: Washing hands, disinfecting potties, treating minor injuries, filling out the CRED card
- Nutrition: Active feeding and feeding the children with balanced age-appropriate food.

A smaller number of Field Coordinators also reported training the Mother-Carers in creation and use of educational materials, using the public panel and dealing with cases of domestic violence.

In addition to the initial training and additional training sessions described above, Mother-Carers also receive on-the-job training provided by the Field Coordinator which gives them the opportunity to put into practice what they have just learned and receive feedback on their performance. The main advantage of this type of training for the Field Coordinator is that the immediate feedback helps to correct mistakes immediately and avoids reinforcement of bad practices.

When asked what topics they would like to receive more training on, Mother-Carers mentioned:

- Nutrition
- Health, especially treating common illnesses such as coughs and diarrhoea
- Early stimulation, especially in the areas of language and motor development
- Strategies for working with families
- Strategies for looking after several children at the same time.

Regarding training of the Mother-Carers, it should be noted that:

1. Training is often repetitive, going over the same subjects of health and nutrition. This could be a positive strategy as it reinforces the main messages of the programme, but the Mother-Carers seem to be interested in learning new material.
2. Additional training sessions usually don't deal with issues related to early stimulation. When we asked Mother-Carers what aspects they would like to receive further training in, they mentioned this (in addition to health and nutrition). As noted, Mother-Carers report that they don't implement activities to stimulate physical and cognitive development and mainly focus on promoting social development. Their request for additional training in early stimulation may indicate they are aware of their personal limitations.
3. All of the topics suggested by the Mother-Carers for further training have been at least partially addressed by the programme, with the exception of strategies for looking after several children at the same time. Observations made in several Wawa Wasis showed that most Mother-Carers experience difficulties in handling several children at the same time, so including this topic as part of the training provided by the programme might be useful.

Most Field Coordinators are aware of repeating the same topics during training sessions, but they said they have to do it because Mother-Carers have serious difficulties in learning and keep forgetting the content. Some Mother-Carers acknowledge this:

Sometimes we forget about nutrition, about what to do when the children have fever or have an accident. I always take my notebook [to the training workshops] to take notes... It is good that they always remind us about things so we don't forget them. (Mother-Carer, Cajamarca)

Even though reading and writing is a prerequisite for being considered for the position of Mother-Carer, this is easily overlooked by the members of the Management Committee, the treatment families and even some Field Coordinators, because they think it is not as important as being patient and loving with the children and willing to take care of them. This may limit the quality of the cognitive stimulation work they do.

5.2.2 *Training of Field Coordinators*

Only five of the 13 Field Coordinators interviewed mentioned they had received some form of training before starting their job. Three attended an initial training workshop and the other two did an internship. The rest (eight out of 13) said they started working without training being provided by the programme. They, nevertheless, considered themselves qualified for the job because of their professional background. Almost all of the Field Coordinators said they had received training after they started working. Only one Field Coordinator said she had not received any post-recruitment training but had independently arranged a course to be better prepared for the job.

There are two different types of training for Field Coordinators: an annual meeting organised by the central office of the Wawa Wasi programme, and monthly meetings between the Field Coordinators and the specialists from the Wawa Wasi programme in each of the areas where the programme is implemented.⁹

Most Field Coordinators considered the training useful as it helps them improve their work and adapt themselves better to the changes in the communities where they work. However, they would like to receive further training on how to involve the parents and the community. It is difficult for them to reach out to the parents and make them participate more actively in the programme. Another theme that interests them is how to deal with domestic violence and child abuse because these seem to be serious problems within the communities where they work.

5.2.3 *Training of Management Committees*

Almost all of members of Management Committees said they received some training before they started work. Training mainly related to administrative procedures such as planning expenses, financial disbursement and reporting. In addition, some reported they were also trained in health, nutrition and child-rearing. Only a small number of Management Committee members said they also received training in early stimulation and supervision of the work of the Mother-Carer.

Most members of Management Committees said they had participated in training workshops, usually held every one or two months. They said they found the training very useful because it helped them do a better job and refreshed what they have previously learned.

In addition to attending their own training workshops, members of Management Committees regularly attend training workshops for Mother-Carers so that they are familiar with their duties and responsibilities. Their attendance at these workshops is essential, especially in light of the central role the Management Committee plays in the supervision of the work of the Mother-Carer.

5.3 **Role of Field Coordinators**

Field Coordinators are professionals hired by the programme to oversee and monitor the work of the Management Committee and the Mother-Carer in the Wawa Wasi. They are required to have a technical qualification or university degree in an area related to the project's themes (health, nutrition and education). Ten of the 13 Field Coordinators interviewed were university graduates and the other three had a technical qualification.

⁹ The frequency of these meetings may vary according to the specific needs of each area. In some places they do not take place as often as every month.

The number of Field Coordinators assigned to each area where the programme is implemented depends on the number of Wawa Wasis functioning there. A Field Coordinator is responsible for supervising two Management Committees and their Wawa Wasis. On average, a Field Coordinator has between 25 and 30 Wawa Wasis under her supervision. However, we found a Field Coordinator in Camana who had responsibility for 17 Wawa Wasis and one in Lima with 40 to supervise unassisted. Due to this heavy workload, it has become necessary for members of Management Committees to start helping Field Coordinators with the overseeing of the Wawa Wasi, although this was not originally planned.

The frequency of monitoring visits to a Wawa Wasi varies according to the experience of the Mother-Carer and the workload of the Field Coordinator. A newly-recruited Mother-Carer is visited more frequently, perhaps on a daily basis, the frequency of visits then declining. The regularity of visits also depends on the number of Wawa Wasis the Field Coordinator has to supervise. Sometimes the two Management Committees and their respective Wawa Wasis are not in the same area. Some Field Coordinators have one Management Committee in an urban area and another in a rural one and thus are burdened with travel, reducing visit frequency. In general, most Field Coordinators reported visiting each Wawa Wasi two or three times a week. However, some said they were only able to visit each centre two or three times a month.

The purpose of the visits is to monitor and supervise the work of the Mother-Carers, making sure they are putting into practice what they have learned in the training workshops. During each visit the Field Coordinator observes the performance of the Mother-Carer and then works with her to improve her performance. The Field Coordinator starts doing the activity herself to model the expected behaviour and then asks the Mother-Carer to continue and gives her feedback.¹⁰

According to Field Coordinators, the activities they most often carry out are:

- Promoting good hygiene practices, e.g., purifying the water with chlorine, disinfecting potties, washing hands before handling food and washing food containers and utensils properly.
- Practising active feeding with children during meal times.

Other activities also carried out during the visits, but less frequently, are:

- Surveying the condition of the building and of the toys and materials.
- Reviewing the CRED cards and the interactive panels.
- Singing and playing with the children.

