Can Madagascar Consolidate the Fragmented Cash Transfer Programs into a Coherent Resilience-Responsive Social Protection System?

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1.1. Results Summary and Discussions

The study presented has illustrated the affordability of creating an inclusive lifecycle cash transfer system that is responsive to the poverty profile and the frequent shocks and climatic disasters in Madagascar. Under each proposed intervention, the study has used a range of cost scenarios to build evidence and concrete figures to allow policy makers to better assess opportunities and potential challenges in increasing the coverage and depth of certain programs and increasing the scope and synergies across different programs. It is hoped that this study will initiate a broader discussion with stakeholders to arrive at policy recommendations to better respond to such opportunities and challenges.

In theory, targeting resources to only those who need them most is the most efficient way of disbursing social transfers. From accumulated experience across many countries, poverty targeting to be effective, a strong administrative capacity is required, prevailing poverty rates are low, and presence of functioning formal labor market. These conditions are far from the reality in the case of Madagascar: administrative capacity is very weak, 93 percent of the population lives below the US$2 PPP per day poverty line (75 percent lives below the national poverty line) (The World Bank, 2014), and informality is the main characteristic of the labor market in Madagascar. Even if we assume that the administrative system would be flawless and would know everyone's exact wealth so the exact resources would be directed only to those they need, it would still require a stunning amount of 17.88 percent of GDP to eradicate poverty (assuming costless and perfect targeting)- clearly impossible for Madagascar or any country to do so.

Against this reality, the study argues for the use of universal approach (categorical targeting) as a more appropriate targeting mechanism in Madagascar. The selection of categories is based on their correlation with poverty and other sought developmental outcomes such as nutrition, education, and avoiding political division. For instance, poverty in Madagascar has clear age dimension. Young children, especially children age 0 -5, are the poorest population group (using national poverty line, poverty incidence of 83.2 percent in 2010 (The World Bank, 2014)). Selecting this group makes a lot of sense as an effective targeting approach. One alternative option would be one that goes from pregnancy to 2 years. The rationale for such model would be that this is the most vulnerable phase in an infant's life, would support women during pregnancy and breastfeeding periods, and that a shorter time period would make way for higher benefit amounts, which would enable a more tangible contribution to the household income. The coverage of total children will reduce and cost will also be reduced. Further, the link between poverty and lack of education is clear. Inadequate education is a main barrier to moving out of poverty. Most education indicators in Madagascar have deteriorated with falling enrollment in primary education. About half a million children who should but do not attend primary education (The World Bank, 2014), and the number significantly increase in the middle and secondary level of education. A scholarship program can provide the incentive structure to reverse these alarming trends. Finally, poverty among senior citizens deteriorated over the years. An old-age pension will cost a fraction given the demographic profile of Madagascar, but can be proven a tool not only to meet the needs of the senior citizens, but also to inject the transfer in the households' overall budget.

Table 1: Summary Results from the Projection of Costs and Number of Beneficiaries

Eligibility	2016 Amount (MGA, monthly)	Number of Beneficiaries (in thousands)			Expenditure (% of GDP)		
		2016	2020	2030	2016	2020	2030
1000 Days (From Pregnancy until Under 2)	7,500	1,950.16	2,112.06	2,463.50	0.53%	0.48%	0.35%
	10,000				0.71%	0.64%	0.46%
Under 5	5,000	3,091.82	3,371.11	3,996.47	0.70%	0.64%	0.47%
	7,500				1.05%	0.96%	0.70%
Scholarships (Primary)	5,000	2,740.51	3,522.92	5,358.27	0.47%	0.50%	0.47%
Scholarships (Middle)	5,000	647.43	1116.37	2,567.84	0.11%	0.16%	0.22%
Scholarships (Secondary)	10,000	112.19	263.13	596.03	0.05%	0.10%	0.14%
Old-Age 65+	15,000	573.60	687.54	1,063.81	0.39%	0.39%	0.37%
	20,000				0.52%	0.52%	0.50%
Old-Age 70+	15,000	336.89	378.22	614.47	0.23%	0.22%	0.21%
	20,000				0.30%	0.29%	0.29%

The results above show that a life-cycle income security package can be implemented at a cost of only 1.39 percent of GDP (covering golden 1000 days, scholarships for primary, middle, and secondary levels of education, and old-age pension for seniors age 70+). Even if benefit level is increased and/or age cutoff is expanded, cost under most expensive scenario will be still at only 2.20 percent of GDP. Furthermore, benefiting from the favorable demographic profile, the cost is projected to even decline as a percentage of GDP over time.

The current programs to deal with natural disasters are mainly in the form of cash-for-work programs to vulnerable households affected by natural disasters. While these programs are ideal for working-age population, it will leave vulnerable populations uncovered including children, senior citizens. The study proposes to use the income security package discussed earlier as the base to provide a temporary short-term emergency relief in the form of two emergency "top-ups". This temporary benefit will provide an increment to the proposed benefit program for pregnant mothers, children under the age of 5, and old-age persons age 65 and above. The overall cost will be at only 0.05 percent of GDP. This can be the most efficient and transparent option for identifying the beneficiaries in the emergency situation and in a short period of time.

1.2. Strategies Towards Universalization

If immediate universalization is not possible for political or fiscal reasons, it is proposed to set a defined, agreed and realistic timeline for its progressive realization. Universalization could in that case be achieved by continuously expanding geographical targeting. For example, the above described cash transfer system could be introduced at a universal level in the poorest districts of the country, and extended district by district over a defined period of time. The extension could proceed progressively and continuously, from worst-off to better off districts, measured by an indicator considered most appropriate, and that is at the same time easily available and periodically updated. There are a host of identification criteria to choose from for sequencing among the districts. They include the national poverty line or poverty head count data; GDP per capita; malnutrition and food insecurity mapping; or the Human Development Index (HDI). Most of these indicators would likely end up identifying the same districts as most disadvantaged, and the selection decision could cross-reference several of the indicators, so as to be analytical and transparent.

While the previous universalization option might be a challenge administratively and politically, alternatively, there are more appealing options. One would be, to start with introducing the 1000-days benefit nationally (pregnancy until under age 2). Over time, age cutoff can be increased to cover up to 5 years of age as well as introducing gradually other benefits such as old-age pension and scholarship.

1.3. Monitoring and Evaluation

Alongside the introduction and gradual expansion of the system, monitoring and evaluation are central to the strategy. Systematic and frequent monitoring can address the problems that might arise in the execution, such as: delays in delivery, exclusion of eligible population, corruption, or other issues. Collecting and analysing real-time information will not only help identifying problems related to program implementation, but will also create a great database that can be used for further improvement of the program. Further, collecting the empirical evidence on the effect of the system will be crucial to build broad political and public support for the expansion and continuation of the such system. For solid impact evaluation, it is necessary to collect baseline information at the inception of the proposed system to be able to compare and measure the impact. Not surprisingly, cash transfers in other countries are found to have positive institutional externalities (Fiszbein, Schady, & Ferreira, 2009). Through their emphasis on monitoring and evaluation, cash transfer programmes have strengthened a results culture within the public sector. It is expected that establishing a robust monitoring and evaluation system for social protection schemes will have cross-sectoral external effects to strengthen other policy implementation.

2. INTRODUCTION

2.1. Study Objective and Overview

The objective of the study is to offer to the Government of Madagascar a set of strategies and options regarding the integration of a social protection benefits in light of the Government's vision of extending coverage of Social Protection to reach 50 percent of the population by 2030 stipulated in the National Policy of Social Protection. The proposed interventions are in line of UNICEF's agenda of promoting social protection and child-sensitive policy-making, directly building on the United Nations Convention on the Rights of the Child (CRC) and the ILO Recommendation on Social Protection Floors, as well as national-level commitments in Madagascar. Specifically, this study attempts to identify and propose a set of Social Protection interventions and conduct a costing exercise for the proposed interventions until 2030 in order to provide evidence and concrete figures on cost development under different scenarios. In doing so, the study analyses the underlying demographic, inflation, and economic growth environment in Madagascar, which established the need and opportunities for country-specific social sector investments that are pro-demographic window of opportunity and promote macroeconomic stability. Ultimately, this study is hoped to shed lights on opportunities and challenges and initiate a broader discussion with stakeholders to arrive at policy recommendations to better respond to such opportunities and challenges.

2.2. Social Protection – Definitions

Definitions and terminology used in discussing social protection have evolved over time and tend to differ slightly among different schools of thought. Social protection is generally understood as the combination of social insurance – (i.e. contributory forms of social provisioning) and social assistance (i.e. transfers which cover wide chapters of the population), and are generally funded from public sources (ILO 2012) (see figure 1). A broader understanding refers to social protection as the set of public and private policies and programmes aimed at preventing, reducing and eliminating economic and social vulnerabilities to poverty and deprivation (UNICEF 2012). A life-cycle approach posits social protection in the three phases of life - infant and childhood, adulthood and working life, and old age - with access to health services as a component accompanying all three phases. This framework is used in the social protection floors initiative adopted in ILO Recommendation 202 a (ILO 2012).

Figure 1: Major Components of Social Protection

Source: Based on the ILO definition of Social Protection (ILO 2012)

One can identify a range of instruments of social protection:

- Social cash transfers;
- Programs to ensure economic and social access to education, health, water and sanitation and other social services;
- Social support services such as care facilities;
- Legislation and policies to ensure child rights, equity and non-discrimination in children's and families' access to services and employment/livelihoods (UNICEF 2012).

The income security package discussed in this study falls under the social cash transfer component. Social cash transfers are defined as flows of money to households to alleviate household poverty, hunger or malnutrition, and achieve other social outcomes. The grants are generally designed to address income insecurity, avert or protect from risk, and give greater freedom of choice in consumption decisions. Although the benefit amounts in most schemes found in low-income countries tend to be small, they have nevertheless demonstrated some positive effects on food consumption, diet diversity, and expenditures on health and education as documented in chapter 2.

2.3. Global Perspective of Social Protection[1]

Some form of universal social protection coverage has been in place in most higher-income countries since the 1950s, in the context of their post- World War II welfare state arrangements (Esping-Andersen 1990). While most low income countries have featured social security for the formal sector since their independence, broader forms of social protection covering rural populations and the informal economy was introduced in waves. The Latin American examples of large-scale programmes such as *Bolsa Familia* (the Family Grant) in Brazil, and *Oportunidades* (opportunities) programme in Mexico have been in place in various forms since the 1990s, as a response to cushion the economic and social impacts of structural adjustment programmes. Moreover, at the time, beyond its role as a safety net, social protection was presented as a macroeconomic stabilizer, with the argument that the higher propensity to consume of lower income quintiles would increase aggregate demand and revitalize an economy in recession. The introduction or upgrading of social protection as crisis responses was the first wave. Recently, the discourse has moved on into a more normative mode, with progressive governments, Civil Society Organizations, academics and multilateral agencies make a case for social protection from a rights-based angle. The recent decade has in fact seen a surge in social protection: research suggests that nearly 100 countries across the world have constituent elements of social security in place and more than 50 low-income countries have introduced social assistance (ILO 2014; United Nations 2013).

