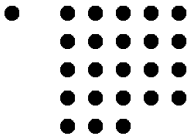


Fachhochschule Köln
Cologne University of Applied Sciences

UNIVERSIDAD AUTÓNOMA
DE SAN LUIS POTOSÍ

UNIVERSIDAD AUTÓNOMA DE SAN LUIS POTOSÍ

FACULTADES DE CIENCIAS QUÍMICAS, INGENIERÍA Y MEDICINA

PROGRAMAS MULTIDISCIPLINARIOS DE POSGRADO EN CIENCIAS AMBIENTALES

AND

COLOGNE UNIVERSITY OF APPLIED SCIENCES

INSTITUTE FOR TECHNOLOGY AND RESOURCES MANAGEMENT IN THE TROPICS AND SUBTROPICS

Evaluation of the Brazilian *Fome Zero* and the Mexican *Oportunidades* Anti-hunger Programs as Strategies to Improve Food Security

THESIS TO OBTAIN THE DEGREE OF

MAESTRÍA EN CIENCIAS AMBIENTALES

DEGREE AWARDED BY

UNIVERSIDAD AUTÓNOMA DE SAN LUIS POTOSÍ

AND

MASTER OF SCIENCE

TECHNOLOGY AND RESOURCES MANAGEMENT IN THE TROPICS AND SUBTROPICS

IN THE SPECIALIZATION: RESOURCES MANAGEMENT

DEGREE AWARDED BY COLOGNE UNIVERSITY OF APPLIED SCIENCES

PRESENTS:

Julia Christine S. Bultmann

CO-DIRECTOR OF THESIS PMPCA

Dr. Juan Manuel Pinos Rodríguez

CO-DIRECTOR OF THESIS ITT:

Dr. Sabine Schlüter

ASSESSOR:

Dr. Juan Carlos Garcia López

Cologne, Germany July, 2013

UNIVERSIDAD AUTÓNOMA DE SAN LUIS POTOSÍ
FACULTADES DE CIENCIAS QUÍMICAS, INGENIERÍA Y MEDICINA
PROGRAMAS MULTIDISCIPLINARIOS DE POSGRADO EN CIENCIAS AMBIENTALES
AND
COLOGNE UNIVERSITY OF APPLIED SCIENCES
INSTITUTE FOR TECHNOLOGY AND RESOURCES MANAGEMENT IN THE TROPICS AND SUBTROPICS

Evaluation of the Brazilian *Fome Zero* and the Mexican *Oportunidades* Anti-hunger Programs as Strategies to Improve Food Security

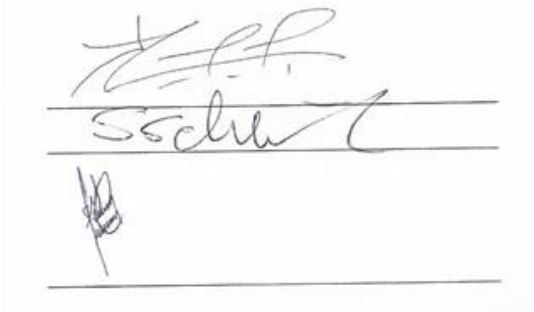
THESIS TO OBTAIN THE DEGREE OF
MAESTRÍA EN CIENCIAS AMBIENTALES
DEGREE AWARDED BY
UNIVERSIDAD AUTÓNOMA DE SAN LUIS POTOSÍ
AND
MASTER OF SCIENCE
TECHNOLOGY AND RESOURCES MANAGEMENT IN THE TROPICS AND SUBTROPICS
IN THE SPECIALIZATION: RESOURCES MANAGEMENT
DEGREE AWARDED BY COLOGNE UNIVERSITY OF APPLIED SCIENCES

PRESENTS:

JULIA CHRISTINE S. BULTMANN

DR. JUAN MANUEL PINOS RODRIGUEZ
DR. SABINE SCHLÜTER

DR. JUAN CARLOS GARCIA LÓPEZ



Proyecto Realizado en:

Institute for Technology and Resources Management in the Tropics and Subtropics (ITT)

Cologne University for Applied Sciences

Con el apoyo de:

Deutscher Akademischer Austausch Dienst (DAAD)

Consejo Nacional de Ciencia y Tecnología (CONACYT)

La Maestría en Ciencias Ambientales recibe apoyo a través del Programa Nacional de Posgrados (PNPC - CONACYT)

Erklärung / *Declaración*

Name / *Nombre*: Julia Christine S. Bultmann

Matri.-Nr. / *N° de matricula*: 11085735 (CUAS), 0204029 (UASLP)

Ich versichere wahrheitsgemäß, dass ich die vorliegende Masterarbeit selbstständig verfasst und keine anderen als die von mir angegebenen Quellen und Hilfsmittel benutzt habe. Alle Stellen, die wörtlich oder sinngemäß aus veröffentlichten und nicht veröffentlichten Schriften entnommen sind, sind als solche kenntlich gemacht.

Aseguro que yo redacté la presente tesis de maestría independientemente y no use referencias ni medios auxiliares a parte de los indicados. Todas las partes, que están referidas a escritos o a textos publicados o no publicados son reconocidas como tales.

Die Arbeit ist in gleicher oder ähnlicher Form noch nicht als Prüfungsarbeit eingereicht worden.

Hasta la fecha, un trabajo como éste o similar no ha sido entregado como trabajo de tesis.

San Luis Potosí, den /*el* 18.7.2013

Unterschrift / *Firma*: Bultmann

Ich erkläre mich mit einer späteren Veröffentlichung meiner Masterarbeit sowohl auszugsweise, als auch Gesamtwerk in der Institutsreihe oder zu Darstellungszwecken im Rahmen der Öffentlichkeitsarbeit des Institutes einverstanden.

