Prevention of Child Injuries through Social-intervention & Education (PRECISE)

An Approach to Child Injury Prevention

Document I: Overview & Introduction

Acknowledgments

The **PRECISE Project** has grown from the seminal work done in Bangladesh between 2003-2005 on the *Bangladesh Health & Injury Survey, Report on Children.* This work was the largest community based injury survey ever attempted in a developing country, and it documents the importance of child injury as a leading contributor to child mortality and morbidity in this country. Now we are engaging in a large community based intervention project which aims to demonstrate that child injuries can be greatly reduced in a developing country in a cost effective manner.

None of this could be possible without the continued support and interest of UNICEF at all levels: the UNICEF Country Office in Dhaka, the UNICEF Regional Offices in Nepal and Bangkok, and UNICEF Headquarters in New York.

Staff at the Centre for Injury Prevention, Bangladesh, (CIPRB), and The Alliance for Safe Children, (TASC), are especially grateful for the support of the following individuals: former UNICEF Country Representative, Mr. Morten Giersing; former Chief of Health & Nutrition, UNICEF Country Office, Dr. Kayode S. Oyegbite; UNICEF Regional Injury Advisor, Dr. Huan Linnan; UNICEF Project Officer, Dr Shumona Shafinaz; and current UNICEF Health & Nutrition Chief, Dr.Iyorlumun Uhaa, Dr. AKM Shamsuddin; Additional Director General and Line Director (NCD & OPHI), Directorate General of Health Services (DGHS), Dr. Md. Siddiqur Rahman, Focal Person Injury Prevention & DPM (Arsenic), DGHS.

It is the special group of dedicated individuals above who have made working on the prevention of child injury in Bangladesh possible. We respectfully and gratefully acknowledge their contribution.

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February, 2006

Foreword

The Bangladesh Health and Injury Survey (BHIS), which was released in 2005, showed that injury is the biggest killer of Bangladeshi children between 1 and 17 years. More than 30,000 children die every year due to injury besides causing many more cases of disability. Faced with the details of this staggering problem, a coalition of partners has come together to do something about it.

The Centre for Injury Prevention and Research, Bangladesh (CIPRB) with technical assistance from DGHS, UNICEF and TASC, has developed a community-based child injury intervention project titled **"Prevention of Child Injuries through Social-intervention and Education (*PRECISE*)".** This project will be, to the best of our knowledge, the largest community based injury intervention project ever carried out in a developing country environment. **PRECISE** is designed to run for at least a period of three years and should create some practical, cost effective ways of reducing child injuries.

The **PRECISE** project is composed of several different elements: Home Safety, School Safety, and Community Safety. Each element will have behavior change and environment modification components within it which should reduce child injury. There is also an active system for injury surveillance built into the project to accurately measure and evaluate the outcomes of the interventions. The focus areas will include rural and urban areas.

Among the products of this project is a set of reports, guidelines, manuals, and tools which will document the project and provide readers concerned with the prevention of child injury with the practical lessons learned from conducting a program like this. The information that will be generated will help us understand the changes of the injury situation over time. This will also assist in evaluating the effectiveness of the intervention project. It is hoped that this collection of documents can serve as a "Guidebook" for other programs seeking ways to reduce child injury.

The complete set of documents making up this "Guidebook" will not be finalized until the end of the project period, but different chapters will be made available as "deliverables" throughout the life of the project. This first set, identified below and included as separate documents, represents CIPRB's efforts over the first 5 months of the project. It is a commendable start.

I would like to thank all of who were actively involved in the process of developing these documents which are very new, at least in terms of child injury prevention, in Bangladesh.

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The PRECISE Documents Set

The collective intention of the partner institutions is to create tools which will assist child injury prevention programs globally. Documents in this series may be freely reproduced with the appropriate acknowledgement. Viewed as a whole, the **PRECISE** Documents Set should provide keen insights into the prevention of child injury in developing country environments.