The Field Coordinator's visit is completely different to the Guide Mother's. When the Field Coordinator visits a Wawa Wasi, she is constantly supervising the work of the Mother-Carer and suggesting how to improve practice. When the Guide Mother visits she basically acts as a help to the Mother-Carer, especially when feeding and playing with the children.

The role of the Field Coordinator includes not only providing Mother-Carers with on-the-job training but also evaluating their performance and identifying where they need further training. Field Coordinators have to evaluate Mother-Carers' performance on a regular basis and submit the evaluation to the central office where the information is used to set salaries. The programme has an incentive system for the Mother-Carers based on their performance.

¹⁰ Though it is not a requirement, the vast majority of Field Coordinators are female. Of all those we interviewed, only one was male.

Field Coordinators are responsible for selecting the topics for the additional training workshops based on the observation of performance during monitoring visits.

5.4 Role of the Management Committee

Each Management Committee should have five regular members: president, secretary, treasurer and two supporting members (*vocales*). However, we found four Management Committees that had fewer than five members, and one of them had only a treasurer. Members reported they have three main functions:

A. Managing the resources provided by the programme. A Management Committee receives a monthly allowance to cover the expenses of the Wawa Wasi. Twelve of 16 members interviewed reported that funds are transferred on time every month, while four reported delays of up to a week. The Management Committee is responsible for:

- Withdrawing money from the bank
- Planning how money is going to be spent
- Paying the Mother-Carers and communal kitchen staff
- Paying food suppliers
- Paying for water, cleaning materials, tables and chairs, materials for the children and possibly (if the budget allows) buying additional toys
- Preparing reports.

Twelve of the 16 Management Committees visited considered the funds provided by the programme to be insufficient, meaning that they had to decide what to prioritise. The largest portion of funds was assigned to food expenses, leaving little or nothing for the purchase of toys and materials, to improve the first aid kit or fix anything broken.

We ended up in debt... They funds are not enough to cover operational expenses. They send us a pittance. We have to borrow money or do fund-raising activities because what the Ministry sends us is not enough... I always ask for an increase in the operational expenses. (Member of Management Committee from Ate Vitarte, Lima)

Another problem for the members of the Management Committee is that sometimes there is an increase in the price of food products but the monthly allowance provided remains the same. When this happens, even the provision of food to the Wawa Wasi is compromised.

In order to get additional funding for the Management Committee, nine of the 16 committees said they organised fundraising activities. However, only three of them used the money to pay for expenses directly related to the improvement of the Wawa Wasi, such as buying more toys, renovations or painting. The remaining six committees used the funds to organise celebrations for mothers' day, women's day or Christmas, or to support a mother who was sick or needed help. The members of these Management Committees made it clear they see these activities as an incentive to all the women (Mother-Carers, kitchen staff and members of the Management Committee) who participate in this programme and receive a very low salary, or in some cases nothing, in exchange for their hard work. In their opinion, the programme should consider including funds for these activities.

B. Establishing relationships with community institutions to promote the programme. The Management Committee seeks to establish connections between the programme and various organisations or institutions within the community that may support its work. They are responsible for coordinating with medical centres to measure the weight and height of the

children every three months, as well as for coordinating the preparation and delivery of the meals from the communal kitchen.

This task of the Management Committee is usually facilitated by the fact that the members of the committee belong to a community grass-roots organisation. The Wawa Wasi programme requires that the Management Committee should be formed from an already existing community organisation, usually a communal kitchen and in some cases the Programa Vaso de Leche ('glass of milk'), a national programme to provide milk to children. The president of the Management Committee is a community leader used to negotiating with other organisations.

The Management Committee is also responsible for promoting good relationships among the different agents of the programme, especially among the Mother-Carers and kitchen staff, by organising monthly meetings to discuss requests or complaints.

C. Another function performed by members of the Management Committee is to *help the Field Coordinator to supervise and monitor the Wawa Wasi and the Mother-Carer*. Eleven of the 16 members interviewed reported visiting the Wawa Wasi for this reason once a week, whilst the other five did so once a month.

According to the members of the Management Committee, they:

- Supervise the quality of the care and stimulation given to the children by the Mother-Carer
- Observe the progress made by children
- Assess the cleanliness of the Wawa Wasi, ensuring that towels are clean and toilets or potties disinfected
- Supervise the personal hygiene of the children, ensuring that hands are clean and soap and toothpaste are used
- Supervise the cleanliness of the Mother-Carers, ensuring they wear aprons
- Supervise food deliveries.

The Mother-Carer also indicated that during their visits members of the Management Committee also help with the exchange of bags of toys (*modulos rotativos*) between different Wawa Wasis and give them information about the programme from the central office in Lima.

The first two functions mentioned above were assigned to the Management Committee from the beginning of the programme. The last one was not in theory a function of the committee; however, in practice the Management Committee's contribution to the monitoring process has proven to be necessary over the years because the Field Coordinator alone cannot supervise the Wawa Wasi as often as would be desirable according to the programme guidelines.

In order to perform these three functions, the members of the Management Committee meet on a regular basis; however, the frequency of these meetings varies from one committee to another. Most reported meeting once a week or every two weeks; however, some committees reported meeting once a month. The most recurrent theme during these meetings is planning the visits to the Wawa Wasi to monitor the work of the Mother-Carer and supervise the attention they are giving to the children, as well as observing the progress made by the children. Another topic addressed during the meetings is planning shopping for food provisions for the daily menus. Some of the committees also said they used these

meetings to organise meetings with families with the objective of advising them on how to take better care of their children.

In addition to these meetings, the Management Committees also met with the Field Coordinators, but the frequency of these meetings varied. Some Field Coordinators reported meeting every week and others were not able to specify the frequency. The main themes addressed in the meetings correspond to the three functions of the Management Committee. The Field Coordinators also use each meeting as an additional opportunity to explain the main concepts and components of the programme to the members of the Management Committee so they will have more capacity to do the monitoring. Finally, these meetings also constitute a space where the members of the Management Committee may self-evaluate their performance.

When we asked the Field Coordinators to assess the work of Management Committees, all used terms like 'admirable', 'self-sacrificing', 'valuable' and 'good'. They admire they way they work voluntarily and that their only incentive is their wish to do something good for their community.

It is an act of sacrifice because they give their time and have to leave their family. It is a voluntary job without any salary. They are people who want to do something for their community. (Field Coordinator from Cajamarca)

It is a huge amount of work that implies great responsibility. They have to be suitable for the position. They monitor the Wawa Wasi, administer the programme's funds. It is up to the committee to ensure the Wawa Wasi goes forward. We want to empower the Management Committees. (Coordinator from Tumbe)

5.5 Job satisfaction of a Mother-Carer

We explored the motivation to become a Mother-Carer, the main changes they have experienced in their lives, levels of job and salary, and their perceptions of parental and community appreciation for their work.