At the global level, many of the multilateral agencies have been promoting the right to social protection. In 2012, the ILO annual conference adopted the Recommendation on the Social Protection Floors (R 202), which is now being vetted in numerous countries (ILO 2012). It uses the life cycle approach. Many analysts and advocates have shown how child-oriented social protection is particularly important (see box 1). Other notable examples include the work of the Special Rapporteurs of the Office of the High Commissioner on Human Rights (Sepulveda and Nyst 2012; Alston 2014), and the policy

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[1] Citation in this section is from Koehler 2014c unless stated otherwise.

positions of the ADB (Handanyani 2010; ADB 2013; ESCAP 2011a). Most multilateral agencies have social protection strategies in place (UNICEF 2012a; World Bank 2012; European Commission 2012).

Two additional challenges are shaping the social protection agenda. One is the intensifying impact of climate change and civil conflict, which result in complex emergencies. Social protection in the form of transfers to displaced populations is increasingly important, and in many countries, social protection includes an emergency fund for social assistance that can come into play quickly if needed.

The second globally recognized challenge stems from the increasingly disparate in-country income and wealth disparities (Milanovic 2010; Ortiz, Chai and Cummins 2011; Piketty 2014). If social protection expenditures are covered from national taxation revenues, and have a pro-poor expenditure bias, they can serve to shift income from the higher to lower income quintiles. There are also proposals for a dedicated fund to jump-start social protection in low-income countries, financed from special forms of funding in rich countries. In that format, social protection could take on a redistributive function.

BOX 1 Child-related Social Protection

Social protection is a strategic and essential tool in helping children and their families fulfil their rights and in expanding their opportunities to reach their full potential. However, across the world, children and families with children are at great risk of income poverty and multidimensional poverty. Many of the 18,000 children who die every day across the world could survive if adequate social protection were in place (UNICEF 2014; ILO 2014). The life-cycle approach to social protection is therefore particularly relevant.

For example, at the global norm-creating level, the ILO Recommendation 202 on social protection floors posits income security for children as a core point, with the objective being to ensure access to nutrition, education, care, health services, and other goods and services (ILO 2012). Minimum income security is understood as related to a life in dignity, and is to correspond to at least national poverty lines. Another principle is universality, meaning that income security refers to all children resident in a country, as per the commitment of the CRC (ILO 2014).

Child-relevant social protection can come in various formats – free access to social services or school meals, monetary family benefits, or child grants. Currently, 108 countries have in place specific child or family benefit legislation (ILO 2014). Public expenditure on child-related social protection measures are estimated at 0.4 per cent of GDP worldwide, average 0.2 per cent of GDP in Asia and the Pacific, and reach as much as 3 to 4 per cent in Europe (ILO 2014). In Western Europe, Australia and Canada, and in Mongolia, the schemes are universal (ILO 2014).

Evidence from various studies shows that social protection benefits have resulted in better nutritional status, an increase in the use of health services, including for ante- and post-natal care, higher school enrolment, and to a lesser extent to better outcomes on school performance.
Child-sensitive social protection, therefore, considers different dimensions of children's well-being and addresses "the inherent social disadvantages, risks and vulnerabilities children may be born into, as well as those acquired later in childhood" (UNICEF 2014)

2.4. Government Commitments and Engagement in Social Protection for Children

Social protection is an important policy tool for the realization of human security and achieving equity and social justice. Building on the Universal Declaration of Human Rights, the CRC posits the right to social protection for children in its Article 26:

1. "States Parties shall recognize for every child the right to benefit from social security, including social insurance, and shall take the necessary measures to achieve the full realization of this right in accordance with their national law.

2. The benefits should, where appropriate, be granted, taking into account the resources and the circumstances of the child and persons having responsibility for the maintenance of the child, as well as any other consideration relevant to an application for benefits made by or on behalf of the child."

CRC Article 27 corroborates this, arguing that

2. "States Parties recognize the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development.

3. States Parties, in accordance with national conditions and within their means, shall take appropriate measures to assist parents and others responsible for the child to implement this right and shall in case of need provide material assistance and support programmes, particularly with regard to nutrition, clothing and housing."

Other CRC articles that support the child right to Social Protection include: CRC 18, 19, 24, 28, and 32.

The fight against poverty, vulnerability and insecurity was identified as one of the Government of Madagascar's priority areas, as stated in the General Policy of the State released in May 2014 (Republic of Madagascar, 2015). In particular, challenge 5 is devoted to Social Protection an essential tool for reducing poverty in addition to improving and enhancing access to basic social services. The Ministry of Population, Social Protection, and the Promotion of Women (MPSPPW) is the lead Ministry in Social Protection and was tasked to develop the National Social Protection Policy, which was finalized in 2015. The finalization of the National Policy for Social Protection signifies the government's committed to the adaptation of an integrated, efficient and effective social protection system. It guides its strategies and actions around four key areas: Monetary transfer (TMDH), Emergency response, Money for work, Income-generating activities, and Mechanisms to care for specific at-risk groups. The National Policy for Social Protection aimed at reaching a coverage of 350,000 households for each intervention for the next 5 years, which is estimated to correspond to a target of 28 percent of the extremely poor population, with a long-term goal of Social Protection coverage of 50 percent of the population by 2030 (Republic of Madagascar, 2015).

The Government's plans and efforts to create an effective social protection is aligned with the Sustainable Development Goals (SDGs). Specifically, they will contribute to achieving the third target of SDG 1 (the complete elimination of extreme poverty in the world through the establishment of social protection systems and measures for all), SDG 8 (sustained, shared and sustainable economic growth; full, productive employment and decent work for all), and SDG 10 (the reduction of inequalities between countries and within them).

It is important to underline here that social protection is a cross-sectorial issue for children. Social protection can play a key role in addressing some of the barriers that stand in the way of ensuring child rights and improving children's wellbeing (UNICEF 2012). Social protection needs to be universalized for all, but from a child-rights commitment, social protection needs to be child-sensitive and therefore prioritize measures that directly or indirectly impact children, especially young children. This is because children face age-specific vulnerabilities that differ from those of adults (ILO 2014). These include the fact that child needs for nutrition and intellectual and emotional stimulation cannot be postponed, and if these rights and requirements are not met, the negative impact is irreversible. This fact is coupled with the observation that children tend to be over-represented among the poor.

The interests of children, therefore, require special attention during the process of designing or re-designing of the country's social protection system. Moreover, by reaching out to those who are economically and socially excluded, social protection complements and underpins sector interventions in health and nutrition, education, water and sanitation, child protection including issues around children in conflict and child labour, HIV/AIDS and other areas. It can thus reinforce support to child rights, improve outcomes and increase equity for children, while at the same time supporting social justice and national cohesion (UNICEF 2012).

2.5. Providers and Scope of Social Protection in Madagascar

Public expenditure for social protection remains low in Madagascar in comparison with other countries in the region. For instance, spending for social protection in nine other African countries averaged 4.4 percent of GDP in 2007. This figure was only 1.5 percent in 2008 in Madagascar, one year before the political crisis which rolled back public expenditures for social protection to 1.1 percent in 2010 (The World Bank, 2014). The main characteristics of Madagascar's social protection systems is the fragmentation, lack of coordination, and limited coverage across the many small programs. The System covers a wide range of contributory and non-contributory schemes, including: the pension funds; the insurance plan and pension fund; programs aimed access to basic social services; support programs for the poor and vulnerable groups; social assistance programs for specific vulnerable groups, including the elderly, people with disabilities, children and women. The limited coverage of these programs has left the poor exposed and vulnerable to variety of life-cycle and natural disasters risks. The finalization of National Social Protection Policy is a milestone in the process of creating an inclusive and coherent Social Protection system and establishing a framework for collaboration, coordination and harmonization of the sector.

It is to be noted that there is an active presence of international development partners in the implementation of social assistance program. For instance, the World Food Programme (WFP) supports programs that provide school feeding, prevent and treat acute malnutrition, increase access to markets for smallholder farmers, and provide relief and early recovery assistance in the form of cash- or food-for-work programs to vulnerable households affected by natural disasters. The United States Agency for International Development (USAID) implements the Food for Peace Program, an integrated community development program that seeks to reduce malnutrition, increase agricultural productivity, and strengthen household and community resilience, including through food-for-work activities. The World Bank supported the implementation of safety nets (The World Bank, 2014).

3. SOCIOECONOMIC BACKGROUND

3.1 Demographic Profile

According to the 20115 revision of the World Population Prospects, Madagascar's population was estimated at 24.235 million. Approximately 35.1 per cent of inhabitants live in urban communities (UN, 2016). Over the past decade, Madagascar's population grew at a high rate averaged 2.822 percent annually rate, which is similar to that of East Africa region (2.816 per cent), but is higher than that for Least Developed Countries (LDCs), estimated at 2.38 per cent for the same period (UN, 2016).

Table 2: Annual Population Change in thousands, 1980 – 2015

Period	Population growth rate	Population change per year	Birth	Death	Net Migration
1980-1985	2.65	244	403	151	-8
1985-1990	2.88	306	473	168	1
1990-1995	3.04	374	553	176	-3
1995-2000	3.15	451	618	168	1
2000-2005	3.02	505	664	158	-1
2005-2010	2.85	552	711	156	-3
2010-2015	2.79	623	781	157	-1

Source: Based on data from UN DESA (2016)

The pattern of natural population growth (excluding migration) can be explained by two underlying factors: fertility rates and mortality rates. Since 1980, the Total Fertility Rate (TFR) decreased by almost half, from 6.51 children per woman in early 1980 to 4.35 children per woman in 2015 (UN, 2016).

Figure 2: Total Fertility Rates, 1980-2015
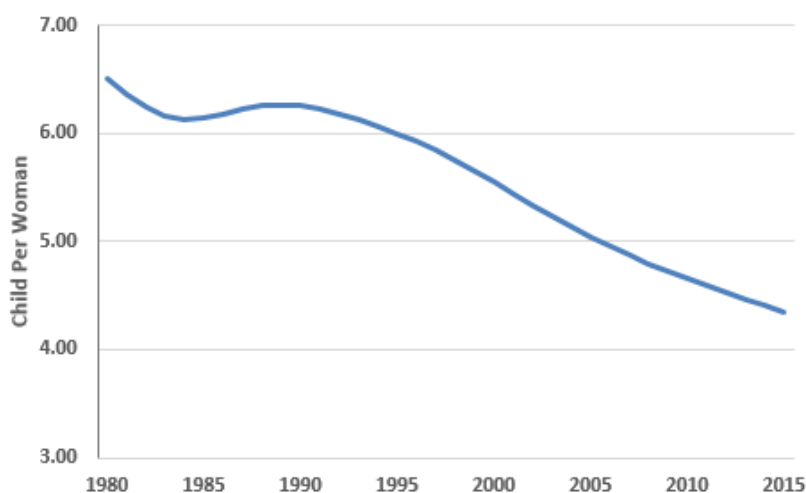
Source: Based on data from UN (2016).