The PRECISE Documents (As of February, 2006)

1. Document 1: Overview and Introduction to PRECISE (Feb.06)

2. Document 2: Strategies, Guidelines, & Instruments for Injury Surveillance System in Bangladesh (Feb.06)

3. Document 3: Strategies, Guidelines, & Instruments for Social Autopsy Program (Feb.06)

4. Document 4: School Safety Programme: A Report on Existing Texts and Curriculum (Feb.06)

5. Document 5: Strategies & Guidelines for School Safety Programme (Feb.06)

6. Document 6: Strategies, Guidelines, & Instruments for Crèche Programme (Feb.06)

7. Document 7: Strategies, Guidelines, & Instruments for Home Safety Programme (Feb.06)

8. Document 8: PRECISE Surveillance Reports-due twice per year

9. Document(s) 9: PRECISE Annual Progress Reports, Year 1, Year 2, Year 3- Due annually

10. Document 10: PRECISE Baseline Report- due 2006

11. Document 11: PRECISE Final Report- due 2008

12. Document : Swim for Life: Strategies, Guidelines, & Training Manual

1. Background and Introduction

1.1 Global Burden of Injury

Injury is a leading cause of death and disability in the world. According to the World Health Organization (WHO), every year more than 5.8 million people die from injuries, with a rate of 97 per 100,000 population. Of this, 3.8 million (128.6 per 100,000 population) are male and 1.9 million (66.7 per 100,000 population) are female (1).

Historically, child injury was largely associated with industrialized countries. However, a UNICEF/Innocenti Research Centre Study published in 2001 showed that over 98 percent of all child deaths from injury occurred in developing countries where most of the world's children live. The study found that the rate of child death from injury in low and middle-income countries was five times higher than high-income countries (2). The major causes of injury are drowning, transport accidents, burns, falls, poisoning and intentional injuries.

In low and middle-income countries, children grow up exposed to much higher levels of environmental hazard in cultures that do not have an awareness of safety and risk avoidance, and where social situations make close adult supervision difficult. This is compounded by a lack of preventive services and access to emergency medical care, except for a small minority of urban dwellers. A final significant contributor is the general lack of knowledge and skills in basic first aid.

1.2 Child Injury in Bangladesh

In Bangladesh, births and deaths are seldom recorded, making basic health indices, such as causes and rates of death, difficult to know with any real degree of certainty. However, basic data available from the Bangladesh Bureau of Statistics and the Bangladesh Demographic and Health Survey shows a steady decline in the Infant Mortality Rate (IMR) and the Under-Five Mortality Rate (U5MR) (3, 4). Child survival in Bangladesh has improved significantly over the last two decades. In particular, under-five mortality has fallen by half, from 146 to 76 deaths per 1,000 live births during the last decade.

Although there are few studies where causes of deaths are directly comparable, most public health experts have noted a gradual shift in the cause of child death in Bangladesh from largely infectious disease to largely non-communicable disease and injury (5). Recent evidence from the Demographic Surveillance System of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B) shows a growing proportion of child deaths due to injuries. In 1983, nine percent of all deaths were due to injury; by 2000 this had risen to 53 percent (6). This shift indicates a sharp reduction in child mortality from infectious diseases, with accidents and injuries now the major concern for child health in Bangladesh. Each year about 25,000 children die of injuries; half of these children are under five years of age (7). However, most of the child health programmes in Bangladesh are focused on prevention of infectious and nutritional causes of child death. Injuries and chronic diseases have yet to be addressed.

The official statistics are difficult to interpret as there is wide variation among the many figures for injury as well as for child deaths of all causes.. For example, there are at least three different estimates of the U5MR in Bangladesh. While there is general agreement that an average of these rates is a good estimate of the U5MR, there is very little data on actual causes of death at the community level which is truly nationally representative. It is generally reported that the leading causes of death in children under five years of age include acute respiratory infection (ARI), diarrhoea, malnutrition and injury as well as non-communicable diseases. Children older than four years of age (5 to 17 years) are usually not included in child health statistics, and it is in these child age groups that injury usually predominates. The epidemiology of fatal and non-fatal injury in the entire child age group (0 to 17 years) is of enormous importance as children represent almost half the population (47 percent) of Bangladesh (3).

1.3 Bangladesh Health and Injury Survey Findings

The Bangladesh Health and Injury Survey (BHIS), was undertaken in 2003, and the final report released in 2005. Injury, as documented by the BHIS, now accounts for 38 percent of all classifiable deaths in children aged 1 - 17. Not surprisingly, the proportion of injury related mortality increases as children get older with injuries causing 2 percent of infant deaths, 29 percent of 1 - 4 year old deaths, 48 percent of 5 – 9 year old deaths, 52 percent of 10 - 14 year old deaths, and 64 percent of 15 – 17 year old deaths. The survey supports the observation that injury is a stage of life issue, and that all children must be considered at risk, not just the under-five's (8).