Most Mother-Carers gave similar reasons for starting, stressing the possibility of working from home and requests from neighbours and/or friends. Eight out of 16 Mother-Carers interviewed indicated that they started in their Wawa Wasi because it gave them the opportunity to work and earn some money without leaving their homes and, most importantly, their families, especially their young children. The work allowed them to help other mothers who were able to get a job outside their homes because their children were safe. In the words of one of the Mother-Carers:

I became a Mother-Carer because I observed several mothers that wanted to leave their children in a safe place and didn't have an option; and also because I needed to work but I couldn't leave my home. So some acquaintances of mine helped me to start. (Mother-Carer from Ate Vitarte, Lima)

My neighbours told me: 'go, you like little children', because they were always leaving me their children to look after. I went and they interviewed me... I finally got a chance and they gave me the Wawa Wasi. (Mother-Carer from Camana, Arequipa)

Most Mother-Carers felt that their lives had changed for the better. Nine of the 16 Mother-Carers reported a positive change, such as being happier, more patient, more responsible and more sociable. They felt these changes had had a positive impact on their families because their husbands were pleased with the extra income, and their children also

benefitted from their increased patience and the fact that they practised most of the things they had learned at the Wawa Wasi:

Before I started working, I felt bored at home. Now I have changed with the children. I am more patient now, both with them and my own children. It is a very nice experience. (Mother-Carer from Cajamarca)

I applied with my own family what I learned in the training workshops. I am more sociable now, before I used to shut myself up in my house. I have learned to be more patient, to control my temper. (Mother-Carer from Ate Vitarte, Lima)

Only three of the 16 Mother-Carers indicated that the changes in their lives were not entirely positive because, as a consequence of their work, they were not able to go out and visit their friends and family as often as they used to.

Ten of the 16 Mother-Carers interviewed said they were satisfied with their job, mainly because of the children and all the love they received from them. In addition, these Mother-Carers said they were also satisfied because the job gave them the opportunity to have a profession – an opportunity they did not have before:

The satisfaction comes from taking care of the children and observing their progress and not from the remuneration. It is the relationship I build with the children what counts; they love me, hug me and call me auntie. That is the most valuable thing from this job. (Mother-Carer from Villa Maria del Triunfo, Lima)

I feel satisfied. I think I would miss the children if I left them because I have given so much of myself to them. One of the goals I had when I was young was to study pre-school education but I couldn't do it due to financial reasons. This is a way of having a profession. (Mother-Carer from Camana, Arequipa)

This positive relationship between the Mother-Carer and the children is very rewarding for the Mother-Carer. Most said that when they run into the children on the street, they still hug and kiss them as they used to do when they were their Mother-Carer. However, there are some cases where this strong bond turns into sadness. Some Mother-Carers feel devastated when children they have raised since they were babies turn four years old and have to leave the Wawa Wasi:

To be honest, I feel demoralised right now with the new children. I miss my former children. I am honest; I am not going to lie to you. I am not feeling that happy right now, that's why I am going to take a vacation. (Mother-Carer from Ate Vitarte, Lima)

Most Mother-Carers (nine out of 16) feel they are underpaid as they can't even afford basic services for their families, such as water and electricity. The salary of a Mother-Carer is set according to the time she has been in the programme and performance reports from her supervisor. A Mother-Carer's monthly salary was 120 soles (around US\$38 at the time the data was collected) if she had been in Wawa Wasi for less than six months, 150 soles (roughly US\$47) for those with 6-12 months service and 180 soles (around US\$56) for those with over a year's employment and good performance reports from their Field Coordinator.

Even though the highest salary for a Mother-Carer paid by the Wawa Wasi programme is 180 soles, some Mother-Carers in Lima reported earning up to 280 soles (approximately US\$88) because, in addition to their basic salaries, they received contributions from parents. We found parental contributions to be rare in other provinces of Peru where the incidence of poverty is higher.

In any case, the highest salary received by a Mother-Carerer is still below the minimum wage in Peru for working with children, which is 550 soles (approximately US\$172 dollars). Mother-Carers considered this situation unfair because theirs is a full time job that carries great responsibility. Because of that, Mother-Carers proposed they should receive the minimum wage and social benefits such as health insurance.

I don't think the salary is fair. We do a full time job. Not only do we look after the children, we also teach and stimulate them. It wouldn't be wrong if they increased our salary.
(Mother-Carerer from Villa María del Triunfo, Lima)

Those Mother-Carers who are happy about their income say they are satisfied because they are earning this money without leaving their house and that what they receive is enough to complement their husbands' incomes.

Seven of the 16 Mother-Carers said parents appreciate what they are doing for their children and thank them. Nevertheless, some feel criticised by parents and community members:

My work as a Mother-Carerer is not appreciated by others. Maybe the parents who have their children in the Wawa Wasi appreciate my work but the others criticise me. My neighbours tell me: 'don't you have your own kids to look after?' (Mother-Carerer from Ate Vitarte, Lima)

Finally, regarding the benefits their work has brought for their communities, Mother-Carers mainly emphasised the delivery of food to the children and the care provided for them while their parents are working. It is interesting that none of the Mother-Carers interviewed indicated children's learning or development as one of the benefits for the community provided by the programme.

5.6 Wawa Wasi Programme as work and/or study opportunities for local mothers

One of the objectives of the Wawa Wasi Programme is 'to contribute to the personal development of Peruvian women and to the improvement of their quality of life by facilitating their search for work and education opportunities'.¹¹ The aim of the programme is to give mothers the opportunity to start working or studying, knowing that their children are safe while they are not at home. We explored parental motivations for sending their children to a Wawa Wasi, mothers' opportunities to work or study as a consequence of sending their child to the programme and perceptions of the importance of the programme. Over half of the interviewed mothers (25 out of 45) said they send their children because of the need to work either at home or outside. This suggests there is a need for child care that it is apparently being addressed by the programme.

I sent him because I had to go out to work. I went to sell [in the market]. I left him in the mornings... There was nobody at home to stay with him and I had to work. And they were going to look after him and feed him in the Wawa Wasi. (Treatment group mother from Cajamarca)

I sent him because we were self-employed and didn't have the financial resources to hire somebody to look after him at home. (Treatment group mother from Camaná, Arequipa)

11 www.mimdes.gob.pe/wawawasi; translated by the authors of this report.

I sent him to be able to cook, wash clothes, anything. When he was here he didn't let me do anything. (Treatment group mother from Cajamarca)

The second most frequent reason given by mothers for sending their children to a Wawa Wasi was that the programme provided food. This reason was most frequently given by mothers from the poor rural district of Apurimac where 12 of 15 cited food as the primary reason for enrolment. Other reasons were that the programme stimulates children's development and that it is a space where the children can interact with others of their age. However, these reasons were mentioned by only a few mothers.