Estoy de acuerdo con una publicación posterior de mi tesis de maestría en forma completa o parcial por las instituciones con la intención de exponerlos en el contexto del trabajo investigatición de las mismas.

Unterschrift / *Firma*: Bultmann

Table of Contents

List of Figures

List of Tables

Acknowledgements

Foremost, I would like to express my sincere gratitude to my thesis committee, the two co-directors Dr. Sabine Schlüter (ITT Cologne), Dr. Juan Manuel Pinos Rodríguez and my assessor Dr. Juan Carlos García López (Universidad Autónoma San Luis Potosí), for their guidance, continuous caring and always very valuable feedback.

I also would like to thank to the DAAD and CONACYT for their financial support during my studies.

I would like to thank my very good friends Ksenia Yakovleva and Stefan Gebhardt for their patience, fruitful discussions and their constant understanding for the research for my thesis. Additionally, I am very grateful for the English proofreaders, my friends Roxanne Albers, Dawn Fischer-Van Sickle, Jenny Olson and Miriam Kratzer.

Special thanks go to my friends in Cuernavaca, Mexico from *Caminando Unidos* and especially to Dr. Úrsula Oswald Spring, for inspiring me during my time in Mexico in terms of the research topic and for giving me a deep insight into the living conditions of poor and low-income Mexican families, as well as into the prevailing socio-economic and environmental conditions.

I am thankful for the help of the members of the *National Council on Food and Nutrition Security* (CONSEA) for providing me with materials and for answering my endless questions. I would like to thank Dieter Gerding, Jorgdieter Anhalt, Ricardo Kaminski and Hans-Jürgen Fiege for their valuable knowledge and input to my research question and their personal support during my research stay in Fortaleza, Brazil. To finish, I want to say “thank you so much” to my sister for always being there for me and for her enthusiasm and motivation.

Abstract

English

The present paper evaluates the two approaches *Fome Zero and Oportunidades* of Brazil and Mexico as strategies to improve food security. The analysis shows that various significant differences but also similarities exist in the economic, social and environmental structures of both countries.

The analysis is conducted on the basis of an examination of the current agricultural production and the import/export structure of both countries. Furthermore, the country-specific poverty structure, the conditions of food insecurity as well as three main reasons of poverty are scrutinized, which are:

- land and income concentration
- vulnerability to high food prices and food price fluctuations
- social exclusion of large parts of the society

Fome Zero[1]

The Brazilian strategy, which was established in 2003, achieved exemplary good results in the fight against hunger and poverty because the food security strategy combines structural with emergency policies and includes various approaches in order to strengthen rural development. The extensive inclusion of family farmers for the supply of the national food demand keeps Brazil relatively independent from food imports and prevents the direct transmission of extreme international price fluctuations of essential food items to low-income households.

The good result in poverty alleviation in Brazil caused a significant strengthening of the people's purchasing power and thus provoked an economic growth in recent years which exceeds the capacities of the prevailing infrastructure and leads to a high demand of natural resources. This current situation provokes an unsustainable development, also because ecological agriculture in particular has been hardly supported and high amounts of pesticides are used within the prevailing system of intensive production.

Oportunidades[2]

Mexico's joining of the *North American Free Trade Agreement* (NAFTA) in 1994 confronted millions of farmers with cheap, subsidized corn which is imported from the United States. This situation weakened the agricultural food production in Mexico and caused a dependency on international food products and thus on their prices, which highly affects the Mexican staple food corn. Extreme price shocks provoked a considerable increase in national poverty rates in recent years, especially among rural farmers.

The government's efforts in poverty alleviation by the establishment of the *Targeted and Conditional Cash Transfer Program* (TCCTP) *Oportunidades* in 1997 are insufficient, because this strategy principally suppresses the consequences of poverty but does not counteract its most important reasons. Additionally, in Mexico, overweight and obesity are not recognized in a sufficient manner as part of food insecurity and efforts in nutrition and food education are rather poor. Furthermore, the country shows fundamental deficiencies in rural development and in the provision of adequate infrastructure. Finally, the country lacks of exit strategies and thus prevents low-income families from getting out of poverty.

[1] "Zero hunger" (author's note).
[2] "Opportunities" (author's note).

Abstract

The present paper shows that the fight against hunger and poverty is country-specific but also that underlying structures, which influence over the results of a food security strategy, exist. A framework of eight essential steps of a food security strategy was elaborated, which should be implemented during five different phases and be included in order to get effective and sustainable results in poverty alleviation. This framework is considered not to be country-specific and therefore be useful on an international level.

Español

El presente trabajo científico evalúa los dos enfoques *Fome Zero* de Brasil y *Oportunidades* de México como estrategia para mejorar la seguridad alimentaria. El análisis muestra varias diferencias, pero también similtudes significativas en las estructuras económicas, sociales y ambientales que existen entre ambos países.

El análisis se lleva a cabo tomando en cuenta las bases de la producción agrícola actual y de las estructuras de importación/exportación de ambos países. Además, considera la estructura específica de pobreza de cada país, analiza las condiciones de inseguridad alimentaria, así como tres razones principales de la pobreza, las cuales son:

- la concentración de tierras y de ingresos
- la vulnerabilidad a los altos precios de los alimentos y las fluctuaciones de precios de los alimentos
- la exclusión social de grandes partes de la sociedad

Fome Zero[3]

La estrategia brasileña, la cual fue creado en el año 2003, alcanzó resultados ejemplares en la lucha contra el hambre y la pobreza, porque combina políticas estructurales y de emergencia así como un fortalecimiento del desarrollo rural. Esta situación mantiene a Brasil relativamente independiente de las importaciones de alimentos y evita la transmisión directa de las fluctuaciones extremas de precios internacionales de alimentos de primera necesidad a las familias de bajos ingresos.