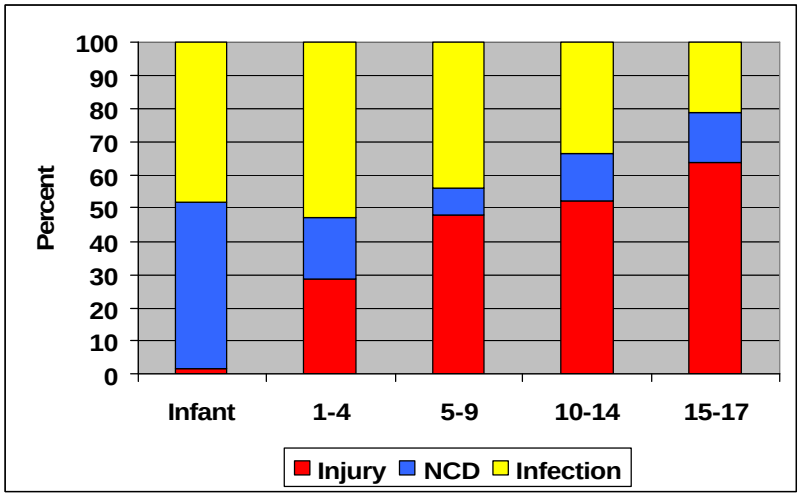

Figure 1: Proportional mortality by age.

The data concerning non-fatal injury is equally staggering, documenting almost a million (955,000) injuries to children in the year prior to the survey. This is about 2,600 per day, 108 each hour, or roughly 2 per minute. Injury leads to over 13,000 permanent disabilities a year among the children of Bangladesh.

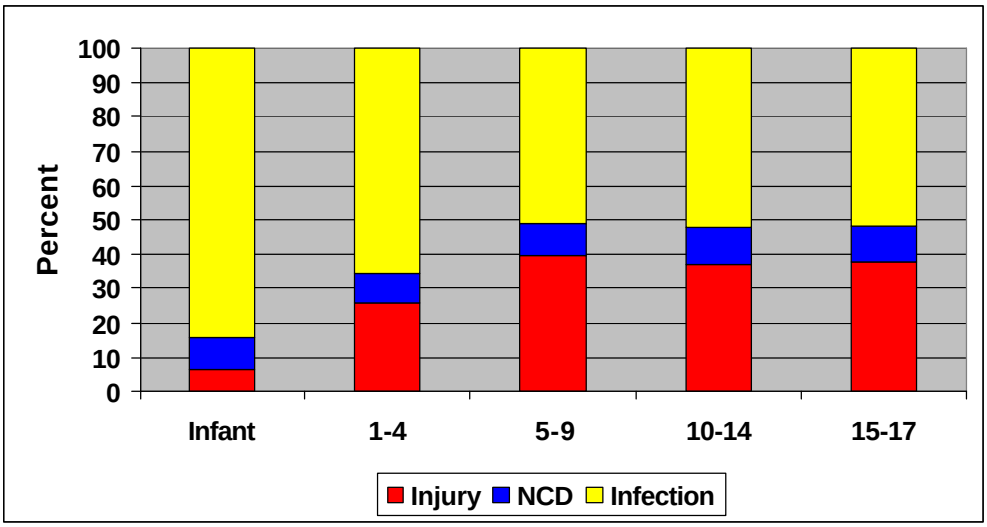

Figure 2: Proportional Morbidity by age

Drowning is the leading cause of death in children aged one year and over in Bangladesh. Based on the rate reported in the BHIS, almost 17,000 children drown each year, roughly 46 per day. There are over 68,000 cases of near-drowning each year, roughly 188 per day. Drowning rates in Bangladesh are 10 to 20 times the rates of child drowning in developed countries (8).