According to the mothers, the programme is accomplishing its objective of helping mothers work or study knowing their children are safe. It should be noted that women interviewed had not started to work or study as a consequence of sending their children to the Wawa Wasi but had been working before. Thanks to the programme, they may now go to work without worrying about their children's safety. Only four of 47 reported that they started work after their children began to attend the Wawa Wasi and another two reported they started to study:

The Wawa Wasi programme helped me because I stopped worrying and could work without thinking every minute what might happen to my baby. They also gave him breakfast and lunch. (Treatment group mother from Ate Vitarte, Lima)

The Wawa Wasi programme helped me to continue working because I didn't have enough time to look after the baby. She was born when I was starting a business. (Treatment group mother, Tumbes)

This raises the question of where mothers left their children before they started sending them to the Wawa Wasi. Those who had an extended family usually left them with their grandparents or another relative. For those who didn't have other relatives at home, it was apparently common practice to leave the children alone locked up in the house. An alternative was to leave them on the street under the occasional supervision of a neighbour:

Before I started sending her to the Wawa Wasi, I left her with my friend but she didn't really look after her, she was looking after her own kids. (Treatment group mother, Camana, Arequipa)

The Wawa Wasi programme is important because otherwise children are at risk. They will be locked in the house or under the supervision of their grandparents. Children are safer in the Wawa Wasi. (Field Coordinator from Tumbes)

When asked whether it was important for them to have a Wawa Wasi in their neighbourhood, 27 of 47 responded affirmatively as they could now go to work knowing their children were safe. They emphasised that Wawa Wasi is especially useful for poor families where there is no adult or older sibling to provide childcare.

Programme staff agreed with the mothers regarding the importance of Wawa Wasi. Twenty-seven out of the 45 staff members interviewed said the programme was important because it helped women to work or study. Field Coordinators in particular said that helping women in this way contributed to individual and community development.

The Wawa Wasi programme is important because it helps women. They can leave their child in a safe place and go to work and contribute to their family's income. It helps them to improve their quality of life. (Field Coordinator from Cajamarca)

As a result of this perception, some staff thought that a child whose mother was not working should not be accepted into the Wawa Wasi.

It is very important to implement the Wawa Wasi in extremely poor areas where the mothers have to go out to work. The only condition I set is that the mother should work. The Ministry forbids enrolling a child whose mother is loafing around because the Wawa Wasi programme is a service. (Management Committee from Ate Vitarte, Lima)

It should be noted, however, that this is not official policy and that some children might be excluded from the programme even when they are legitimate target beneficiaries.

Some staff members from Lima, and a mother from Cajamarca, noted that aid provided by the programme is especially important for poor single mothers who are less likely to have somebody at home to help them with their children.

5.7 Assessment of the Wawa Wasi Programme by treatment families and programme staff

According to mothers from the treatment group, their children have made significant progress in their development, especially in social skills and hygiene practices. Nineteen mothers think their children are more easy-going, self-confident and independent, that they have learned important hygiene habits such as washing their hands and brushing their teeth, which have in turn contributed to making them more independent.

Compared to my other children, Miriam participates in adult conversations as well as in children's conversations. A child who does not attend Wawa Wasi is shy. (Treatment group oldest sister, Andahuaylas, Apurimac)

They taught them to say hello, to wash their hands, to love themselves. They also taught them that if their parents punished them, they should report it. Once I yelled at my daughter and the Mother-Carer reprimanded me and told me that that was not the appropriate way to bring her up. (Treatment group mother from Cajamarca)

She learned to eat by herself. She is more communicative now. She has learned many things, she has learned songs. She is managing herself better. (Treatment group mother from Camana, Arequipa)

Mother-Carers agree, noting that children under one learn to talk and to ask to go to the toilet and those older than two learn to wash their hands before meals and after visiting the toilet and can brush their teeth and change their clothes. All these accomplishments have contributed to making the children more independent.

Both mothers and Mother-Carers noted improved motor skills. Six mothers reported that children now know how to hold a pencil to draw or use crayons to colour paper. Mother-Carers observed progress in tasks related to colouring, doing a puzzle, building a tower with blocks and filling and emptying a container. They emphasised the achievements of under-ones who learn to crawl and walk in the Wawa Wasi. Further accomplishments noted by both groups are expansion of vocabulary, knowledge of colours and parts of the body and increased height and weight.

When we asked mothers if they were satisfied with the degree of attention given to their children, 46 of 47 interviewed replied affirmatively, drawing attention to the stimulation provided, the care given by the Mother-Carer and the fact that the programme provides food.

When asked for negative comments, 27 of the 47 mothers said they had nothing negative to report. Almost all the others said, however, that on some occasions Mother-Carers neglect children, especially when they have a young child of their own in the centre and give him/her disproportionate attention. In theory, Mother-Carers are not allowed to have their own child in

the Wawa Wasi and should send them to another centre, as programme planners assume the child will find it difficult to share his/her mother's attention with other children. However, it is permitted if the mother is breast-feeding. This concerns some mothers who fear their child will receive insufficient attention.

Four mothers said that the Mother-Carer hit their children and three mothers reported their children were hit by the Mother-Carer's daughter. Not all reported the abuse. The only interviewee who did said that the Mother-Carer had been dismissed. Further research is needed to determine the extent of this problem and success of measures to combat it.

When we asked Mother-Carers, Field Coordinators and members of Management Committees to assess the programme, they mentioned:

1. Children are fed and are better nourished because the food provided is healthy, balanced and age-appropriate.
2. The programme promotes women's personal and professional development. Mother-Carers can work and earn some money without leaving home and local mothers can go to work knowing their children are safe.
3. Children are safe, cared for and no longer left alone at home or in the street while parents work.
4. The programme provides holistic care – nutrition, health and stimulation. The Field Coordinators particularly emphasised this and were apparently the only stakeholders to understand the concept.
5. Programme staff are constantly being trained to improve their performance and correct mistakes.
6. Wawa Wasi promotes community participation as community members volunteer to join Management Committees and assist communal kitchens.

Mother-Carers particularly noted the first three aspects and members of Management Committees the other three.

In order to improve the Wawa Wasi programme, key actors we interviewed suggested that:

1. Wawa Wasis should be supplied with more toys and educational materials. All interviewees made this point, but particularly mothers and Mother-Carers.
2. More frequent staff training is needed, especially for Mother-Carers. Some interviewees mentioned the workshops should not only raise their work-related skills but also reading and writing skills.
3. Mother-Carers' salaries should be in line with the statutory minimum wage, as their earnings often cannot cover their basic needs and do not correspond to the type of work they do.
4. Centre budgets should be increased so as to allow each to permanently employ a psychologist.
5. Food rations should be increased. This was particularly suggested by mothers. Informants were generally satisfied with the quality of the food but not the quantity, and want larger and more frequent meals.