La reducción considerable de la probreza causó un fortalecimiento del poder adquisitivo en Brasil provocando un crecimiento económico que actualmente supera la capacidad de la infraestructura existente y que conduce a un derroche insostenible d los recursos naturales. En particular, la agricultura ecológica existe raramente y las altas cantidades de plaguicidas siguen siendo parte esencial del sistema imperante de producción intensiva.

Oportunidades

México se unió al *Tratado de Libre Comercio de América del Norte* (NAFTA) en 1994, provocando que millones de agricultores fueron confrontados con maíz barato e importado de Estados Unidos. Esto provocó una debilitación significativa de la producción agricultura en México y causó una dependencia de importaciones de alimentos y así también de los precios internacionales de los alimentos, que afecta directamente al maíz mexicano siendo este un alimento básico.

Los esfuerzos del país por reducir la pobreza a través del establecimiento del *Programa de Transferencias Monetarias Condicionadas* (TCCTP) *Oportunidades* en 1997 son insuficientes, ya que esta estrategia se basa principalmente en suprimir las consecuencias de la pobreza, pero no contrarresta sus razones más importantes. Además, en México se reconoce insuficientemente los problemas de sobrepeso y de obesidad que prevalecen en el marco de la inseguridad alimentaria, por lo que los

[3] "Zero Hambre" (nota de la autora).

esfuerzos en materia de nutrición y educación alimentaria son más bien pobres. Por otra parte, México muestra deficiencias fundamentales en el desarrollo rural y en la provisión de infraestructura adecuada. Por último, el país carece de estrategias de salida para que las familias de bajos ingresos puedan cambiar su estatus de pobreza.

El presente trabajo muestra que los aspectos relacionados con la lucha contra el hambre y la pobreza son específico de cada país pero también existen factores generales que influyen sobre los resultados de una estrategia. Por lo tanto, este documento ofrece un marco general de ocho pasos esenciales de una estretegia para alcanzar la seguridad alimentaria y que deben de ser realizados en cinco fases y ser integrados para obtener resultados efectivos y sustentables. Estos pasos no son específicos para cada país y por lo tanto pueden ser útiles a nivel internacional.

Deutsch

Die vorliegende Arbeit bewertet zwei aktuelle Ansätze von Brasilien und Mexiko im Kampf gegen Hunger und Armut. Beide Länder zeigen entscheidende Unterschiede, aber auch Gemeinsamkeiten in ihren ökonomischen, sozialen und umweltrelevanten Strukturen.

Die Analyse basiert auf einem Vergleich der landwirtschaftlichen Produktion und der Import/Export-Strukturen beider Länder. Weiterhin werden die derzeitigen Armutsstrukturen, die Lage bezüglich der Ernährungssicherung sowie drei Hauptgründe von Armut untersucht. Diese sind:

- Land- und Einkommenskonzentrationen
- Verwundbarkeit der armen Bevölkerung gegenüber zu teurer oder zu stark schwankender Nahrungsmittelpreise
- sozialer Ausschluss breiter Teile der Bevölkerung

Fome Zero[4]

Das im Jahre 2003 gestartete brasilianische Programm hat im Kampf gegen Hunger und Armut bereits beispielhaft gute Ergebnisse erzielt. Die Ernährungssicherungsstrategie koppelt strukturelle Strategien mit Notfallstrategien und beinhaltet eine Vielzahl von Methoden, um die ländliche Entwicklung zu fördern.

Die erfolgreiche Bekämpfung der Armut hat in den vergangenen Jahren die Kaufkraft der brasilianischen Bevölkerung gestärkt und das Wirtschaftswachstum gefördert. Diese Entwicklung führt aktuell dazu, dass die vorhandenen Kapazitäten der Infrastruktur nicht mehr genügen und sich eine hohe Nachfrage nach natürlichen Ressourcen eingestellt hat. Dadurch wird jedoch eine ökologisch nicht nachhaltige Entwicklung unterstützt. Ökologische Landwirtschaft im Besonderen wurde in den letzten Jahren kaum gefördert und das derzeitige System der intensiven Landwirtschaft wird mit Hilfe großer Mengen von Pestiziden gefördert.

Oportunidades[5]

In Mexiko hat der Beitritt zum *Nordamerikanischen Freihandelsabkommen* (NAFTA) im Jahre 1994 Millionen mexikanischer Bauern mit billigen, subventionierten Maisimporten aus den Vereinigten Staaten konfrontiert. Diese Entwicklung hin zum Freihandel hat zu einer Schwächung der nationalen landwirtschaftlichen Produktion geführt, einen Anstieg von Lebensmittelimporten bewirkt und dadurch eine Abhängigkeit von internationalen Lebensmittelpreisen hervorgerufen. Die mexikanische

[4] „Kein Hunger“ (Bemerkung der Autorin)
[5] „Möglichkeiten“ (Bemerkung der Autorin)

Bevölkerung ist besonders von starken Schwankungen im Preis ihres Grundnahrungsmittels Mais betroffen.

Des Weiteren haben sich die Bemühungen der mexikanischen Regierung, die Armut zu reduzieren, durch das im Jahre 1997 gegründete konditionierte Sozialhilfeprogramm *Oportunidades* als unzureichend herausgestellt, weil es hauptsächlich die Konsequenzen von Armut bekämpft anstatt den wichtigsten Ursachen von Hunger und Armut entgegenzuwirken. Hinzu kommt, dass Mexiko die Konsequenzen falscher Ernährung, wie Übergewicht und Adipositas, bisher nicht in ausreichendem Maße als Teil der Ernährungssunsicherheit anerkennt und daher bisher kaum Ansätze für Ernährungserziehung entwickelt hat.

Zusätzlich fehlen Strategien für ländliche Entwicklung und ein Angebot adäquater Infrastruktur. Außerdem zeigt Mexiko einen Mangel an Exit-Strategien um sozial schwachen Familien den Ausstieg aus der Armut zu erleichtern.