The second factor, the mortality rate, has shown significant improvement over the same period. The infant mortality rate declined from a rate of 115.0 infant deaths per 1,000 live births in the early 1980s

to 37.5 per 1,000 births in 2010-2015. The crude death rate was estimated at 7.0 deaths per 1,000 live in 2010-2015, a decrease by more than half the rate of 16.9 deaths per 1000 in the early 1980s. Life expectancy at birth, therefore, increased steadily and reached 64.3 years in 2010–2015, compared to 49.4 years in 1980-1985 (UN, 2016).

As a result of declining fertility rates, improved mortality and increased life expectancy, the population structure has changed over the past few decades. The median age in Madagascar increased from 16.8 in 1980 to 18.7 in 2015 (UN, 2016).

Figure 3: Population Pyramid, 1980-2050
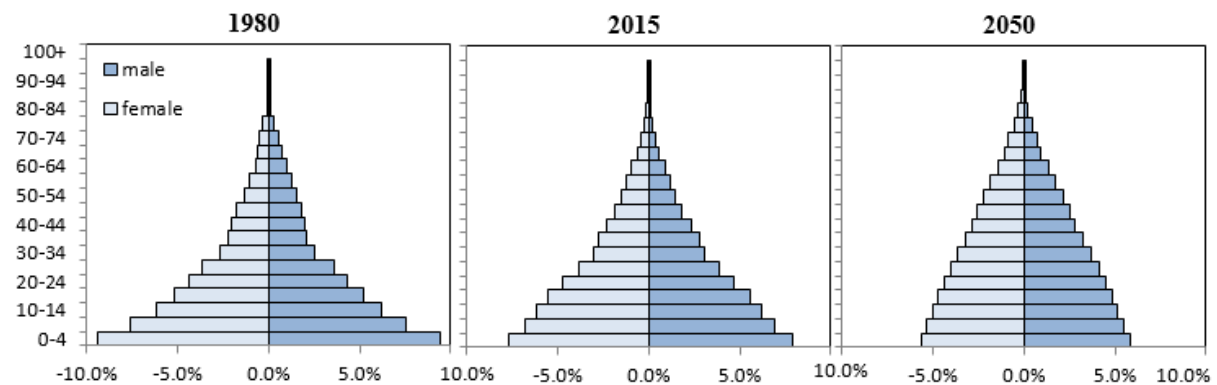
Source: Author's calculation based on data from UN DESA (2016).

Madagascar's young population continues to be the main demographic feature that most characterizes Madagascar's population. However, the broad base of the population pyramid is getting smaller while the midsection of Madagascar's population pyramid is expanding. This has three main potential consequences:

- First, the young dependency ratio (the ratio of children under 15 years of age per working-age person) and the total dependency ratio (ratio of children under 15 years and elderly over 65 year-old per working-age person) have both decreased in Madagascar, though still high at 81.36 dependents for every 100 working-age persons as of 2015 (UN, 2016).
- Second, the likelihood of steady and possibly increased population growth, despite the declining fertility rate. This phenomenon is known as the "demographic momentum," which occurs due to the fact that more women are in their reproductive years. This might come into effect in the near future in Madagascar, and translate into an increase in the pace of the population growth.
- Third, a situation where the working-age population expands at a higher rate than the general population. This is considered a favourable demographic development, which is widely referred to as "demographic window of opportunity".

Figure 4: Population Growth Rates by Major Age Groups, per cent, and Demographic Window of Opportunity (start and end period), 2000-2100
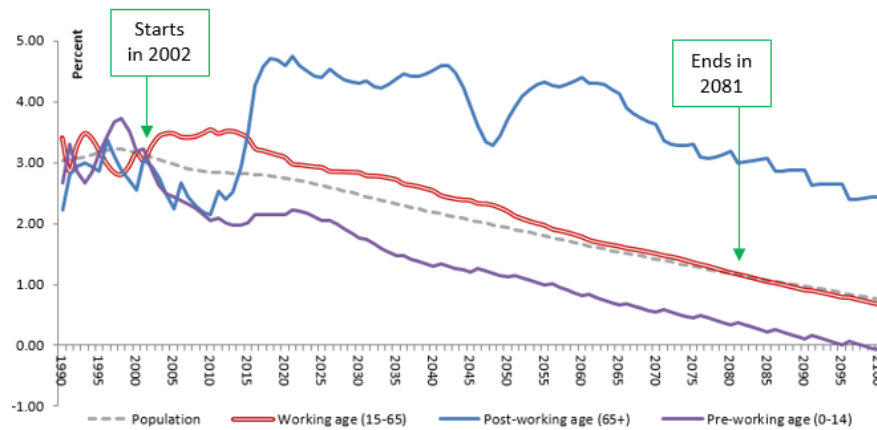
Source: Author's calculation based on data from UN (2016)

The expansion of the working-age population, and the concomitant enlargement of the labour force, can present a favourable condition. However, it also constitutes a substantial challenge to the economy to create decent work and sufficient numbers of adequate jobs to absorb the incoming labour market participants.

3.2 Macroeconomic Profile

Uncertainties in Madagascar linked to frequent political instability coupled with exogenous shocks, such as cyclones, floods, locust infestations have eroded the foundation for solid economic growth over the past 50 years. Economic growth averages an annual rate of only 1.8 percent since 1960, significantly lower than the population growth rate average 2.9 percent annually over the same period, which has resulted in GDP per capita halving in comparison of that of 1960 (IMF, 2015).

Figure 5: Real GDP Per Capita, Constant 2005 US Dollars, Index 1960= 100
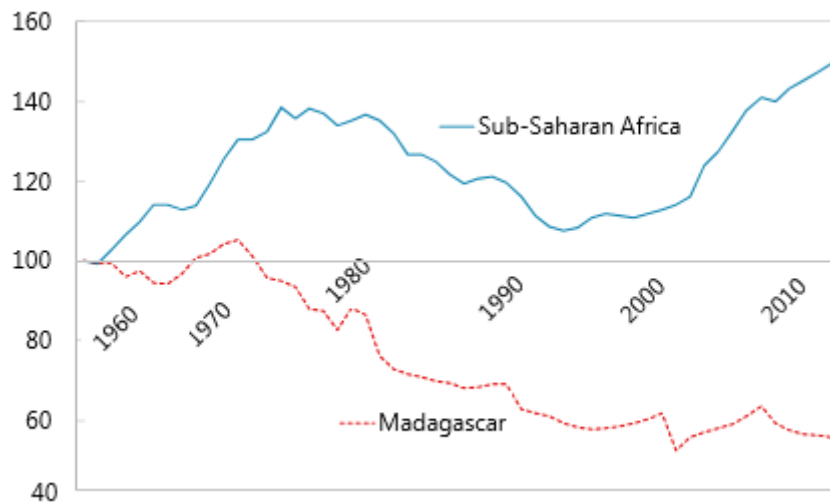
Source: IMF (2015)

The most recent political instability period between 2009 and 2013 interrupted a period of economic growth that had started in 2003 and led to a stagnation in the Malagasy economy. Real GDP growth averaged slightly less than 1 percent over this period (IMF, 2015). The positive growth between 2011 and 2013 was mainly related to the foreign investments in two large mining projects. The government that assumed power in early 2014, following constitutional elections, has shown a commitment to addressing these challenges. The new government has given priority to raising social and infrastructure spending back to more normal levels and creating a foundation for faster and more inclusive growth and for poverty reduction. In parallel, large mining projects reaching commercial production have provided an impetus to growth, but are masking stagnation and real declines in other sectors of the economy (IMF, 2015). In 2015, the economic recovery slowed down due to the weak growth in tourism and mining sectors, and adverse climate conditions (IMF, 2016).

Table 3: Main Economic Indicators, 2006-2016

Economic Indicators	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP, current prices, Billion MGAs	11,816.69	13,759.73	16,080.90	16,726.27	18,245.13	20,033.89	21,773.59	23,397.02	25,774.54	28,563.78	31,825.00
GDP per capita, current MGA	627,675	710,325	806,999	816,087	865,538	924,120	976,669	1,020,610	1,093,452	1,178,598	1,277,292
GDP per capita, current US$	293	379	472	417	414	456	445	462	453	402	382
Inflation (CPI), percent	10.77	10.29	9.30	8.95	9.25	9.48	5.71	5.83	6.08	7.40	7.21
GDP growth, real	5.40	6.42	7.21	-4.73	0.26	1.46	3.03	2.26	3.32	3.03	4.14
Exchange rate, MGA per 1US$	2,142	1,874	1,708	1,956	2,090	2,025	2,195	2,207	2,415	2,934	3,342

Source: Author's calculation based on data from IMF database (2016).

3.3 Poverty and Hunger Profile

The fragile political system and the economic deterioration over the past 50 years discussed earlier have resulted in significant loss in development outcomes, placing Madagascar as one of the poorest countries in the world. As of 2010, about 93 percent of the population lives below US$2 (PPP) per day and 75 percent of the population lives below the absolute national poverty line and 61.7 percent below the extreme poverty line (The World Bank, 2014). To put it in population terms, that is about 13 million Malagasy people earn or live on resources whose value falls below the cost of about 2100 calories a day. The poverty gap (the percentage deficit of per-capita expenditure from poverty line) was estimated at 33.9 percent in 2010 (The World Bank, 2014). With this widespread and deep poverty profile and using a poverty line of MGA 468,800 for the same year, it will require a stunning amount of 17.88 percent of GDP to eradicate poverty assuming costless and perfect targeting, which indeed highlights the difficulty for the nation to pull out itself of poverty.

Poverty in Madagascar has age dimension. Young children, especially children age 0 -5, are the poorest population group and it has got worse over years. An incredible poverty incidence of 83.2 percent of children of this age in 2010, which is a 5 percentage increase from 2001 rate (The World Bank, 2014). The incidence of poverty drastically increases as the number of children in the household increases. While the poverty rate for households without children was 58.2 percent in 2010, almost all households with three children or more found poor (poverty rate estimated at 99.4 percent for the same year) (The World Bank, 2014). Over the past decade, poverty among the population age 65 or older was found to have deteriorated (The World Bank, 2014). In terms of school attainment, there is a difference of 25 percentage point of poverty rates for household headed by a person with primary education in comparison of a household headed with a person with secondary education (The World Bank, 2014),

which highlights the importance of education as a means to fight poverty in Madagascar. In terms of geographical location, poverty in rural areas is nearly twice as high there than in the urban areas. Further, over the period between 2005 and 2010, the incidence of poverty in rural areas slightly increased, but fell in urban areas (The World Bank, 2014).