6. Sanitation should be improved and pit latrines replaced with proper toilets.¹²
7. Members of the Management Committees should be given incentives because the burden of work is too heavy to be done on a voluntary basis. In addition to supervising cooking and food delivery, they have to visit all the Wawa Wasis in their area and check Mother-Carers are doing their jobs, as well as providing assistance to the Field Coordinator. A monetary incentive is not necessarily required. Some interviewees suggested the incentive could be non-monetary, such as a certificate of appreciation or a shirt or T-shirt identifying them as a Management Committee member.
8. Mother-Carer selection procedures should be improved. Candidates should be examined to check they can read and write and that they are sufficiently patient with young children.

5.8 Assessment of the Wawa Wasi programme by contrast families

We interviewed families from the contrast group to explore their knowledge and beliefs about the programme, and to ascertain why they chose not to send their children there. Most of these mothers (31 of 56) see Wawa Wasis as day-care centres where parents leave their children to be looked after. Fifteen said the programme was an aid to working mothers. Most know that Wawa Wasi children receive food. Only 14 of 56 described Wawa Wasi as a place that provides stimulation and promotes learning. When we asked non-participant mothers why they didn't send their children to the Wawa Wasi, most said they didn't need to because they either took care of them themselves since they were not working (17 mothers) or had somebody at home (usually a relative) to help them with the children when they were away from home (11 mothers).

I didn't send them because it wasn't necessary. I was at home with my children. I didn't need Wawa Wasi. I was with them. (Contrast group mother from Ate Vitarte, Lima)

I didn't need to. There was somebody at home to look after her. (Contrast group mother from Cajamarca)

Seven mothers said that the reason they did not send their children was because their husbands or some other member of their families didn't want them to. Seven reported that they had tried to send their children to a centre, but they had refused to go and/or stay there.

There was a Wawa Wasi near here but my husband didn't want to send him, nor did his grandparents. They were afraid they wouldn't take good care of him there. (Control group mother from Tumbes)

I took him to the Wawa Wasi once when he was two years old but he didn't get used to it. He cried and cried. (Contrast group mother from Camana, Arequipa)

Eight mothers said they didn't send their children as they didn't believe they would be safe, fearing they might be hurt by the Mother-Carer or a member of her family.

Sometimes I go out to work and I would have left him there but the truth is I don't trust that he is going to be fine. There was news about a baby raped in a Wawa Wasi by the Mother-Carer's son. You never know ... Sometimes they hit the children. I don't trust Wawa Wasi. (Contrast group mother from Ate Vitarte, Lima)

¹² In some cases, Management Committees have helped Mother-Carers to renovate the parts of their houses where Wawa Wasi activities take place.

Fear of some form of violence against children is also shared by some of the mothers who actually send their children to a Wawa Wasi. Most of these fears may be unfounded but they must be acknowledged and addressed.

When asked their general opinion of the Wawa Wasi programme, 31 non-participant mothers had a favourable opinion, 21 saying it helps mothers who have to work and need childcare. The rest of the mothers who have a positive opinion about the programme think it is good because children are receiving attention instead of being alone or unattended and are socialising with other children their age.

It is interesting to note how similar the opinions of mothers from the contrast group are to those of treatment group mothers. They value the programme for the same reason: because it helps women who need to work and don't have a safe place to leave their children.

6. Conclusion and recommendations

Most people we interviewed value the presence of Wawa Wasi in their communities highly.

In general, community members and local programme staff perceive them as day centres where children are safe and well-nourished, giving mothers the peace of mind to go to work. It is unlikely that a child whose mother doesn't work will attend a Wawa Wasi. The Wawa Wasi programme is, at least in theory, an early childhood programme which is good for children regardless of the employment status of their mother. The stated programme objective of promoting holistic social, cognitive and physical development is not generally understood by mothers. Community members and programme staff sometimes think that working women, not their children, are the key beneficiaries of the programme. This means that parents who actually send their children to a Wawa Wasi don't have great expectations in terms of improved cognitive and motor development because they are just looking for a day-care and feeding institution.

By design, Wawa Wasi follows all the recommendations of Engle et al. (2007) for effective early childhood programmes: targeting poor children; starting early; providing an integrated approach which combines stimulation, nutrition and health; targeting parental practices and providing a direct intervention for children for several hours five days a week.

However, the reality is that it fails to enhance language or motor development skills. We have shown that there is little difference in terms of fine motor, gross motor and language skills of pre-school children who have spent at least six months at a Wawa Wasi and those who have stayed at home. When we discussed this with the Wawa Wasi authorities, they had two reactions: the fact that children in Wawa Wasi are not behind those who stay with their mothers is positive because the counterfactual situation would be a scenario where they would receive little attention (due to their mothers being engaged in other activities), while mothers in the contrast group should have more time to devote more individualised attention to their children. The second reaction, not necessarily complementary, was that the learning component of Wawa Wasi has been revamped in recent years. Because of the ages of the children in the current sample, this has not been captured by the study. Hence it would be useful to carry out new studies with younger children who have been through this revised component of the programme.

Radical change is not needed as the programme is running well and is well-respected.

However, in order for Wawa Wasi to achieve its declared goals, we recommend:

1. Identifying and enhancing the reading and writing skills of Mother-Carers. They should be tested prior to appointment and Field Coordinators should do more to help them raise their literacy standards, at least to the level expected of primary school children.
2. Giving Mother-Carers enhanced and more frequent training on how to provide cognitive and motor stimulation.
3. Increasing the availability and range of toys and learning materials in each centre.
4. Making sure that all the regional offices employ experienced psychologists with skills in child development to supervise the work of Mother-Carers and externally monitor the development of children at each Wawa Wasi field site.
5. Giving consideration, despite the economic difficulties facing Peru, to responding to the widespread demand to raise remuneration levels for Mother-Carers.
6. Ensuring that children in Wawa Wasis receive regular health monitoring.
7. Exploring ways of giving greater social recognition to members of Management Committees in order to encourage these volunteers to make long-term commitments.
8. Exploring scope for assisting parents of enrolled children to improve child-rearing practices in the home.
9. Expanding the programme to include more children in impoverished rural areas. Coverage is still low in many parts of Peru.
10. Investigating the impact of a new model for rural areas (Qatara Wawa).

We have noted shortcomings in previous evaluations of Wawa Wasi. Our own was based on a relatively small sample. It is important to set up evaluation designs that include baseline indicators and an equivalent control group, preferably determined by random assignment. The outcomes should be closely linked to the declared objectives of the programme and include information about programme implementation and the opinions of all stakeholders.

Wawa Wasi is an important state intervention targeting poor young children with a coverage enjoyed by no other public or private initiative. It has established itself as a positive, caring institution in the hearts and minds of thousands of families. It is worth working with as it continues to develop its role of furthering the development of impoverished children and their families in Peru. The programme is at a crossroads and needs to redefine its role. Should it emphasise holistic care or provide a nursery service to help mothers find or hold down jobs? We join the designers of Wawa Wasi in arguing that it should be the former.