Die vorliegende Arbeit stellt heraus, dass der Kampf gegen Hunger und Armut zwar länderspezifisch ist, aber dass es entscheidende Kriterien gibt, welche die Ergebnisse einer Ernährungssicherungsstrategie beeinflussen. Hierfür wurde ein Leitfaden von acht essentiellen Schritten herausgearbeitet welche in fünf Phasen realisiert werden sollten um effektive und nachhaltige Resultate einer Ernährungssicherungsstrategie zu erreichen. Diese Kriterien sind nicht länderspezifisch und können daher auch auf internationaler Ebene von Nutzen sein.

1 Introduction

Brazil and Mexico are two Latin American countries with completely different environmental, social, political and economic structures. However, like various other countries all over the world, both are confronted with considerably high rates of people which suffer hunger and live in extreme poverty. Therefore, Mexico and Brazil implemented strategies to improve national food security and to fight against poverty during the last two decades. The two approaches – *Oportunidades* (Mexico) and *Fome Zero* (Brazil) – present two examples of a country's effort to fight against hunger and poverty but a couple of years after the implementation they show completely different results.

Fome Zero is a strategy which has reached exemplary good results in the fight against hunger. In the period from 1999 to 2009, the number of poor people decreased constantly from 44 to 29.6 million. For this reason, ten years before the deadline, Brazil has achieved the first goal of the *Millennium Development Goals*, which were established by the *United Nations Organization* (UNO), to reduce the number of people living in conditions of extreme poverty by half within the period from 1990 to 2015 (Da Silva, Del Grossi & De França, 2011, pp. 18 – 19).

The poverty level in Mexico increased sharply in the first few years after it had joined the *North American Free Trade Agreement* (NAFTA), decreased to its previous level of 1994 until 2007 and has been increasing again up to the present day. The development of the Mexican poverty level clearly depends, among others, on the international food prices and even though the anti-hunger program *Oportunidades* has been established in 1997, the number of people living in poverty has not significantly decreased yet. In 2010, 49,900,000 from 112,336,538 Mexicans suffered from food insecurity to a certain extent, which amounts to 44.42% of the population (CONVENAL, 2012).

The present paper has the objective to examine the most essential aspects of the country-specific improvement of food security and poverty reduction and to find out, whether general factors, which should be considered within the establishment of respective strategies, do exist. Hence, first of all, the paper provides an introduction to the most important fundamentals and definitions of hunger and poverty related terms. Secondly, it scrutinizes the most important reasons and influencing factors to poverty and realizes a country-specific analysis for both Mexico and Brazil. This examination includes an overview of the countries' food production and import-export structure and then provides a comparison of the corresponding poverty and food insecurity structures. Additionally, the most important reasons of poverty will be described. Finally, within the scope of the analysis, both strategies, *Fome Zero* and *Oportunidades*, are presented and their results in poverty reduction shown.

In the evaluation part of the paper, the efforts of both countries, the respective results and the most important weaknesses in hunger and poverty reduction will be compared. Finally, the paper proposes eight different steps as framework for the integration of essential aspects of anti-hunger and anti-poverty strategies. Here, the proposal includes five general, essential phases which should be considered within the design and the implementation of a food security strategy in order to achieve effective and sustainable results. These are not country-specific and thus can be useful on an international level.

2 Theoretical Framework

The analysis of a country's poverty structure is very complex and the evaluation of differently working anti-hunger policies even more so. In the context of poverty and hunger, there are a lot of closely connected terms used synchronously within a topic with structural interrelations which are difficult to separate. Do terms such as extreme poverty, poverty, hunger, undernourishment and malnutrition among others have the same or a similar meaning? What are the differences? If a system is confronted with poverty and food insecurity conditions, which strategy is the right one to establish? When should a country aim at poverty alleviation or establish a strategy to improve food security? What does it mean to implement policies to fight hunger and poverty?

The title of the present work describes *Fome Zero* and *Oportunidades* as two programs against hunger and presumes them to be two different approaches to improve national food security. But do both programs have the sole objective to fight against hunger, or also to overcome poverty? What are the exact differences and how are these terms interconnected? The truth is, food security, hunger and poverty are concepts with completely different meanings but are strongly interconnected, which makes it even more difficult to treat them separately.

Nonetheless, it is crucial to understand the differences and the exact meaning of the work's fundamental concepts. This chapter presents, first, the central definitions and outlines the terms' interrelations and overlaps within the areas of study. Then, second, it presents the basic foundations of anti-hunger and anti-poverty strategies. The third subchapter gives an overview of the most important internal and external influencing factors on poverty and hunger, which must be addressed through the development of an efficiently working strategy to improve food security.

2.1 Definitions

Non-uniform uses of the terms hunger, undernourishment, food security, food sovereignty, or poverty complicate the reader's comprehension, and the comparability of different indicators or countries may become blurred. To avoid terminological uncertainties, the most important terms are defined in the following paragraphs.

2.1.1 Hunger, Undernourishment and Undernutrition

The *Food and Agriculture Organization of the United Nations* (FAO) still is the central and mostly used institution for providing definitions regarding food security related terms. Therefore, the present study defines *hunger*, according to FAO, as a caloric intake of less than 1800 kilocalories per day and person, which is the minimum intake in order to enable a healthy and active life. The threshold of the minimum population dietary energy consumption varies between different countries and expresses the necessary amount in order to realize sedentary or light activities (FAO, 2008, p. 2).

Undernourishment and *chronic hunger* describe the consequences of an inadequate supply of energy, protein, vitamins and minerals caused by an insufficient food intake, a deficient food quality, or a limited ingestion of nutrition due to infections or diseases. These kinds of alimentary deficits are often closely related to inadequate care of children by parents, insufficient access to health services or local pollution (FAO, 2008, p. 3). An additional concept is undernutrition, which in contrast to undernourishment not necessarily refers to people with underweight but to people with general vitamin and/or mineral deficiencies. *Undernutrition* is

> the result of prolonged low levels of food intake/or low absorption of food consumed. Generally applied to energy (or protein and energy) deficiency, but it may also relate to vitamin and mineral deficiencies (FAO, 2013).