Figure 6: Poverty Rates, Selected Population Groups, 2005-2010
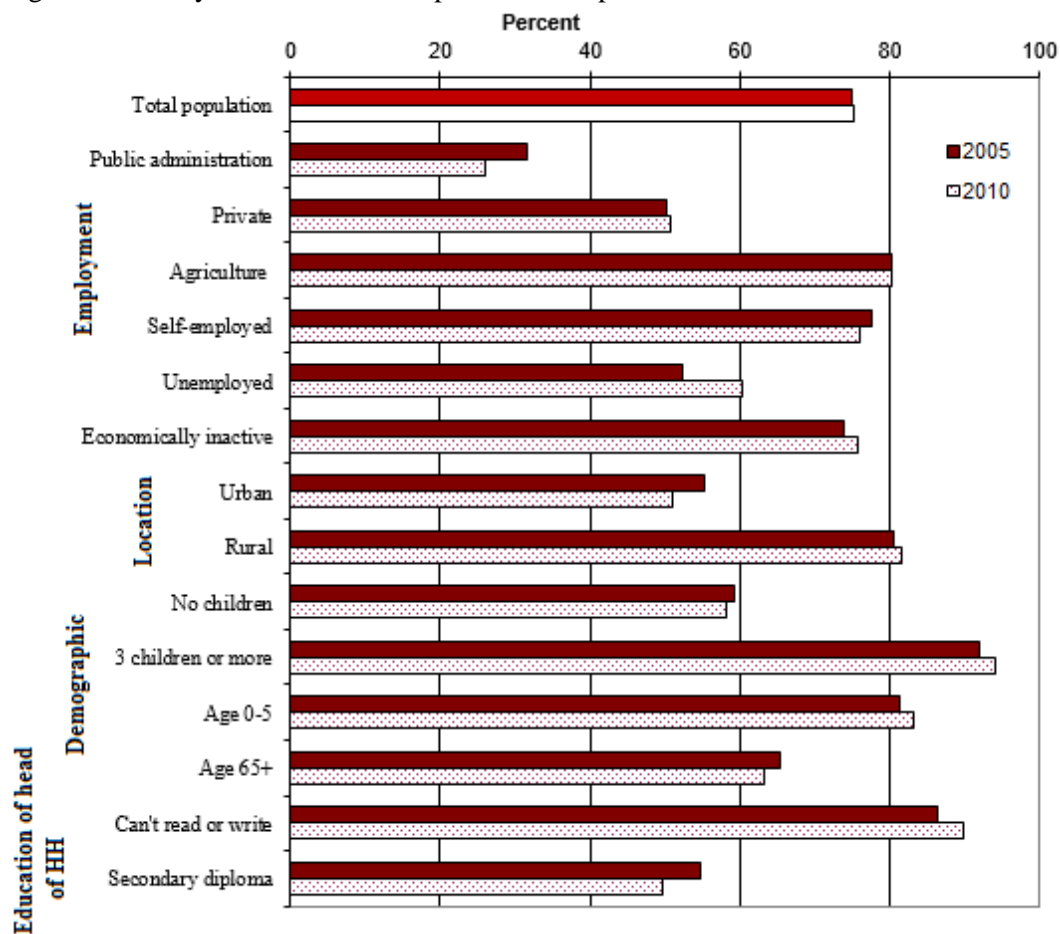
Source: Author's calculation based on data from WB (2014).

Despite very low income levels and high poverty incidence, inequality, as measured by the Gini coefficient, was in the mid-40s range, putting Madagascar in the middle of the range of values for sub-Saharan countries, and worldwide (The World Bank, 2014).

In terms of other social outcomes, Madagascar is ranked 154th out of 188 countries in the United Nations 2015 Human Development Report and the country did not reach any of the United Nations Millennium Development Goals (MDG) by 2015.

Figure 7: Millennium Development Goals Indicators
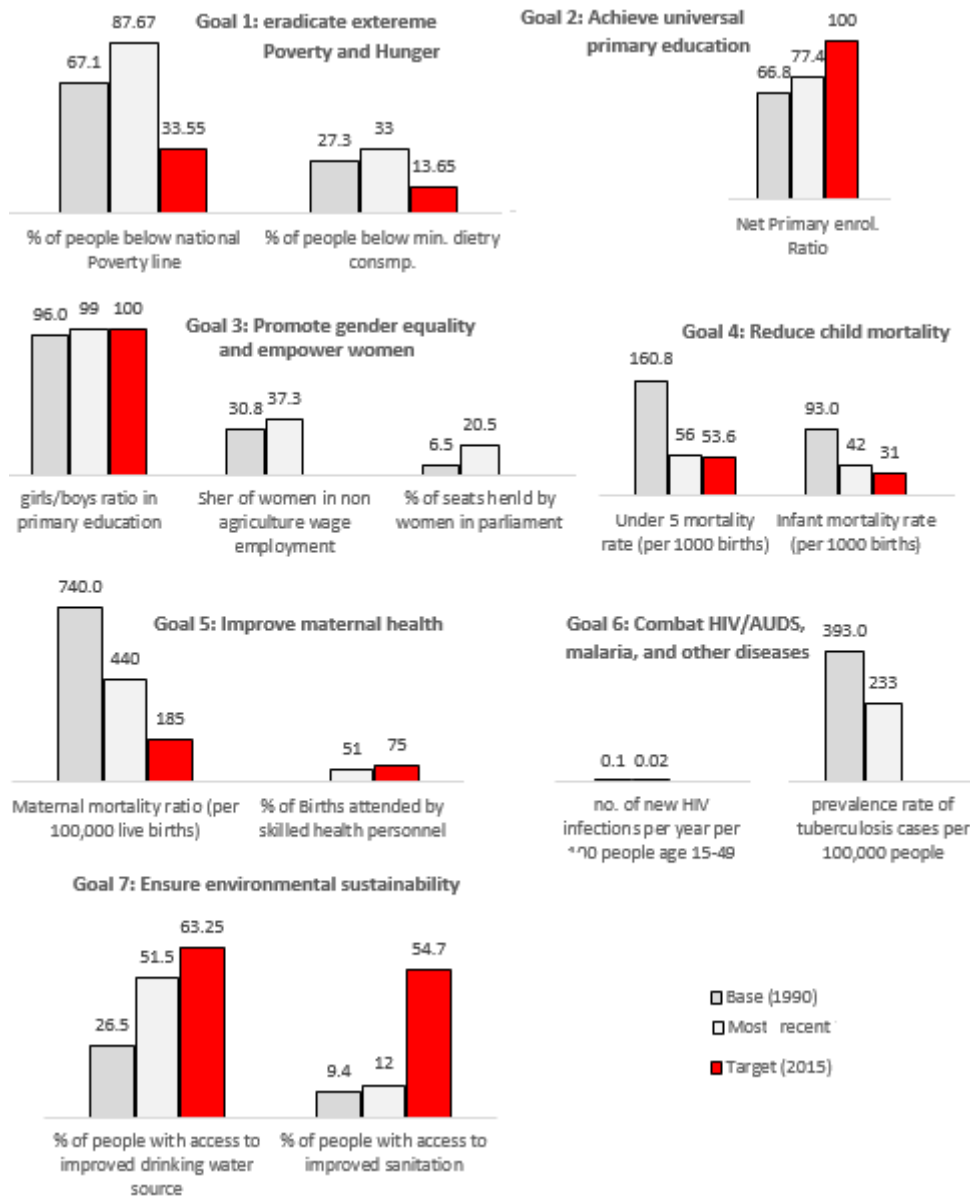
Source: Based on data from the United Nations (2016).

Clearly, no social protection program, no matter how encompassing and generous, can eradicate such widespread and deep poverty. But social protection measures can decrease vulnerability and risk, and supplement incomes so that families and households can at least ensure minimum food and income security. Further, such policies could potentially have longer term impacts on intergenerational transmission of poverty as they could address some of the fundamental drivers of poverty. This is especially the case with social protection measures designed to tackle issues related to child poverty and the incentive structure to stay longer at school.

The facts presented in this chapter suggests that poverty in Madagascar is widespread and deep. Children are particularly vulnerable, experiencing alarming high level of child poverty. Therefore, a universal approach is the best strategy for any social policy, including for social protection interventions. It would be politically difficult and could even become divisive to single out groups of the disadvantaged for a particular social protection support measure when poverty is almost universal. Also, a selective or targeted approach is technically complex, and more costly to deliver. Even if it was assumed costless with the government has full information, it would require an incredible 17.88 percent of GDP to eradicate poverty. A universal approach on the other hand can have an effect of political healing and nation building, beyond its sheer advantage as delivering a basic social right to the vulnerable groups, offering basic income security, and in ideal circumstances also fostering economic growth.

4. INTEGRATED SOCIAL PROTECTION SYSTEM: FRAMEWORK AND IMPACT

4.1. Framework

UNICEF's approach to social protection argues for integrated systems to address the multiple and compounding vulnerabilities faced by children and their families. As one of the cooperating agencies, UNICEF's engagement and key principles for Social Protection support the realization of the UN adopted Social Protection Floor Initiative (SPF-I). The SPF-I emphasizes the need to guarantee a basic set of rights across the life cycle (from children to old-age). This basic set of right aims at enabling and empowering all members of a society to access a minimum package of transfers and services at all times.

Figure 8: the UN adopted Social Protection Floor
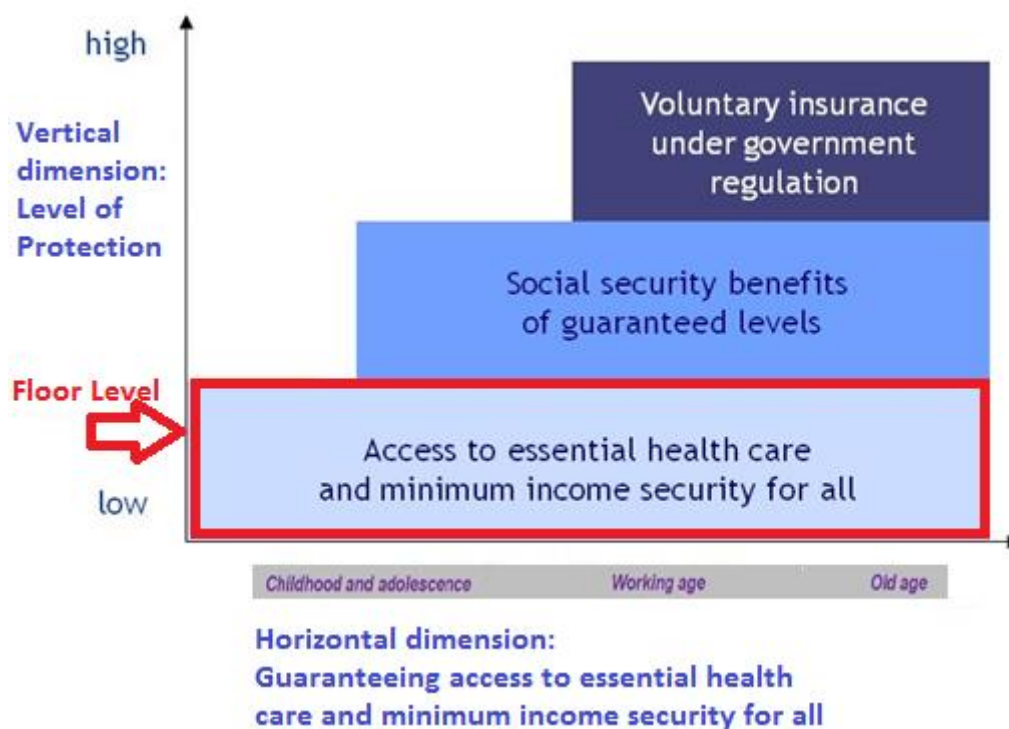
Source: ILO (2012)

Establishing a relief response to the frequent natural disasters in Madagascar can be built in this framework. The above income security package can be used as the base to provide a short-term emergency relief in the form of emergency "top-up". This temporary benefit will provide an increment to the current benefit program for the above-described vulnerable groups (children, senior citizens, pregnant mothers and possible others). It will cover the affected districts by the disaster, using the methodology as well as distribution mechanisms already in place for the regular income-security package part of the SPF.