References

Aber, J.L., N.G. Bennett, D.C. Conley and J. Li (1997) 'The Effects of Poverty on Child Health and Development', *Annual Review of Public Health* 18: 463-8.

Alva, M., J. Asalde and E. Ospina (2003) 'Actividad voluntaria o empleo precario: el trabajo comunitario de las mujeres. 'El aporte de las mujeres al Programmea Nacional Wawa Wasi' in M. Leon (ed.) *Mujeres y Trabajo: Cambios Impostergables*, Lima: REMTE, Marcha Mundial de las Mujeres, CLACSO & ALAI.

Arroyo, J., N. Reátegui and J. Gomero (2004) 'Evaluación Final del Programa Nacional Wawa Wasi en su Primera Fase, Informe Final', Technical Report submitted to the Ministry of Health, Lima.

Boza, B. (2007) 'Gasto público con incidencia en infancia: análisis comparativo entre DEMUNAS y Wawa Wasi' in *Niños del Milenio, Vigilancia Ciudadana de la Acción del Estado sobre la Infancia*, Lima: Niños del Milenio: 51-292.

Calderon, M.R. (2004) 'Informe de Estudio Comparativo de Desarrollo Infantil entre niños/as Wawa Wasi, no Wawa Wasi y de cuñas privadas', Technical Report submitted to the National Program Wawa Wasi, Lima.

Chacaltana, J. (2004) 'Informe Final de Línea de base (Medición de Entrada) del programmea Nacional Wawa Wasi', Technical Report submitted to the National Program Wawa Wasi, Lima.

Cordero, Luis (2007) 'Perspectiva Nacional de los Nuevos Patrones de Crecimiento de Niños y Niñas', paper presented at *Seminario de Presentación de los Nuevos Patrones de Crecimiento de Niños y Niñas de la OMS*, Lima, 23 April 2007.

Cuánto Institute (2004) 'Evaluación de Impacto del Programmea Nacional Wawa Wasi 2003. Informe Final', Technical Report submitted to the Ministry of Health, Lima.

Engle, P., M.M. Black, J.R. Behrman, M. Cabral de Mello, P.J. Gertler, L. Kapiriri, R. Martorell, M.E. Young and the International Child Development Steering Group (2007) 'Strategies to Avoid the Loss of Developmental Potential in more than 200 Million Children in the Developing World', *The Lancet* 369: 229-42.

Escobal, J. and C. Ponce (2007) *Trade Liberalisation and Child Welfare: Assessing the Impact of a Free Trade Agreement between Peru and the USA*, Young Lives Working Paper 36, Oxford: Young Lives.

Escobal, J., P. Suarea, S. Huttly, C.F. Lanata, M.E. Penny and E.Villar (2005) *Does Having a Newborn Child Affect Income Diversification Opportunities?*, Young Lives Working Paper 24, Oxford: Young Lives.

Grantham-McGregor, S., Y.B. Cheung, S. Cueto, S. Glewwe, P. Richter, L., Strupp, B. and the International Child Development Steering Group (2007) 'Developmental Potential in the First Five Years for Children in Developing Countries', *The Lancet* 369: 60-70.

INEI (2006) *Condiciones de vida en el Perú: Evolución 1997-2004*. Lima: Instituto Nacional de Estadística e Informática.

INFORMET (2001) 'Evaluación del Programa Nacional de Wawa Wasi. Julio 1999 – Diciembre 2000', Technical Report submitted to the National Progra Wawa Wasi, Lima.

- Glaser, B. and A. Strauss (1967) *The Discovery of Grounded Theory*, Chicago: Aldine.
- Haeussler, Isabel and Teresa Marchant (2003) *TEPSI Test de Desarrollo Psicomotor 2-5 Años*, Santiago: Ediciones Univesidad Católica de Chile.
- Heckman, James, Ichimira Hidehiko and Petra Todd (1998) 'Matching as an Econometric Evaluation Estimator', *Review of Economic Studies* 65: 261-94.
- Heckman, James, Ichimira Hidehiko and Petra Todd (1997) 'Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Program', *Review of Economic Studies* 64: 605-54.
- MED, BID and UNICEF (1996) *Evaluación del Impacto de los Wawa Wasi en la Cultura de Crianza de la Población de Bajos Ingresos de Lima*, Lima: Ministerio de Educación.
- Myers, R. (1992) *The Twelve who Survive. Strengthening Programmes of Early Childhood Development in the Third World*, London: Routledge.
- Pollitt, E. (1980) *Poverty and Malnutrition in Latin America. Early Childhood Intervention Programs*, New York: Praeger.
- Rosenbaum, P. and D. Rubin (1983) 'The Central Role of the Propensity Score in the Observational Studies for Causal Effects', *Biometrika* 70: 41-55.
- Rosenbaum, P. and D. Rubin (1985) 'Constructing a Control Group Using Multivariate Matched Sampling Methods that Incorporate the Propensity Score', *The American Statistician* 39: 33-8.
- Strauss, A. (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Thousand Oaks, CA: Sage Publications.
- Wawa Wasi Programme (2000) *Guía de Estimulación Temprana para Madres Cuidadoras*, Lima: MIMDES.

Appendix 1

Summary of main studies for Wawa Wasi

Author, year	Design and Methods	Main Findings
Ministry of Education, Inter American Development Bank and UNICEF, 1996.	<ul style="list-style-type: none"> • Conducted in Lima • Participants <ul style="list-style-type: none"> – 60 Wawa Wasis – 300 children – 60 Mother-Carers – 30 members of communal kitchens – 120 participant parents – 60 families of Mother-Carers • Methods: <ul style="list-style-type: none"> – Interviews – Observations 	<p>Actors' perceptions regarding:</p> <ul style="list-style-type: none"> • Food service: 90% of members of communal kitchen thought children received balanced and nutritious food. • Health: 70% of mother care takers and participating families thought health care was appropriate because they regularly checked children's height, weight and organized vaccination campaigns. • Stimulation: 54% of Mother-Carers carried out activities aimed to stimulate children, 85% had toys and materials within the reach of children but only 68% arranged them according to age. • Care: 98% of participant families were satisfied with the service Mother-Carers gave.
INFORMET, 2001.	<ul style="list-style-type: none"> • Conducted in 10 sites in Peru. • Stratified sampling • Participants: <ul style="list-style-type: none"> – 100 Wawa Wasis – 100 children – 100 Mother-Carers – 400 participant parents • Methods: <ul style="list-style-type: none"> – Interviews – Observations – Review of documents – Focus groups with programme staff 	<ul style="list-style-type: none"> • Regarding the health component, only 38% of the controls of weight and height planned were actually carried out. • Regarding food service: <ul style="list-style-type: none"> – Menus showed food high in energy and animal proteins – Food rich in vitamin C and vitamin A, and dairy products in the diet was less frequent. – 79.4% of the children had no stunting. • In stimulation, 63% of the children were alert and curious. • Only 30.2% of participant families reported having received information on child-rearing practices. • Overall 98% of the parents were satisfied with the Wawa Wasi. They perceived it to be a programme that helped parents who worked and gave nutritious meals to children (thus helping the economy of the family).
Arroyo, Reátegui and Gamero, 2004.	<ul style="list-style-type: none"> • Conducted in 13 sites. • Participants: <ul style="list-style-type: none"> – 67 Wawa Wasis – 400 children and their parents – Local staff of Wawa Wasi program • Methods: <ul style="list-style-type: none"> – Quantitative and Qualitative study. – No baseline – No control group 	<ul style="list-style-type: none"> • Using baseline data from Wawa Wasi, found children with at least six months in the programme had: <ul style="list-style-type: none"> – A higher height/age Z score and – A higher weight/height Z score • Development was measured comparing achievement in several areas (language, fine motor, gross motor and personal social) against expected, theoretical trajectories, with mixed results. These are hard to interpret given the lack of baseline or control group.