Generally undernutrition is considered to be a broader definition of food insecurity, because the term, beside undernourishment, also refers to malnourished people with overweight. This is because people with a vitamin or mineral deficiency are not automatically underweighted, too.

The present paper examines the poverty and food insecurity structures of the two countries Brazil and Mexico. An exact assessment of the food security or poverty status of the described and affected groups of society is beyond the scope of this paper and highly difficult to realize. This is because both countries use different methods to measure poverty and food insecurity, which will be shown in detail in the chapters 4.1.2.1 (Brazil) and 4.2.2.1 (Mexico). In most cases, the respective indicators to measure poverty or food insecurity refer to a certain economic status of a person or a family. By that, this person or family is classified to a certain poverty or food security condition.

However, the economic status can just indicate the very probable nutritional status of a person if his income is significantly low. Extreme poor people are confronted more frequently with undernourishment and underweight as a type of food insecurity. If a person is poor, but at least has access to basic food items, the condition of food insecurity tends to switch from underweight to undernutrition and overweight. This is why it is very difficult to exactly specify the nutritional and health status of all poor individuals. Therefore, the present paper tries to specify the different terms and poverty conditions of the affected population groups, but is not able to make an exact difference between some aspects such as hunger and undernourishment.

2.1.2 Poverty

Hunger and poverty are two mutually dependent terms. On the one hand, hunger or inadequate nutrition causes poverty by limiting the person's daily corporal or mental capacities or by affecting their general health status. On the other hand, hunger is a result of poverty, because very often a lack of financial resources and limited access to markets make it difficult to assure a balanced daily food supply. However, the term *poverty*, in addition to consumption structures and food security, includes further sectors in which poor people are vulnerable to suffer from limited access or discrimination such as infrastructure, institutions, human dignity, rights or security among others.

> Poverty encompasses different dimensions of deprivation that relate to human capabilities including consumption and food security, health, education, rights, voice, security, dignity and decent work (FAO, 2008, p. 3).

The present paper distinguishes between the terms hunger and poverty, but it also takes into consideration that both terms are interacting and thus claims that policies overcoming both are needed in order to be effective. Thus it assumes that a person who is hungry is also poor, and that a poor person is at least much more vulnerable to hunger than other classes of society.

There are two important main concepts which are frequently used in order to overcome conditions of extreme poverty, hunger, undernourishment and undernutrition. The first one refers to a desired status of food security within a country and the second one claims for food sovereignty, which is a complementing concept to food security. The difference is explained in the following section.

2.1.3 Food Security: a Top-down Approach

The terms hunger and undernourishment describe a kind of the individual's state of alimentation while the term *food security* also includes the individual's vulnerability to receive sufficient food. Food security

> exists when all people at all times have both physical and economic access to sufficient, safe and nutritious food that meets their dietary needs for an active and healthy life (FAO, 2013).

The term food security often is criticized to be a top-down approach[6] and thus as not to consider individual consumption patterns, traditions and used production methods in an adequate manner, but only to claim for a sufficient caloric and nutritional intake.

As shown in figure 1, the concept of food security concerns different groups of society, which are vulnerable to inadequate nutrition. Food security exists when people do have access to adequate and sufficient food, but food *in*security, not only refers to a too low intake of calories, minerals or nutrients, but also is comprised of overweight or obese people who are at risk for many health problems because of the intake of too much and/or inadequate food (FAO, 2013). Therefore, food insecurity is a comprehensive concept that includes *all* the conditions of a human being which could cause constraints in welfare and health due to aspects related to food (see figure 1). This means that the concept of food insecurity includes the concept of under- and malnutrition, undernourishment as well as obesity and overweight and refers to all people which are limited by food aspects.

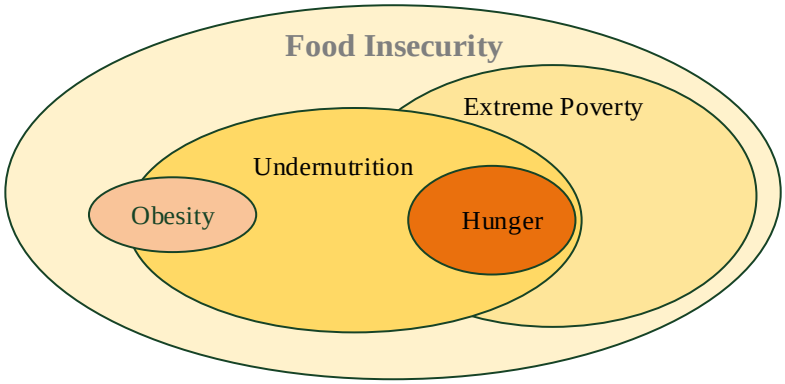


Figure 1: Areas and margins of food insecurity.
Source: Takagi, 201, p. 164.

The borders between concepts such as hunger and extreme poverty are not always clear, can present strong variations between groups of people and are of continuous change.

In the United States comprehensive surveys regarding the people's food consumption were carried out, which indicate that people vulnerable to food insecurity "follow a behavior based on the resources available to them: first, they save money consuming increasingly cheap food items, but preserving the same quantity until they exhaust all possibilities of replacing them based on their prices and begin to eat less, reaching the hunger threshold" (Takagi, 2011, p. 169). People who cannot purchase sufficient to eat because of losing the possibility to replace more food items in order to save money show that there is also a group of people in between. These are those groups of society which are hungry, but still not

[6] A top-down approach refers to projects which are realized while considering a primary, overarching objective more than specifically prevailing conditions. By contrast, a bottom-up approach refers to a plan which is drawn up while primarily taking into account specific conditions (uni-protokolle, 2013). Here, the first objective of a top-down approach is it to achieve food security for large parts of societies, whereas a bottom-up approach develops a food security plan considering the prevailing living conditions and traditions of local communities, e.g.

showing signs of deprivation or health problems. But they suffer "the experience of being unsatisfied, of not getting enough to eat" (Takagi, 2011, pp. 169 – 170).