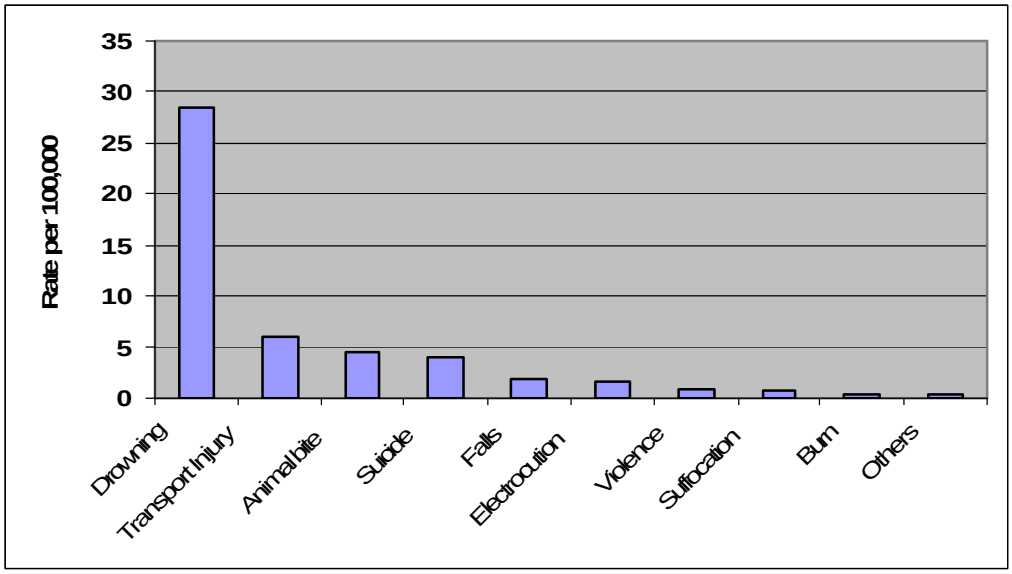

Figure 3: Type specific injury mortality rates, children aged 1 – 17

The child fatal drowning rate was 28.1/100,000; males 32.0/100,000 and females 24.2/100,000. The peak age group for drowning was 1 - 4 years. There was no statistically significant difference in rates between males and females in this or other age groups. Drowning rates declined rapidly in the older age groups.

The magnitude of other types of injury was also captured in the BHIS. About 1,700 children are fatally burnt each year, with almost five children dying each day. The highest non-fatal burn rate (782.1/100,000) was among children 1 – 4 years old. Falls were very common in all age groups, as can be seen from the high rates, including infancy. The

highest rates were in the early and mid-childhood years when children are most active and still developing motor skills and coordination.
At the rates found in the BHIS, in the year prior to the survey, over 120,000 children suffered cut injuries, or over 330 per day and over 1,700 children were permanently disabled (almost five per day).