Within this framework, two main limitations have been identified in this exercise:

1- It does not map out all existing social protection provisions that might also fall under the economic security part of the SPF.

A wide selection and fragmented cash transfer programs exist in Madagascar. Due to data availability and time constraints, this exercise does not cover them all. In addition, the proposed integrated system is sought to complement the existing programs for stronger impact, particularly among vulnerable households. More specifically, the proposed system is promoted as the first level of the safety net where households receive the benefit to help meet part of the expenses associated with school, nutrition, old-age and other vulnerability. The existing programs are additional benefits that can address the extra and special needs of the particular household. The combined benefits will, therefore, have a consolidated and stronger impact.

2- It does not cover access to essential services part of the SPF, which needs to be carefully looked at in a separate exercise and by theme (e.g. access to health, access to quality education etc.). Having said that, this exercise is thought to be the first step in this area and is recommended to be followed an important exercise on costing a primary health benefit package and integrating a social health insurance.

4.2. Targeting, Benefit Parameters, and Conditionality

<u>Targeting</u>

Using the lifecycle approach in line with the SPF, this paper looks at broad groups: pregnant women, children (pre-school and school age), and old-age individuals. The period of greatest vulnerability for the survival and development of the child is from pre-birth to 5 years, and within that the period as a foetus and the first two years (UNICEF 2011b). One consideration in the selection of benefits therefore relates to the observation that an impact on child malnutrition in particular would require an intervention to set in before the infant's birth. This leads to include a benefit during a mother's pregnancy. The purpose would be to help ensure that she has resources for her own better nutrition, to cover pregnancy-related health or social expenditures, or to be able to afford some rest during her pregnancy, post-partum and during breastfeeding by outsourcing some of her work burden. The fact that the first two years are the most sensitive in turn leads to one suggestion proposing a grant for the first 1000 days (i.e. between the start of a woman's pregnancy and her child's second birthday).

Further, as discussed earlier, poverty in Madagascar has clear age dimension. Young children, especially children age 0 -5, are the poorest population group (using national poverty line, poverty incidence of 83.2 percent in 2010) (The World Bank, 2014). Selecting this group makes a lot of sense as an effective targeting approach. Moreover, the link between poverty and lack of education is clear. Inadequate education is a main barrier to moving out of poverty. Most education indicators in Madagascar have deteriorated with falling enrollment in primary education. About half a million children who should but do not attend primary education, and the number significantly increase in the middle and secondary level of education (The World Bank, 2014). A scholarship program can provide the incentive structure to reverse these alarming trends. Finally, poverty among senior citizens deteriorated over the years. An old-age *pension* will cost a fraction given the demographic profile of Madagascar, but can be a proven tool not only to meet the needs of the senior citizens, but also to inject the transfer in the households' overall budget.

The case for universalization within the groups discussed above also derives from the difficulty to single out particularly disadvantaged communities, or to limit the grant only to the lowest wealth quintiles, as the overwhelming majority (93 percent) of the population lives below the $2 poverty line.

Using a lifecycle approach in line with the SPF covering three broad groups: pregnant women, children (pre-school and school age), and old-age individuals will also support the policy objective to consolidate the fragmentation and small scale programs that characterize the current system.

It is to be noted that while benefits proposed hypothetically cover all individuals falling under the eligibility criteria of the particular group it belongs to, it is assumed that a form of targeting is implicitly built in:

1- Self-selection targeting: the low level benefit amount coupled with other administrative burden to register and receive the benefit, are likely to result in less than 100 per cent take up, as higher income groups may not claim the benefit.

2- Categorical targeting: the lifecycle approach recognizes that poverty is positively correlated with age groups e.g. childhood and old-age. It is also to note that poverty is positively correlated with the number of children in the household. Therefore, cash transfers that varied with the number of children in the household are pro-poor, even if non-poor households receive the same per-child benefit amount. Moreover, with the inclusion of financing mechanism such as tax, the impact can be even further strengthened and the result is a net transfer from the rich household to the poor household.

Benefit Parameters: benefits covered, eligibility, and benefits amount

For the broad categories discussed earlier, a set of scenarios are investigated. They propose different age cut-offs and a range of benefit levels. The range of alternative age levels and benefit amounts may serve to provide policy makers with an estimate of respective costs and impacts. These can then be assessed in line with societal aspirations on social outcomes, and government commitments, and weighed against the background of Madagascar's current and potential fiscal space.

Table 4: Benefit Parameters of the Proposed Income Security Package

	Scenario	Coverage	Monthly Benefit	Eligibility
	Pregnancy Benefit			
1.	Pregnancy Benefit A	National	MGA 7,500	Pregnant women, last 5 months of pregnancy
2.	Pregnancy Benefit B	National	MGA 10,000	Pregnant women, last 5 months of pregnancy
	Child Grant			
4.	Under 2 years A	National	MGA 7,500	All children under 2 years of age
5.	Under 2 years B	National	MGA 10,000	All children under 2 years of age
7.	Under 5 years A	National	MGA 5,000	All children under 5 years of age
8.	Under 5 years B	National	MGA 7,500	All children under 5 years of age

	Scholarships			
10.	Scholarship A	National	MGA 5,000	Primary School students
11.	Scholarship B	National	MGA 5,000	Middle School students
12.	Scholarship C	National	MGA 10,000	High School students
	Old-age Pension			
13.	Old-age 65+ A	National	MGA 15,000	All persons age 65 and above
14.	Old-age 65+ B	National	MGA 20,000	All persons age 65 and above
15.	Old-age 70+ A	National	MGA 15,000	All persons age 75 and above
16	Old-age 70+ B	National	MGA 20,000	All persons age 75 and above

While the above benefit amounts are low in value as a stand-alone benefit, they are meant to complement each other and provide the first level of income security for the household as a unit explained in the SPF in figure 8, especially in the event of loss of income.

Conditionality

There is increasing evidence on the impact and outcomes of both conditional cash transfers[2] and unconditional transfers. Although there is evidence to suggest that both have positive outcomes, the particular role and attribution of these outcomes to conditionality remains an open debate. The study proposes that the cash transfer directed to children in school age is to be conditional on attending school. For other populations groups, linkages to other sought positive behaviour changes can be also investigated (eg health check-ups). The study is hoped to initiate a broader discussion with cross-sectorial experts to ultimately decide whether conditionality and linkages are desired, and if yes, what they are. A separate exercise is needed to make sure that whatever conditionalities imposed are costed and within the supply side constraints.

4.3. Emergency Response Component

Madagascar is highly vulnerable to natural disasters, mainly: cyclones, droughts and flooding. According to the index of vulnerability to climate change Maplecroft 2012 (Climate Change Vulnerability Index - CCVI), Madagascar ranked fifth country most threatened by natural disasters. It is estimated that one quarter of the population, or approximately five million people, currently live in zones at high risk of natural disasters (Maplecroft, 2014). Over the past 10 years (2006-2016), there were a total 19 cyclones, 6 floods, and 3 droughts affecting more than 3 million people (1,654,384 persons were affected by the cyclones and floods and 1,533,690 affected by drought) (BNGRC, 2016).

The current programs to deal with natural disasters are mainly in the form of cash-for-work programs to vulnerable households affected by natural disasters. While these programs are ideal for working-age population, it will leave vulnerable populations uncovered including children and senior citizens. The study proposes an intervention by putting in place a mechanism that it systematically provides short-

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[2] conditional cash transfers are given to beneficiaries conditional on particular actions, such as sending children to school or attending regular health check-ups

term assistance to the population affected by natural disasters as part of the proposed income security package described earlier. Specifically, the above income security package for the general population can be used as the base to provide a short-term emergency relief in the form of emergency "top-up". This temporary benefit will provide an increment to the current benefit program for the above-described vulnerable groups (children, senior citizens, pregnant mothers and possible others). It will cover the affected districts by the disaster, using the methodology as well as distribution mechanisms already in place for the regular income-security package proposed earlier.

Table 5: Emergency "top-up" Benefit Parameters

	Group	Coverage	Top-up Benefit	Eligibility
1.	Pregnancy	Affected Districts	MGA 100,000	Pregnant women, last 5 months of pregnancy
2.	Under 5 years	National	MGA 100,000	All children under 5 years of age
3.	Old-age 65+	National	MGA 100,000	All persons age 65 and above

The main advantage of this approach is its flexibility, cost efficiency, immediate scalability, and building on systematic approach as opposed to the fragmented parallel mechanisms. Administratively, eligible beneficiaries can be identified real time from the list of income security package outlined above. This is the most efficient and transparent option for identifying the beneficiaries in the emergency situation and in a short period of time. It is to be noted that natural disasters affect a large share of the population and many households are displaced and temporarily seeking shelter. If alternative targeting (other than the proposed) or beneficiary identification approaches were used, it is likely to take 3 to 4 months and could further create division within communities. This is one of the reasons why the use of the income security package provided above, which uses universal coverage (within a category) is the most appropriate measure.

Given the high frequency occurrence of natural disasters in Madagascar that can instantly set back any reduction in general poverty and specifically in child poverty, it is proposed that the rounds of emergency top ups are accompanied by behavioral change messages that can contribute to reducing the household's vulnerability to disaster. These messages will be targeted both to specific vulnerable groups and to specific sectors, and linked to relief and recovery outcomes. Such messages will also be relevant since the top up, or other source of income, might well be used for housing reconstruction. Messages on gender awareness and the risk of child labor can also be reinforced.

4.4. Impact of the Integrated System of Social Protection[3]

The integrated system approach for Social Protection offers an adaptable set of interventions that can achieve equitable outcome, promote human dignity, and minimize social unrest. It also promotes macroeconomic stability. The following are three main dimensions for the integrated system impact.