However, the most vulnerable people are those who are suffering hunger frequently. Presenting the most severe form of food insecurity, they are extremely poor, undernourished, suffer hunger and thus are limited in their activity. Finally they are also – among other things – seriously vulnerable to diseases or death. In this paper, hungry people and those living in *extreme* poverty are equally treated.

Whereas food security is sometimes criticized to be a top-down approach because of undermining local traditions and traditional preparation methods by considering food as a pure act of nutrition intake, the concept of food sovereignty is presumed to be a bottom-up approach, considering local factors such as naturally available resources, traditional or religious habits of the people as fundamental to reaching food security.

2.1.4 Food Sovereignty: a Bottom-up Approach

Generally, FAO's definition of food security refers to the human right to sufficient food for all people and excludes non-food issues like social or cultural factors of food and nutrition. That is why various organizations have developed the concept of *food sovereignty*, which defines the term *food* as a holistic one that includes aspects of property rights of land plots, access to seeds, credits, the right to practice family traditions, to maintain social relations of traditional production or of consumption patterns in combination with communitarian cohesion.

It also respects the human senses such as seeing, smelling, touching and tasting, and does not define nutrition as a simple physiological process, referring to food absorption and processes like ingestion, digestion and the metabolic transformation in the cells (Oswald Spring, 2009, p. 2). Food sovereignty also lays claim to adequate qualitative and quantitative food for all people of a country, but additionally considers traditional methods of food preparation and production, culinary specialties and so forth. Therefore, the term food sovereignty adds to the right of adequate food the people's right to determine and to practice their conventional methods of agriculture, fishing, food and land policies within adequate ecological, social, economic and cultural circumstances (Oswald Spring, 2009, p. 5).

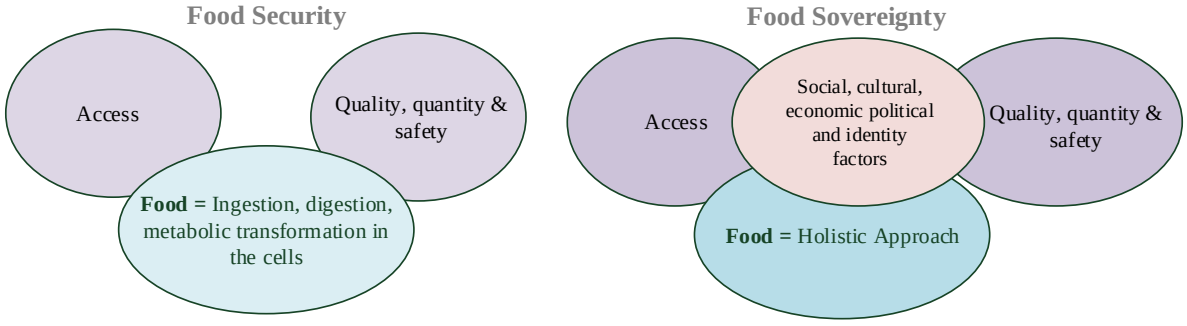


Figure 2: Comparison of food security and food sovereignty.
Source: Own illustration.

As shown in figure 2, food sovereignty includes social, cultural, economic, political and identity factors. The term stands for a holistic understanding of life and defines food as a crucial element of any world civilization. Food

> includes networks of connectedness (vertical: patron-client, and horizontal: social groups), belonging, relationship of trust, reciprocity, cooperation and exchange. It creates social benefits and risk reduction, but also innovative activities through a wider access to information and learning. It is a process of anchoring of

> personal and group identity […], where social relations reaffirm the integration of a person inside a community with clear rights and obligations, such as access to land, credit, technology, training, market life quality and rituals (Oswald Spring, 2009, p. 2).

Food is a central aspect of life and creates fundamental social relations between human beings. Processes such as personal exchange and cooperation generate benefits like social integration and the creation of personal learning processes, as well as strengthen the fundament of personal and group identity. A person who has a well-defined obligation within a society learns to take on responsibilities, feels needed and is able to develop his character and personal skills. The access to input factors such as credits, technology, seeds, respects local peoples' traditional methods of production, maintains their proper quality of life and supports the realization and the maintenance of rituals and traditions.

The present paper considers all the aspects of food sovereignty to be an essential part of a comprehensive strategy to improve food security. Both programs, *Fome Zero* and *Oportunidades*, will be evaluated taking into consideration all the demands of food sovereignty. When the present paper uses the expression *strategies to improve food security*, it always considers all the aspects of food sovereignty. Both strategies will be explained and evaluated in a way, which respects all important factors of food security as well as of food sovereignty.

As shown in this chapter, the definitions of concepts like hunger, poverty, food security and food sovereignty are strongly connected and basic principles of strategies to overcome hunger and poverty can be derived, what will be discussed in the following chapter.

2.2 Food Security and Anti-Poverty Policies

The term undernutrition refers to under- and overweight people because both groups of society can represent an inadequate intake of food or nutrients. That is one reason why a food security policy should not be equated with an anti-poverty policy. Whereas the policy to improve food security can include a policy to overcome poverty and/or a strategy to prevent obesity or also be an emergency act to immediately help hungry people, an anti-poverty strategy does not automatically include a mechanism against obesity. However, all aspects revolving around food and nutrition thus have a common root and are closely connected. On the one hand, it is true that hunger is a main cause of poverty because it directly affects a person's capacity to be productive. On the other hand, a person who is poor usually has constrained access to food, which is why poverty also is a main cause of hunger. They are not the same, but the two concepts of hunger and poverty together form a vicious circle which limits the people's capacity to break out. Therefore, both conditions should be targeted at the same time in order to achieve long-lasting and effective results, and both aspects should be the central subject in the development of anti-hunger as well as of anti-poverty strategies.