Author, year	Design and Methods	Main Findings
Cuanto Institute, 2004.	<ul style="list-style-type: none"> • Comparative Study • Participants: <ul style="list-style-type: none"> – Treatment group: 649 children – Control group: 562 children – Parents and local staff of Wawa Wasis were interviewed. • Methods: <ul style="list-style-type: none"> – No baseline – No statistical adjustments for any differences in relevant variables among treatment and control group. 	<p>Results in health:</p> <ul style="list-style-type: none"> • 90% of the children in the treatment group had received all vaccinations appropriate to their age. • 78% of children from treatment group had at least one height and weight check. • 26.8% of treatment group had chronic malnutrition. • 62.4 of treatment group had anemia. <p>Regarding Psychomotor development:</p> <ul style="list-style-type: none"> • 42% of the children had a deficit in their psychomotor development. • No statistically significant differences between the treatment and the control group. <p>Parents satisfied with the programme because:</p> <ul style="list-style-type: none"> • Offers a safe place to leave their children • Gives them time to do other activities such as work
Chacaltana, 2004.	Baseline study using Wawa Net information.	<p>Results in several indicators:</p> <ul style="list-style-type: none"> • In health: <ul style="list-style-type: none"> – 86% of children were fully vaccinated had a complete vaccination by the time they started in the programme – 77.6% of children had a disease such as diarrhoea or a respiratory infection • Regarding nutrition, 80% of the children have an adequate nutritional status. • In psychomotor development 86% of the children have a level of development considered normal by the time they join the program.
Calderon, 2004.	<ul style="list-style-type: none"> • Comparative study • Participants: <ul style="list-style-type: none"> – 1500 children from Wawa Wasis • 185 children from private sectors (cuñas) – 452 children as control group. • Methods: <ul style="list-style-type: none"> – No statistical controls included in the analysis. 	<p>Study found better results for children in cuñas followed by children from Wawa Wasi and then control group.</p> <p>Better results were found for Wawa Wasi children especially in the areas of :</p> <ul style="list-style-type: none"> • Basic habits • Fine motor skills
Boza, 2007.	Analysis of Wawa Wasi Program's functioning and expenditure	<ul style="list-style-type: none"> • Overall Wawa Wasi worked quite well, following a franchise type of organization. • National directives were applied in a similar way across regions and specific centres. • Programme was recognised for its abundant normative regulations, which helped support the implementation of the programme, and its system of information and accountability (Wawa Net)

Appendix 2

Probit regression and matching results at different levels of confidence

Table 2A. *Probit regression results for the likelihood of participating in the programme.*

Predictors	B	se(β)	IC (95%)	
Lives in Camana	-0.3	0.7	-1.6	1.0
Lives in Cajamarca	-1.0	0.6	-2.2	0.2
Lives in Lima	-2.1	0.7	** -3.5	-0.8
Lives in Tumbes	-0.5	0.7	-1.8	0.8
Gender (female)	0.1	0.3	-0.5	0.7
Age (months)	0.0	0.1	-0.1	0.1
Physically inadequate house	0.3	0.4	-0.4	1.1
Older siblings	0.4	0.3	-0.3	1.0
N of persons who pay for household expenses	0.1	0.2	-0.2	0.4
Parent's educational level	0.3	0.5	-0.6	1.2
Constant	-0.3	3.2	-6.5	6.0
Observations	100			
Log likelihood	-48.6			
Pseudo R ²	0.29			

**p<0.05

Table 2B. *Differences in psychomotor development, social abilities and amount of time in pre-school programmes by group of study (with and without matching).*

		Treatment	Contrast	Difference	Confidence Interval (Bias Corrected) 1/					
					` (90 %)`		` (95 %)`		` (99 %)`	
Total Score	Without matching	47.4	52.1	-4.7**	[-8.2	-1.6]	[-8.8	-0.9]	[-10.4	0.5]
	With matching	50.1	49.0	1.1	[-2.0	10.3]	[-2.9	11.5]	[-4.8	11.5]
Fine Motor Score	Without matching	47.3	52.1	-4.8**	[-8.2	-1.8]	[-8.8	-1.1]	[-10.1	0.0]
	With matching ^{2/}	49.7	47.6	2.0	[0.0	11.6]	[-1.0	11.6]	[-3.1	11.6]
Language	Without matching	47.7	51.8	-4.2**	[-7.4	-1.0]	[-8.2	-0.4]	[-9.3	1.0]
	With matching	49.8	48.1	1.7	[-1.6	10.9]	[-2.4	13.2]	[-4.2	13.2]
Gross Motor Score	Without matching	49.0	50.8	-1.7	[-5.5	1.4]	[-6.4	2.3]	[-7.8	3.6]
	With matching	51.1	53.4	-2.2	[-10.3	3.4]	[-11.8	4.4]	[-14.3	6.5]
Months in pre-school	Without matching	16.0	17.1	-1.0	[-3.2	1.3]	[-3.5	1.6]	[-4.2	2.2]
	With matching	16.7	17.4	-0.7	[-5.6	3.7]	[-6.6	4.7]	[-8.6	6.5]

**p<0.05, *p<0.10

1 The bootstrap estimation with 1000 repetitions was used to calculate the difference between groups and confidence intervals.
 2 The value at the upper level of the interval of confidence does not change because of a ceiling effect in the difference between treatment and contrast groups.