3.4.1. Impact on consumption poverty

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[3] The evidence for other countries was collected from multiple sources and used in the brief (UNICEF, 2010), available at
http://www.unicef.org/socialpolicy/files/Social_Protection_Accelerating_the_MDGs_with_Equity(2).pdf

Assessing the potential impact of the integrated system on consumption requires the availability and use of household data. There are several models that can be used to simulate the impact on poverty resulted from introducing the integrated system. But this would be beyond the scope of this study. Nevertheless, given the unique poverty profile (widespread and deep poverty), the impact of the proposed cash transfer system on the depth of poverty in Madagascar can be safely estimated. For instance, selecting a package that covers all contingencies in table 3, our estimate showed that a reduction between 6.74 – 8.11 percent in poverty gap can be achieved. To obtain estimate on poverty headcount reduction, a more detailed microsimulation model is needed.

Further, the following list collects evidence from selected country examples of impact on poverty and inequality:

- Mexico: The Oportunidades program reduced the poverty headcount ratio by 10%, the poverty gap by 30%, and the poverty severity by 45%

- South Africa: Social pensions and transfers have reduced poverty gap by 47%.

- Senegal: Social pension is estimated to reduce poverty by 35%

- Tanzania: Social pension is estimated to reduce poverty by40%

- Kyrgyz Republic: Social Protection is estimated to have reduced extreme poverty headcount and poverty gap among beneficiaries by 24% and 42%, respectively. Total poverty ratios are estimated to have reduced by 10% and 22% for the extreme poverty headcount and poverty gap, respectively.

- Brazil: the combination of the Continuous Cash Benefit (BPC) —a means-tested pension and disability grant—and the Bolsa Família contributed an estimated 28% of the fall in the Gini coefficient between 1995 and 2004

3.4.2. Impact on non-income dimensions

While simulating the impact of the proposed system on non-income dimensions is challenging and beyond the scope of this exercise, evidence from different countries shows that progress to non-income social gains can be achieved when cash transfer programs and approaches are used to complement supply side interventions by increasing demand to services. Below is a list of selected country examples:

School enrolment, child labour, and early marriage
- Bangladesh: The stipend program for girls' education (FSP) is believed to have increased girls' net primary enrolment between 1996 and 2002/3 from 48% to 86%.
- Ethiopia, South Africa, Malawi, Mexico, Nicaragua, Brazil, Ecuador, Cambodia, Pakistan and Turkey: Transfer programmes have demonstrated significant percentage point increases in enrolment and/or attendance.
- Zambia, Malawi, Brazil, Columbia, Nicaragua, Mexico: overall positive effects on girls' education.
- Malawi: new enrolment was twice as high in households participating in cash transfer scheme (8.3% vs 3.4%) within a one year period.
- Malawi: cash transfers to adolescent girls increased school attendance, and led to a significant decline in early marriage, pregnancy, self-reported sexual activity and HIV prevalence among beneficiaries.

- Mexico: Oportunidades had little impact at primary level (where enrolment was already high), but secondary school enrolment of girls increased by 11-14%, compared to 5-8% for boys. It also resulted in a reduction in probability of working for ages 8-17.
- Brazil: the Programa de Erradicaçao do Trabalho Infantil (PETI) reduced both the probability of children working and their likelihood to be engaged in higher-risk activities.

Nutrition:
- Nicaragua: The Red de Protección cash transfer programme reduced stunting among children 6-59 months by 5.3 percentage points, with stronger impacts among poorer families. Moreover, during the coffee price shock, beneficiaries of this program were able to maintain and modestly increase per capita food consumption, while in other comparable households per capita consumption declined sharply.
- South Africa: children in households receiving a pension have on average 5cm greater growth than those in households without a pension – this is the equivalent of approximately half a year's growth for Black and Coloured children.
- Mexico, Malawi, and Colombia: Social Protection programmes demonstrate reductions in stunting.

Health
- Mexico: Oportunidades led to a 17 per cent decline in rural infant mortality (8 percentage points on average). It also led to a reduction of maternal mortality by 11% among women participating and impacts were strongest in more marginalized communities.
- Bolivia: between 1993 and 1997, infant mortality rates among participating households in Bolivia's Social Fund declined from 61 to 31 per 1000. For non-participating comparable households, infant mortality rates did actually increase from 60 to 67 per 1000. Under 5 mortality rates fell over the same period from 94 to 55 per 1000 in participating households, but rose from 93 to 108 per 1000 in comparable non-participating households.
- Peru: The Juntos conditional cash transfer programme reduced women giving birth at home, in an area with high levels of maternal mortality.
- In all cash transfer programs for which there is data, with the exception of the PATH programme in Jamaica, incidence of illness has decreased among children, particularly younger children.

HIV/AIDS
- Malawi: cash transfers to adolescent girls increased school attendance, and led to a significant decline in early marriage, pregnancy, self-reported sexual activity and HIV prevalence among beneficiaries.
- Kenya: cash transfers were used by households to increase ARV treatment for children and adults.

4.5. Impact on economic growth

A coherent social cash transfer program that ultimately results in an income transfer from the rich to the poor can play a significant role as an economic stimulus to foster economic growth. This is due to the fact that poor households have a high marginal propensity to consume. The additional incomes poor households receive (from the program or other sources) are spent in large on basic necessities, whereas richer households' incremental reductions of their incomes (resulted from financing the benefit) are not expected to reduce their consumption with the full amount. This gives a rise to a multiplier effect: the

increased consumption resulted from the benefit leads to increased incomes of local producers and service providers, which further leads to increased consumption, etc. In other words, the initial amount spent on the proposed system of benefits may cause a change in aggregate output that is a multiple of the initial change. For instance, an increase of 1 percent of GDP in Bolsa Familia program in Barzil was estimated to result in a positive change of 1.44 percent in GDP (ILO, 2011). Not surprising, cash transfers programs comprise a significant portion of the fiscal stimulus packages in rich and poor countries alike. It was estimated that on average about 25 percent of fiscal stimulus spending was invested in social protection in both middle and higher income countries (UNICEF, 2010b).

Figure 9: Size of Social Protection Component of Stimulus Packages (% of total announced amount)
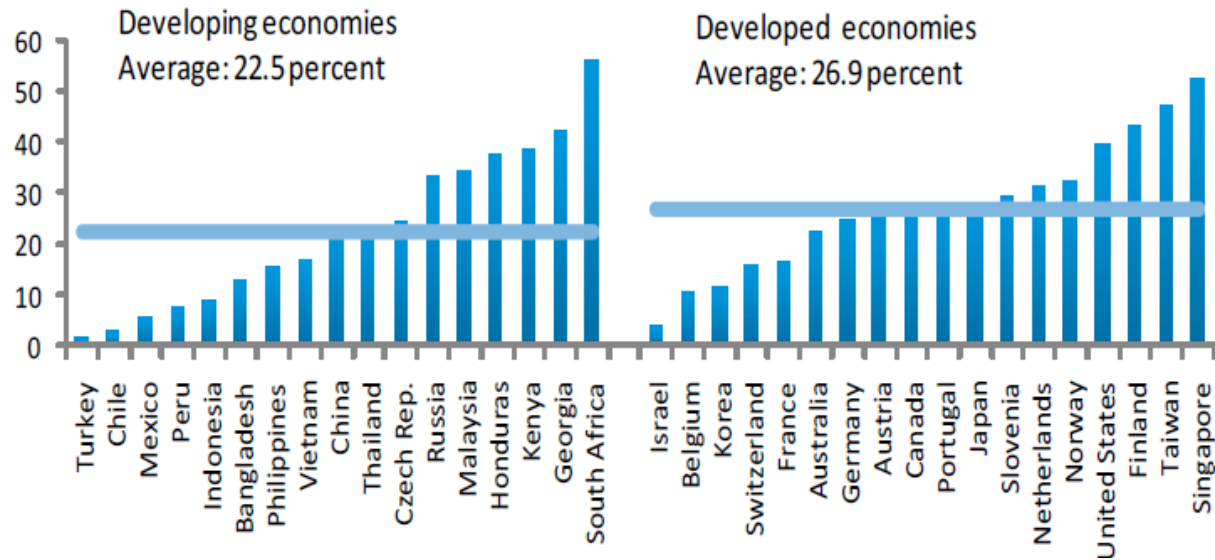
Source: UNICEF (2010)

5. COSTING THE SYSTEM OF CASH TRANSFERS

5.1. Projection Methodology

In this study, the projection exercise is divided into two parts: First, projection of the underlying factors (demographic and macroeconomic). Second, under a set of specified assumptions on the benefit parameters discussed earlier (eligibility conditions, coverage, benefit level etc.), beneficiaries, benefit level, and overall costs are projected until 2030 for each benefit. The linkages and dependency structure of the projection parts are illustrated in the following diagram.

Figure 10: Projection Model Components and Dependency Structure
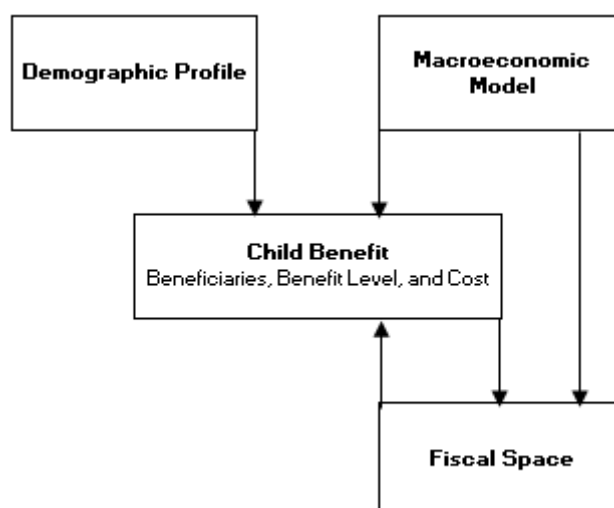
5.2. Projection of the Determinants of Social protection

For the demographic projection, the study uses the medium-variant population projection made available by the United Nations Department of Economic and Social Affairs, Population Division (UN, 2016). The data set is disaggregated by sex and single-year age. The following table summarizes the population projection's main characteristics relevant to the study.

Table 6: Population Projection (Medium Variant) Main Characteristics, 2016-2030

	Thousands							
	2016	2018	2020	2022	2024	2026	2028	2030
Population	24,916	26,326	27,799	29,330	30,916	32,551	34,234	35,960
Pregnancy	825	860	892	923	952	981	1,009	1,036
children Under 2	1,612	1,680	1,748	1,812	1,873	1,932	1,989	2,043
children Under 5	3,865	4,042	4,214	4,391	4,551	4,706	4,854	4,996
children age 6-11	3,947	4,115	4,306	4,513	4,728	4,946	5,159	5,358
children age 12-15	2,380	2,467	2,558	2,663	2,786	2,920	3,063	3,210
children age 16-17	1,122	1,163	1,206	1,250	1,298	1,356	1,421	1,490
Persons age 65+	717	785	859	942	1,027	1,121	1,222	1,330
Persons age 70+	421	444	473	523	577	638	703	768
	Percentage of Total Population							
children Under 2	6.47%	6.38%	6.29%	6.18%	6.06%	5.93%	5.81%	5.68%
children Under 5	15.51%	15.35%	15.16%	14.97%	14.72%	14.46%	14.18%	13.89%
children age 6-11	15.84%	15.63%	15.49%	15.39%	15.29%	15.19%	15.07%	14.90%
children age 12-15	9.55%	9.37%	9.20%	9.08%	9.01%	8.97%	8.95%	8.93%
children age 16-17	4.50%	4.42%	4.34%	4.26%	4.20%	4.16%	4.15%	4.14%
Persons age 65+	2.88%	2.98%	3.09%	3.21%	3.32%	3.44%	3.57%	3.70%
Persons age 70+	1.69%	1.68%	1.70%	1.78%	1.87%	1.96%	2.05%	2.14%

Source: Author's calculation based on data from UN DESA (2016).