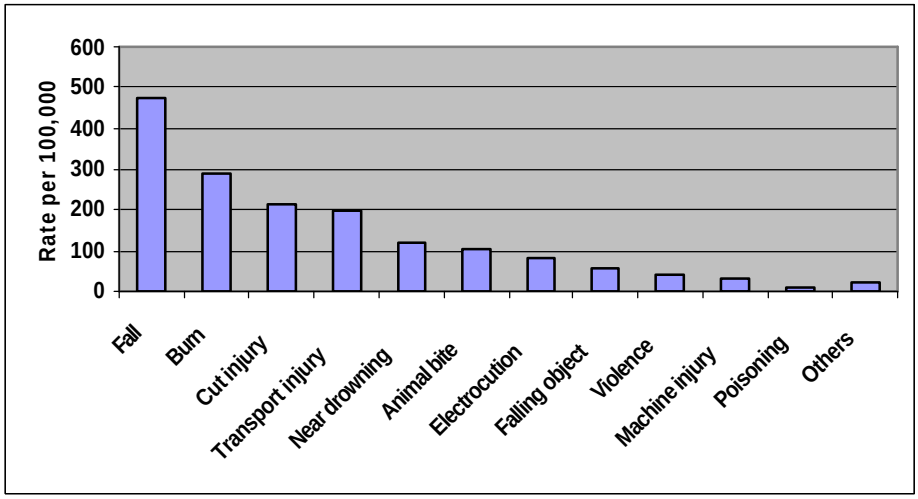

Figure 4: Type Specific non-fatal injury rates, children aged 1 – 17

Falling objects were not a large cause of fatal injury in children, but they were a significant cause of permanent disability, hospitalization and missed school and work. At the rates found in the BHIS, there were over 850 children permanently disabled in the year prior to the survey (over two per day) and over 31,500 children were injured by falling objects (86 per day).There were over 5,800 children poisoned each year, or over 16 children each day. The survey documented storage of poisons in households that were hazardous to children, with the toxic chemicals ranging from bleach and disinfectants to rat poisons, insecticides and pesticides.
At the rates found in the BHIS, almost 2,600 children died from animal injury in 2003, mostly from bites, and of these, about half were bitten by venomous snakes, and the other half by rabid dogs. This is about seven children a day; a very high toll for a fatal injury that can be prevented with proper treatment. There were an additional 59,000 children who were non-fatally bitten, or over 160 per day. Together, this is almost 63,000 children injured or killed by animal injury, the vast majority from dog and snake bites. There were about two children fatally electrocuted each day, and over 125 more injured by electrocution. In total, there were over 47,000 children killed or injured by electrocution in the preceding year.

It is against this documented background of child injury that led UNICEF/ Bangladesh, CIPRB, and TASC to the decision that something needed to be done to deal with the problem.

2. The PRECISE Project

The Government of Bangladesh (GOB), has put child injury into their Health Nutrition and Population Sector Programme (HNPSP), for the next 5 years, creating a need to adapt proven injury prevention interventions from developed countries to the local environment and evolving some that will be new for Bangladesh. Responding to this official call for action, UNICEF-Bangladesh has joined with CIPRB and TASC to initiate a pilot project aimed at reducing child injury in Bangladesh. The cost effective interventions from this project can be replicated and scaled up to the rest of the country. The experience from this project can benefit other countries with similar levels of development and similar burdens of child injury.

2.1 Goals, Objectives, and Expected Outcomes

Goal

The overall goal of the project is to reduce child and parental mortality and morbidity due to injuries through developing and implementing comprehensive prevention programmes that can be reproduced in a cost effective manner.

Objectives

The two main objectives of the project are: 1.to develop and implement injury prevention packages applicable to the home, the schools, and within the communities; and 2. to evaluate the effectiveness of these interventions for cost and large scale application.

Expected Outcomes: Objective 1

Household members, students, teachers, and members of the general community are expected to increase their knowledge and be more aware of risks and ways to prevent accidents and injuries. Those involved will improve their skills and practices in safety promotion and injury prevention measures. Children will be protected from hazards in the environment where they live and study.

Expected Outcomes: Objective 2

An evaluation mechanism will be established through a base line survey and a post intervention survey. An active injury surveillance system (ISS), will be developed and implemented which will be sensitive enough to allow project staff to react to the effects of the interventions in a timely manner.

2.2 Project Areas

The project will be implemented in two different settings, rural and urban.

Rural Settings: Four "upazilas", (political units below the district level), have been selected which include approximately 160,000 households having an estimated population of 800,000.

The areas are representative of rural Bangladesh, have local functioning partners like other non government organizations (NGOs) present, and have high rates of injury mortality and morbidity. Three of the four chosen upazilas will have different levels of intervention applied and one will serve as a control.

Level of Interventions	District	Upazila
High	Sirajganj	Raiganj
Medium	Sherpur	Sherpur Sadar
Low	Narsingdi	Manohardi
Control	Narsingdi	Raipura

Urban Setting: An area in the Dhaka metropolitan city with 40,000 households and a population of approximately 200,000 will be included in order to test, monitor, and evaluate interventions designed for an urban environment. Because of observed differences in injury patterns between urban and rural settings these interventions may be modified from those applied in the rural areas. Activities in the city will begin in the second year of the project.

3. Project Design

The project falls into the category of operations research using scientifically proven epidemiologic methods to create and conduct an active injury surveillance system, monitor the introduction of interventions, and conducting cost analyses to determine what can be produced on a broader scale at an affordable cost. Intervention packages will be applied with varying degrees of intensity within households, the schools, and the communities. Results should help policy makers with their decisions on what gets more broadly applied.