Table 2C. *Covariate Imbalance Testing for the variables included in the matching.*

	Without matching			With matching			% Bias reduced
	Treatment	Contrast	% std. bias /abs/	Treatment	Contrast	% std. bias /abs/	
Lives in Camana	22.7 (42.4)	8.9 (28.8)	38.1	26.3 (44.6)	21.1 (41.3)	12.2	67.9
Lives in Cajamarca	18.2 (39.0)	17.9 (38.6)	0.8	21.1 (41.3)	21.1 (41.3)	0.0	100.0
Lives in Lima	6.8 * (25.5)	55.4 * (50.2)	122.0	7.9 (27.3)	7.9 (27.3)	0.0	100.0
Lives in Tumbes	22.7 (42.4)	14.3 (35.3)	21.6	26.3 (44.6)	21.1 (41.3)	12.2	43.4
Gender (female)	56.8 (50.1)	57.1 (49.9)	0.6	57.9 (50.0)	63.2 (48.9)	10.6	1539.3
Child's age (months)	58.4 (3.2)	59.5 (3.1)	35.2	58.7 (3.1)	58.8 (2.9)	2.8	91.9
Households in homes with inadequate physical characteristics	52.3 * (50.5)	17.9 * (38.6)	76.5	44.7 (50.4)	36.8 (48.9)	15.9	79.2
Older siblings	50.0 (50.6)	37.5 (48.9)	25.1	44.7 (50.4)	55.3 (50.4)	20.9	16.9
Number of persons who pay for household expenses	2.0 (0.9)	2.2 (1.1)	17.6	2.0 (0.9)	1.8 (0.9)	17.7	-0.2
Parent's educational level (primary education or less)	29.5 (46.2)	14.3 (35.3)	37.1	21.1 (41.3)	10.5 (31.1)	28.8	22.5

* p<0.05 (t-test for independent groups).

Appendix 3

Abilities/skills that Mother-Carers stimulate in the children during routine activities in the Wawa Wasi.¹³

Wawa Wasi is neither a school nor a pre-school. There are no common stimulation activities for all the children. Every child has different needs at different times and they should be stimulated during routine activities accordingly.

Areas of Development	Abilities/ Skills	How is the ability stimulated during routine activities?
Physical	Gross motor development <ul style="list-style-type: none"> Exploring the environment. Using their hands and body in a precise way 	Stimulating them to crawl, walk and run during play time Exercising their arms and legs during diaper changing time
	Fine motor development and eye-hand coordination <ul style="list-style-type: none"> Using their hands to grasp and release objects Using their fingers to pick up smaller things 	Promoting block-building activities during play time Giving them small pieces of food during meals to encourage them to pick things up with their fingers
Emotional	<ul style="list-style-type: none"> Self-esteem Confidence Giving and receiving affection Tolerating frustration 	Giving them signs of love, attention and care every day. Having a loving attitude when talking to the children, smiling when they talk to you, hugging them, etc.
Social	<ul style="list-style-type: none"> Saying hello and goodbye Sharing Listening Following instructions 	Talking to them all the time Giving them instructions while they are changing their clothes (e.g., 'first your arms, then your head', etc.) Giving them precise instructions such as 'give me the spoon' during lunch time (younger children)
Cognitive	<ul style="list-style-type: none"> Learning the <u>vocabulary of the area</u> where they live. Learning categories (e.g. objects we use to eat, to clean ourselves, etc.) Learning notions of time and space Following instructions 	Naming every object that is going to be handed to the child Naming the parts of their body/asking them to name the parts of their body Naming the other people in the room. Teaching them concepts such as clean/dirty, far/close, etc. Telling the children what you are going to do with them (e.g., now I am going to get you dressed) Reading them a story or singing them a song Showing them a picture and telling them the name of the object/asking them to tell you the name of the object in the picture (older children) Establishing a schedule for certain activities, such as eating or napping. This helps the children develop a notion of time and space Giving the children instructions while they are changing their clothes (e.g., 'first your arms, then your head', etc.) Giving them precise instructions such as 'give me the spoon' during lunch time (younger children)

¹³ Taken from Wawa Wasi programme description (2000).

Appendix 4

Coefficients of Variation for variables in Table 1 (p.7).

	Target Population (children)	Population	Poor Population (any age)
Amazonas	0.14	0.10	0.12
Ancash	0.15	0.09	0.12
Apurimac	0.16	0.11	0.13
Arequipa	0.15	0.08	0.12
Ayacucho	0.15	0.09	0.12
Cajamarca	0.12	0.09	0.10
Cusco	0.14	0.09	0.12
Huancavelica	0.14	0.11	0.11
Huánuco	0.13	0.09	0.11
Ica	0.16	0.10	0.14
Junín	0.14	0.09	0.11
La Libertad	0.19	0.09	0.14
Lambayeque	0.19	0.10	0.15
Lima y callao	0.07	0.03	0.06
Loreto	0.12	0.09	0.10
Madre de Dios	0.15	0.11	0.13
Moquegua	0.21	0.09	0.14
Pasco	0.16	0.11	0.12
Piura	0.14	0.09	0.13
Puno	0.17	0.09	0.12
San Martín	0.14	0.10	0.11
Tacna	0.19	0.10	0.14
Tumbes	0.18	0.11	0.13
Ucayali	0.12	0.10	0.10
Perú	0.02	0.01	0.02

Young Lives is an innovative long-term international research project investigating the changing nature of childhood poverty.

The project seeks to:

- improve understanding of the causes and consequences of childhood poverty and to examine how policies affect children's well-being
- inform the development and implementation of future policies and practices that will reduce childhood poverty.

Young Lives is tracking the development of 12,000 children in Ethiopia, India (Andhra Pradesh), Peru and Vietnam through quantitative and qualitative research over a 15-year period.

Young Lives Partners

Young Lives is coordinated by a small team based at the University of Oxford, led by Jo Boyden.

Ethiopian Development Research Institute, Ethiopia

Centre for Economic and Social Sciences, Andhra Pradesh, India

Save the Children – Bal Raksha Bharat, India

Sri Padmavathi Mahila Visvavidyalayam (Women's University), Andhra Pradesh, India

Grupo de Análisis para el Desarrollo (Group for the Analysis of Development), Peru

Instituto de Investigación Nutricional (Institute for Nutritional Research), Peru

Centre for Analysis and Forecast, Vietnamese Academy of Social Sciences, Vietnam

General Statistics Office, Vietnam

The Institute of Education, University of London, UK

Child and Youth Studies Group (CREET), The Open University, UK

Department of International Development University of Oxford, UK

Statistical Services Centre, University of Reading, UK

Save the Children UK (staff from the Rights and Economic Justice team in London as well as staff in India, Ethiopia and Vietnam).



Young Lives 
An International Study of Childhood Poverty

Department of International Development
University of Oxford
3 Mansfield Road, Oxford OX1 3TB, UK
Tel: +44 (0)1865 281751
Fax: +44 (0)1865 281801
Email: younglives@younglives.org.uk

www.younglives.org.uk