For the macroeconomic model, the study uses the IMF's latest[4] medium-term forecast for real GDP growth rate and inflation rate, which covers until 2021. From 2022 to 2030, the rates are fixed at the rate of 2021. GDP in current prices and per capita GDP are calculated for the projection period.

Figure 11: Macroeconomic Model's Assumptions- GDP Growth Rate and CPI Rate
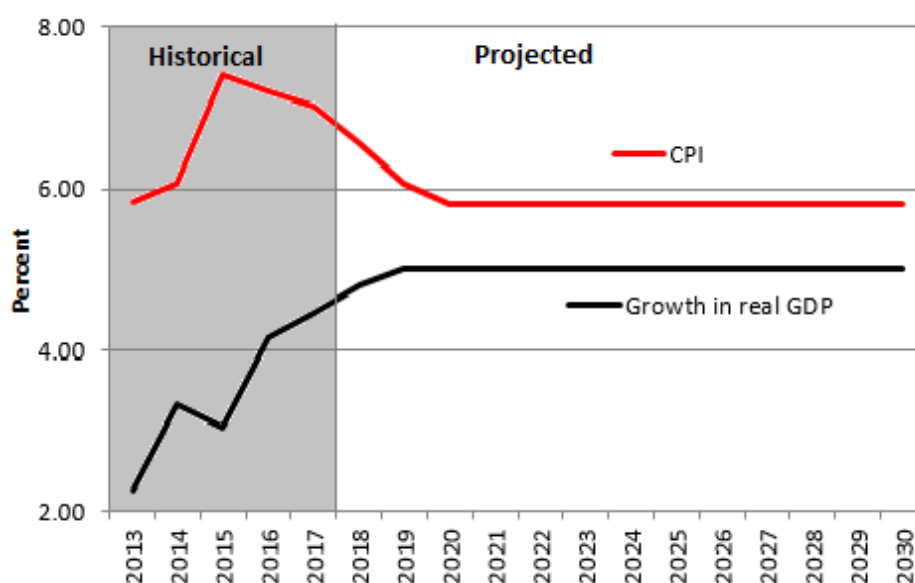
Source: Based on data from IMF (2016).

[4] Data obtained on June 20, 2016 from the IMF website

5.3. Projection of Income Security Package

The first assumption that needs to be specified is regarding coverage ratio among the underlying population. The following table summarizes the coverage ratios assumed for each individual program[5].

Table 7: Coverage Rates Projection Assumptions

Category	Underlying population	Coverage ratio		
		2016	**2019**	**2030**
Pregnancy	Expecting mothers	80 %	80 %	80 %
Child benefit	- less than 2 years-old - less than 5 years-old	80 % 80 %	80 % 80 %	80 % 80 %
Primary school students	- Male - Female	68.1% 70.8%	80 % 80 %	100% 100%
Middle School Students	- Male - Female	26.6% 27.8%	40% 40%	80 % 80 %
High School Students	- Male - Female	10% 10%	20% 20%	40% 40%
Old-age	Age 65+	80%	80%	80%

Applying these rates into the corresponding age groups that was already projected gives the specific program's beneficiaries as shown in table 7.

Table 8: Costing Results: Number Beneficiaries in thousands, 2016-2030

Beneficiaries, 000	2016	2018	2020	2022	2024	2026	2028	2030
Pregnancy	660.36	687.79	713.85	738.32	761.68	784.54	806.85	828.70
Childern Under 2	1,289.80	1,343.60	1,398.22	1,449.64	1,498.46	1,545.27	1,590.89	1,634.79
Children Under 5	3,091.82	3,233.22	3,371.11	3,512.42	3,641.04	3,765.14	3,883.52	3,996.47
scholarship A	2,740.51	3,147.22	3,522.92	3,856.57	4,212.11	4,585.90	4,971.83	5,358.27
scholarship B	647.43	881.56	1,116.37	1,355.68	1,621.17	1,911.51	2,227.33	2,567.84
scholarship C	112.19	193.90	263.13	318.29	377.47	443.70	516.76	596.03
Old-age 65+	573.60	628.02	687.54	753.22	821.87	897.04	977.66	1,063.81
Old-age 70+	336.89	354.81	378.22	418.49	461.97	510.27	562.31	614.47

Source: Authors' calculation based on data from UN (2016)

Over the projection period, benefits are assumed to maintain real value in MGA (indexed with inflation). However, as the economy is expected to grow in real term, benefit level will decline in relative value over the projection period. At later stage, a periodic review of the real value of the benefit can be introduced to ensure coherence and relevance. Table 8 traces the benefit level development over the projection period.

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[5] These assumptions are meant as a starting point. They (and many other parameters eg benefit amount) can be changed in the costing tool and immediately one can see the cost implication of any change.
Note also that rates above are interpolated between the specified years

Table 9: Costing Results: Benefit Level in MGA and as a Percent of National Poverty Line and GDP per Capita

	2016			2020		2025		2030	
MGA	% of National Poverty Line	% of GDP Per Capita	MGA	% of GDP Per Capita	MGA	% of GDP Per Capita	MGA	% of GDP Per Capita
4,000	10.24	3.76	5,187	3.52	6,876	3.15	9,117	2.80
5,000	12.80	4.70	6,483	4.40	8,596	3.94	11,396	3.49
7,500	19.20	7.05	9,725	6.60	12,893	5.90	17,094	5.24
10,000	25.60	9.39	12,967	8.80	17,191	7.87	22,791	6.99
15,000	38.40	14.09	19,450	13.20	25,787	11.81	34,187	10.48
20,000	51.19	18.79	25,934	17.60	34,382	15.74	45,583	13.98

Source: Authors' calculation based on data from IMF (2016)

The total benefit amount spent under each scenario is calculated as the product of the beneficiaries and the benefit amount for each year in the projection period for each scenario. Administrative cost is assumed conservatively at 20 per cent of the benefit amount. The following table summarizes the cost of each program expressed in MGA, percentage of GDP, and percentage of Government expenditure.

Table 10: Costing Results: Overall Cost in in Billion MGA, Percentage of GDP, and Percentage of Government Expenditure

	2016	2018	2020	2022	2024	2026	2028	2030
Total Expenditure, Billion MGA								
Pregnancy A	29.72	35.51	41.65	48.23	55.69	64.21	73.92	84.99
Pregnancy B	39.62	47.35	55.54	64.30	74.26	85.62	98.57	113.32
U2 A	139.30	166.48	195.81	227.25	262.95	303.55	349.82	402.40
U2 B	185.73	221.98	261.08	303.00	350.60	404.73	466.43	536.54
U5 A	222.61	267.08	314.73	367.08	425.96	493.07	569.30	655.81
U5 B	333.92	400.63	472.10	550.62	638.94	739.61	853.95	983.72
Scholarships A	147.99	194.98	246.68	302.29	369.58	450.42	546.63	659.46
Scholarships B	34.96	54.62	78.17	106.26	142.24	187.74	244.89	316.03
Scholarships C	16.16	32.03	49.13	66.53	88.32	116.21	151.51	195.62
Old-age 65+ A	123.90	155.64	192.57	236.16	288.45	352.42	429.96	523.71
Old-age 65+ B	165.20	207.51	256.76	314.87	384.60	469.90	573.28	698.28
Old-age 70+ A	72.77	87.93	105.93	131.21	162.13	200.47	247.29	302.50
Old-age 70+ B	97.02	117.24	141.24	174.95	216.18	267.29	329.72	403.34
Total Expenditure,% of GDP								
Pregnancy A	0.09	0.09	0.08	0.08	0.07	0.07	0.06	0.06
Pregnancy B	0.12	0.12	0.11	0.11	0.10	0.09	0.09	0.08
U2 A	0.44	0.42	0.40	0.37	0.35	0.33	0.31	0.29
U2 B	0.58	0.56	0.53	0.50	0.47	0.44	0.41	0.38
U5 A	0.70	0.67	0.64	0.61	0.57	0.53	0.50	0.47
U5 B	1.05	1.01	0.96	0.91	0.85	0.80	0.75	0.70
Scholarships A	0.47	0.49	0.50	0.50	0.49	0.49	0.48	0.47
Scholarships B	0.11	0.14	0.16	0.18	0.19	0.20	0.21	0.22
Scholarships C	0.05	0.08	0.10	0.11	0.12	0.13	0.13	0.14
Old-age 65+ A	0.39	0.39	0.39	0.39	0.39	0.38	0.38	0.37
Old-age 65+ B	0.52	0.52	0.52	0.52	0.51	0.51	0.50	0.50
Old-age 70+ A	0.23	0.22	0.22	0.22	0.22	0.22	0.22	0.21
Old-age 70+ B	0.30	0.30	0.29	0.29	0.29	0.29	0.29	0.29
Total Expenditure,% of Gov Exp.								
Pregnancy A	0.57	0.52	0.50	0.49	0.48	0.47	0.46	0.45
Pregnancy B	0.77	0.69	0.67	0.66	0.64	0.63	0.61	0.60
U2 A	2.69	2.43	2.36	2.32	2.27	2.22	2.18	2.13
U2 B	3.59	3.24	3.14	3.09	3.03	2.96	2.90	2.84
U5 A	4.30	3.90	3.79	3.74	3.68	3.61	3.54	3.47
U5 B	6.46	5.85	5.68	5.61	5.52	5.42	5.31	5.21
Scholarships A	3.81	3.79	3.96	4.11	4.25	4.40	4.54	4.65
Scholarships B	0.90	1.06	1.25	1.44	1.64	1.83	2.03	2.23
Scholarships C	0.31	0.47	0.59	0.68	0.76	0.85	0.94	1.04
Old-age 65+ A	2.40	2.27	2.32	2.41	2.49	2.58	2.68	2.77
Old-age 65+ B	3.19	3.03	3.09	3.21	3.32	3.44	3.57	3.70
Old-age 70+ A	1.41	1.28	1.27	1.34	1.40	1.47	1.54	1.60

Source: Authors' calculation based on data from IMF (2016) and UN (2016)