The intervention packages will address home safety, school safety, and community safety. Home safety addresses physical hazards in the home, supervision of small children, and recognition of responsibilities as well as risks among care givers. School safety will introduce curriculum designed to help children recognize risks and how to avoid them as well as assuring the physical environment of the school does not contain any in-built hazards. Community safety will include community advocacy, policy development and application, crèche for supervision of young children, swimming learning and water safety, disaster preparedness, and community education through different media.

4. Project Implementation Strategy

The different intensity levels bring different resources to bear within the different areas. For the high intensity area the project will create Community Injury Prevention Promoters (CIPPs) who will visit homes and provide an active, targeted source of information and activities within the community. They will supplement existing community workers who will also be included in the intervention activities.

In the medium intensity areas the existing community based workers of the government and local NGOs will provide training and materials and some additional financial support to implement activities. In the low intensity area, the program will provide information local staff but not additional financing for implementation. The fourth area will serve as a control area with no interventions.

5. Project Management

CIPRB and TASC share the responsibility for project implementation, with UNICEF-Bangladesh providing significant financing and technical assistance. Additional partners include the Office of the Director General of Health Services, (DGHS), District, Upzila, and Union councils, the Department of Primary and Secondary Education, and several local NGOs. A technical advisory committee comprised of representatives from the partners reviews the plan of work and the conduct of ongoing activities.

5. 1 Monitoring and Evaluation

CIPRB, TASC, DGHS and UNICEF-Bangladesh collectively agree on the planning, monitoring, and evaluation processes employed in the project. CIPRB has the day to day responsibility for project implementation on the ground. CIPRB and TASC jointly create and agree on the content areas of the program in advance of going to the field. UNICEF technical staff review proposed directions but rely on TASC to provide the technical supervision for the program. TASC and CIPRB share an obligation to UNICEF to assure the technical quality of the results. TASC brings in the experience of their alliance partners, especially UNICEF/ EAPRO and the Centers for Disease Control & Prevention, for additional advice to assure the indicators chosen are appropriate for the global standards of monitoring child and parental injury.

Evaluation in the project areas began with a baseline survey completed in September 2005, which established the prevalence of the various knowledge, attitudes, and practices indicators, process indicators, and impact indicators. The baseline survey also provides information on risk behaviours and location specific hazards that become subjects for intervention activities. The baseline survey is both a snapshot at time zero of the various indicators, and a way of defining activity for the detailed composition of interventions in specific locations.

A post project survey will be done at the end of the full 3 years of the project measuring the same parameters. The evaluation goals are to determine the prevention effectiveness and the costs of the various interventions. The prevention effectiveness will be determined through the changes in the indicators between the baseline and post project surveys.

5.2 Field Implementation & Project Products

The **PRECISE** Project contract was officially awarded in September, 2005, creating a contractual agreement among UNICEF-Bangladesh, CIPRB, and TASC. While UNICEF-Bangladesh can be viewed as a primary supporter of this project, CIPRB, TASC and DGHS are also making considerable direct contributions to this project.
Project documents are products which jointly go from CIPRB and TASC to UNICEF/ Bangladesh, with each organization retaining rights to use the results under mutually agreed to institutional terms. The schedule for delivery of these products is described within the terms of the contract. Some documents such as surveillance reports will be updated through the life of the project.

The collective intention of the partner institutions is to create tools which will assist child injury prevention programs globally. Documents in this series may be freely reproduced with the appropriate acknowledgement.

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Abbreviations

ARC	Accident Research Centre
BHIS	Bangladesh Health and Injury Survey
BRAC	Bangladesh Rural Advancement Committee
BSS	Bangladesh Sangbad Sangstha
CDC	Centers for Disease Control & Prevention
CIPP	Community Injury Prevention Promoter
CIPRB	Centre for Injury Prevention and Research Bangladesh
CPR	Cardio Pulmonary Resuscitation
DGHS	Director General Health Services
GIS	Geographical Information System
GOB	Government of Bangladesh
ICCDRB	International Centre for Diarrhoeal Disease Research, Bangladesh
ICMH	Institute of Child Mother Health
ISS	Injury Surveillance System
NGO	Non-Governmental Organization
MOHFW	Ministry of Health & Family Welfare
MDG	Millennium Development Goals
TASC	The Alliance for Safe Children
UNICEF	United Nations Children's Fund
SIDA	Swedish International Development Agency
WHO	World Health Organization