If a country aims at reaching or even guaranteeing food security, the established policies – as mentioned above – generally concern all human beings and all classes of society within national borders. As the present work will show in later chapters, there is a direct relationship between hunger and income, which obviously affects in particular poorer classes of society. However, also high-income classes show significantly high rates of overweight and obesity. This is a fact that must also be included in a food security policy. Thus, a comprehensive policy should target at no-hunger, but also deal with a general lack in nutrition and consequences of obesity, include food and nutritional education for all classes of society, ensure high quality and food safety and address product labeling among others (Takagi, 2011, p. 163).

Even though it seems to be a logic issue, hunger generally is not an issue caused by a lack of food, a fact which becomes clear in countries which, on the one hand, are confronted with high rates of hungry people and, on the other hand, generally present an agricultural surplus and high export rates of food products, as it is the case in Brazil. Hunger principally is caused due to two main reasons. First, the prices for food are too high in relation to the people's wages, often is resulting in unequal distribution or production patterns. Second, other fundamental expenses such as rent, health care, education, and transportation among others are too high, so that the wages are not sufficient to meet both nutritional expenses *and* other expenses, even though the food prices generally may be low. This is another reason why it is important to separate strategies which aim at fighting hunger from those which have the objective to fight against poverty (Takagi, 2011, pp. 163 – 164).

In Latin America, poor people do not necessarily belong to especially vulnerable groups of society such as elderly people, ethnic minorities or single mothers, as it is mainly the case in developed countries. It is an effect within larger parts of the population due to structural deficits such as unequal income distribution, land concentration, considerable low wages, lack of infrastructure and a limited access to health installations among others. The main causes lie in fundamental basic shortages in a country's socio-economic, political and environmental structures. This is one reason why cash transfer programs are considered to be successful in the fight against the exclusion of certain groups of society, but are not solely able to overcome structural inequalities causing high poverty rates. As emergency policies should be accompanied by structural policies, also cash transfer programs should always be complemented by well-defined structural and emergency policies positioned to overcome the most fundamental lacks in a system's structure and distributed within the most vulnerable groups of society (Takagi, 2011, p. 164).

Nonetheless, hunger is one of the most central aspects of food security because it immediately affects the people's health conditions, their vulnerability to diseases, their personal development as well as their capacity to learn, to work and finally, to be productive. Therefore, policies of an emergent character which directly address hunger and often aim at improving immediately extreme vulnerable living conditions, can include direct food aids, school meal programs, nutrition supplementation, cash and food transfer programs, and so forth. Strategies tackling only the causes of hunger are not sufficient to comprehensively overcome all the aspects of poverty or food security. In order to achieve long-term results, they should be implemented together with structural improvements such as better access to educational infrastructure and to health installations, mechanisms to improve local economies and increase people's income, as it was done in the case of Brazil which will be explained later (Takagi, 2011, p. 165) (FAO, 2008, p. 2).

A central method of poverty alleviation could be the strengthening of traditional rural production taking into consideration the capacities of rural areas, in order to support local food production and personal capacity building. Especially in times of climate change, globalization processes, environmental contamination and limited natural resources, the support of rural areas and traditional production processes is a fundamental mechanism in order to strengthen a country's system in its foundations. The strengthening of small production systems involving poor people has a double positive effect then. On the one hand, it lifts people out of poverty by creating jobs, it stimulates local economy and increases the population's income. On the other hand, it reduces the local vulnerability and protects rural citizens from price shocks, strengthens their competitiveness and protects natural resources (Oswald Spring, 2009, p. 472).

Finally, the strengthening of rural areas and the integration of low-skilled workers into markets can not only boost the rural economy, but can also contribute considerably to national economic growth, especially when local capacities support efficient production for export products.

The next chapter presents an outline which shows why it is so important to spread food security policies within different areas and groups of society affected by internal and external influencing factors in order to break structures of poverty. To give an overview, for the present paper, the most important internal and external influencing factors of poverty and hunger are divided and presented in the next chapter within a vicious circle of poverty and hunger. The outline is followed by a brief explanation of some essential influencing factors.

2.3 The Vicious Circle of Poverty and Hunger

As mentioned before, poverty and hunger are two closely connected conditions of human being which interfere with each other, and therefore should be fought by a combination of adequate strategies. This is because extreme poverty and hunger are not coincidental phenomena (Takagi, 2011, p. 171). Studies indicate that "extreme poverty explains about half the differences observed in the magnitude of undernutrition in countries: 49% of the variation in the global undernutrition rate and 57% of the variation in moderate-serious chronic undernutrition among countries are attributed to differences in the percentage of extreme poverty" (Takagi, 2011, p. 172). That means that there are still other factors that contribute to extreme poverty and that just the increase in income of poor families often is not sufficient to overcome undernutrition.

Hunger, therefore, is not just the result of poverty but also of additional influencing factors such as the schooling of the mothers, the intra-household food distribution which often favors the children and puts especially the mothers at a disadvantage, the availability of social assistance, as well as cases in which people adapt to a lower caloric intake by reducing physical activity. Therefore, "fighting extreme poverty is a major requirement for reducing hunger" (Takagi, 2011, p. 172). But, "efforts to reduce it should not, alone, be expected to eradicate hunger in a reasonable deadline" (Takagi, 2011, p. 172). Otherwise, just giving people enough to eat is not sufficient to overcome extreme poverty. There are other factors that must be addressed such as access to drinking water and to sanitary installations, the availability of required health institutions and education concerning both hygiene and healthy food preparation, which maintains traditional food habits (Takagi, 2011, p. 172).