Figure 12: Total Expenditure of all Scenarios in Billion MGA and as a percentage of GDP (right axes), 2016
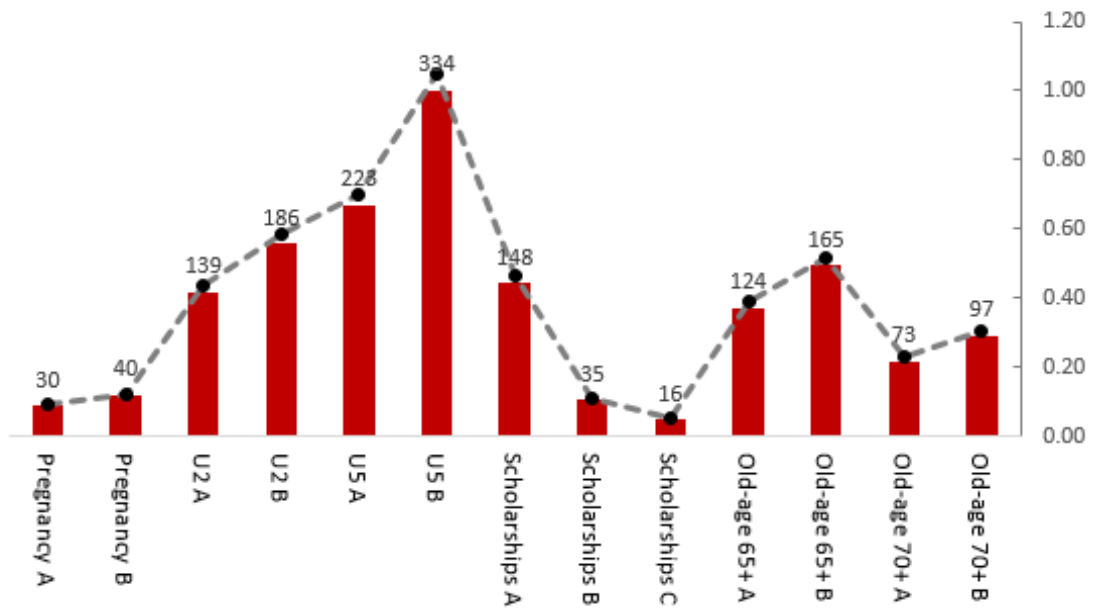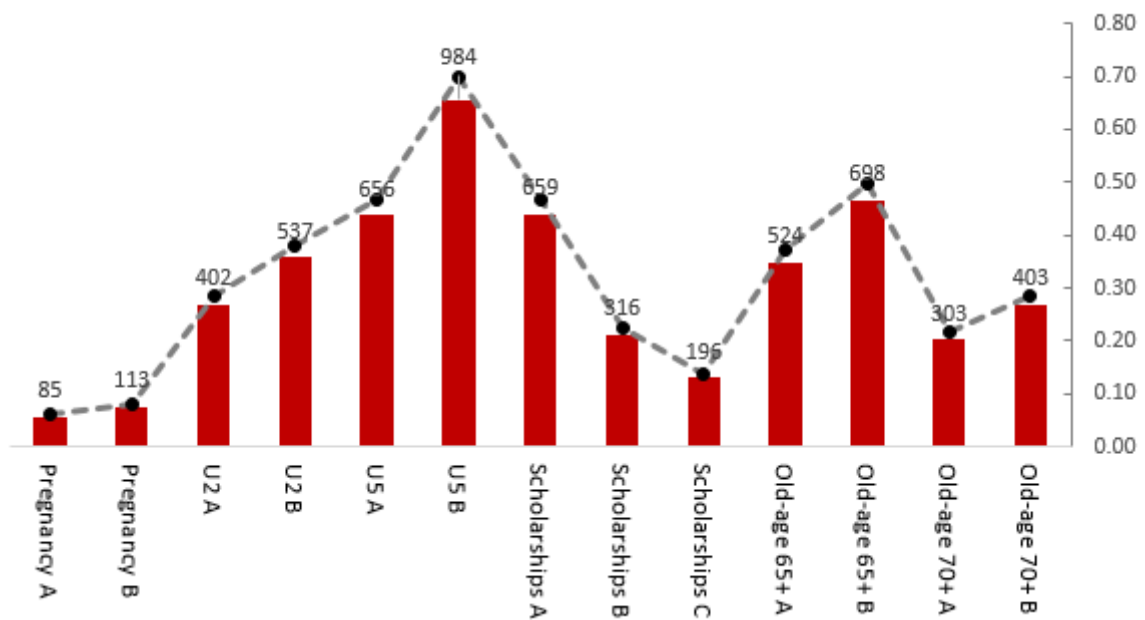

Figure 13: Total Expenditure of all Scenarios in Billion MGA and as a percentage of GDP (right axes), 2030

Source: Authors' calculation based on IMF (2016) and UN (2016)

5.4. Projection of the Emergency Response Component

As discussed earlier, the study proposes to use the income security package costed earlier as the base to provide a temporary short-term emergency relief in the form of emergency "top-up". This temporary benefit will provide an increment to the income security package for pregnant mothers, children under the age of 5, and old-age persons age 65 and above.

The costing of this component starts with studying the historical pattern of frequency and exposure to three main categories of natural disasters, namely: Cyclones, floods, and droughts. Over the period 2006-2016, there were 28 emergencies (19 cyclones, 6 floods, and 3 droughts) affecting a total population of 3,188,074 (BNGRC, 2016). On average of this 10-year period, the frequency of emergency occurrence is therefore 2.8 emergencies every year with an affected population of 113,859.79 persons per emergency, or 318,807.4 persons per year between 2006-2016. Using the average annual population estimate over the same period, an average of 1.465 percent of the general population was affected by one of the three emergency categories studied in this exercise. For the projection horizon, the study uses this historical 10-year average ratio of population affected to the general population to calculate the expected number of persons that would be affected by an emergency. Assuming the age distribution of the general population applies to this sub-group, the number of potential beneficiaries can be calculated. Using benefit take up rate of 90 percent for children under 5 and senior citizens and a take-up rate of 50 percent for pregnant women, number of beneficiaries are then calculated.

Table 11: Projected Emergency Total Affected Population and Number Beneficiaries for the Emergency Top-ups, thousands, 2016-2030

	2016	2018	2020	2022	2024	2026	2028	2030
Total population, 000	24,915.71	26,326.24	27,798.84	29,329.79	30,915.62	32,551.42	34,234.01	35,960.05
Total affected population, 000	365.11	385.77	407.35	429.79	453.03	477.00	501.65	526.95
pregnancy	12.10	12.60	13.08	13.52	13.95	14.37	14.78	15.18
under 5	56.63	59.22	61.75	64.34	66.69	68.97	71.13	73.20
old-age 65+	10.51	11.50	12.59	13.80	15.05	16.43	17.91	19.49
Take up rate %								
pregnancy	50	50	50	50	50	50	50	50
under 5	90	90	90	90	90	90	90	90
old-age 65+	90	90	90	90	90	90	90	90
Beneficiaries, 000								
pregnancy	6.05	6.30	6.54	6.76	6.98	7.19	7.39	7.59
under 5	50.97	53.30	55.57	57.90	60.02	62.07	64.02	65.88
old-age 65+	9.46	10.35	11.33	12.42	13.55	14.79	16.12	17.54

Source: Authors' calculation based on UN (2016), and BNGRC (2016)

For each beneficiary, two instalments of a short-term emergency relief in the form of emergency "top-up" to existing income security package will be provided. As discussed earlier, the value of each top-up is proposed at MGA 100,000 per beneficiary and are assumed to maintain real value in MGA (indexed with inflation) over the projection period. The total benefit amount spent under the emergency response is calculated as the product of the beneficiaries and the benefit amount for each year in the projection period. Administrative cost is assumed conservatively at 20 per cent of the benefit amount.

The following table summarizes the cost of the emergency response component expressed in MGA, percentage of GDP, and percentage of Government expenditure.

Table 12: Each Top-up Benefit Level in MGA and Overall Cost of Emergency Response Component in Billion MGA, Percentage of GDP, and Percentage of Government Expenditure

Number of top-ups								
pregnancy	2	2	2	2	2	2	2	2
under 5	2	2	2	2	2	2	2	2
old-age 65+	2	2	2	2	2	2	2	2
Benefit per top-up								
pregnancy	100,000	114,731	129,668	145,152	162,484	181,885	203,603	227,915
under 5	100,000	114,731	129,668	145,152	162,484	181,885	203,603	227,915
old-age 65+	100,000	114,731	129,668	145,152	162,484	181,885	203,603	227,915
% Admin cost	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Total Cost (billion)	15.95	19.26	22.86	26.85	31.41	36.69	42.77	49.78
pregnancy	1.45	1.73	2.03	2.36	2.72	3.14	3.61	4.15
under 5	12.23	14.68	17.29	20.17	23.41	27.09	31.28	36.04
old-age 65+	2.27	2.85	3.53	4.33	5.28	6.46	7.88	9.59
Total amount as % of GDP	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04
Total amount as % of Gov. exp.	0.31	0.27	0.26	0.25	0.23	0.22	0.21	0.20

Source: Authors' calculation based on IMF (2016), UN (2016), and BNGRC (2016)

5.5. Costing Existing Priority Programs

The fight against poverty, vulnerability and insecurity was identified as one of the Government of Madagascar's priority areas, as stated in the General Policy of the State (Republic of Madagascar, 2015). In particular, challenge 5 is devoted to "social protection", an essential tool for reducing poverty in addition to improving and enhancing access to basic social services. This focus was clearly stated in Axis 4 of the National Development Plan (NDP) and the strategic goal 4 of the Paritra Malagasy zary Ohabolana (PMO), which places Social Protection "as an expression of human right and social equity". The adoption of the National Policy for Social Protection, the government is committed to the adaptation of an integrated, efficient and effective social protection system. It guides its strategies and actions around four key areas: Monetary transfer (TMDH), Emergency response, Money for work, and Income-generating activities, Mechanisms to care for specific at-risk groups. The National Policy for Social Protection planned to reach a coverage of 350,000 households for each intervention for the next 5 years, which is estimated to correspond to a target of 28 percent of the extremely poor population (Republic of Madagascar, 2016).

Table 13: Existing Priority Programs: Beneficiaries, Cost in Billion MGA

Programs	Number	Costs, billion MGA
TMDH	350,000 households	381.41
ACTP	350,000 household	554.08
Emergency Response		226.16
Response	1893500 Population	121.18
Prevention	473,000 Population	18.92
Resiliency	4,241,000 labor days	22.05
Rehabilitation of basic socio-economic infrastructures	2,857 units	64.01
IGA	1,000,000 Individuals	140.00
Mechanism to care for specific at-risk groups	165,000 Individuals	59.96
Unwilling homeless	80,000 Individuals	16.00
Children without parental care	5,000 Individuals	9.00
Children victims of violence and exploitation	10,000 Individuals	10.00
Women victims of violence and exploitation	55,000 Individuals	9.96
Disabled and the elderly	15,000 Individuals	15.00
Total Cost		1,361.605

Source: Republic of Madagascar (2016)

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