The vicious circle of hunger and poverty has two sides where factors can influence the demand and the supply side. Each side can be affected and weakened by structural lacks and deficits in local development. These factors cause poverty and – because it is a vicious circle – complicate the situation of poverty and hunger more at every turn. Further, the influencing factors to poverty and hunger can be divided into internal and external factors.

Figure 3 presents the internal and the external influencing factors to poverty and hunger. The internal factors are principally endogen, arise within national borders and are thus not dependent from external factors. Factors such as extreme climate events e.g., can indeed be influenced by extensive pollution from industrialized countries in other locations in all over the world, but as these interrelations are not analyzed within this study, they will be treated here as internal aspects.

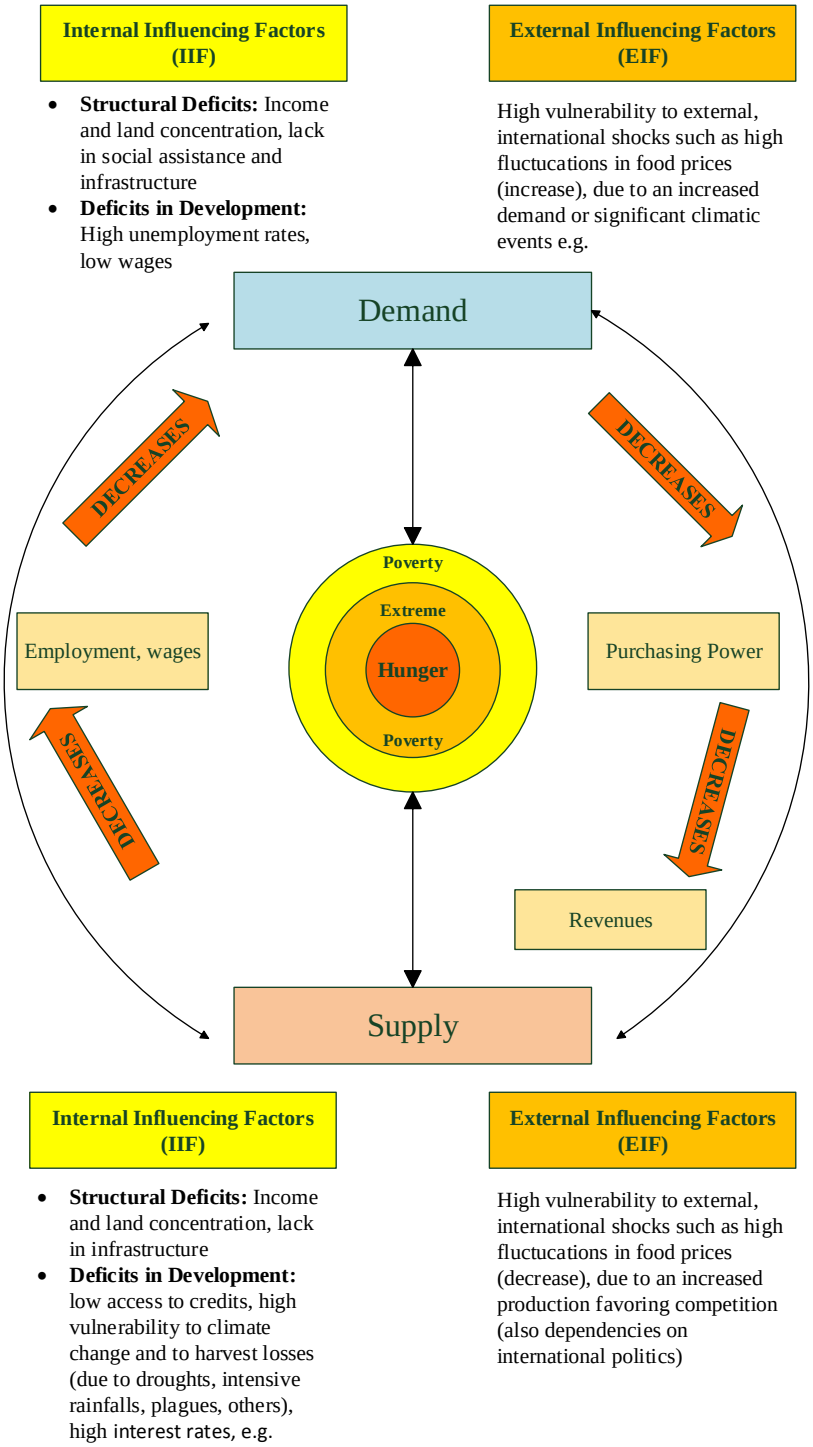


Figure 3: The vicious circle of hunger with internal and external influencing factors.
Source: Own illustration.

Hunger is an extreme and specific situation and principally a result of poverty, which is why it is in the circle's center. The more a person is located in the middle of the circle, the more difficult is it to break out.

On the demand side the poor population is located, i.e. regularly unskilled and/or unemployed people, employees with low wages, elderly, ill or hungry people disabled to work. These groups of society suffer from internal influencing factors such as the lack of jobs, no access to infrastructure or social assistance, too low wages, from consequences of income and land concentrations, environmental or other diseases or an inadequate access to food (low quantity and/or low quality). These conditions result in decreased

purchasing power and therefore limit access to food for even more people. The low purchasing power of the poor population has significant effects on the supply side, i.e. the rural farmer who sells his local food products to owners and employees of grocery stores and other small enterprises. The lack in demand lowers the local wages and decreases the availability of jobs, which has a negative effect on the rural production. A decreasing income for the farmers results in less employment and thus limits the opportunities to purchase production favoring input factors such as improved seed, technologies, irrigation systems causing a drop in food production and prices.

On the supply side, there are additional internal influencing factors to poverty and hunger. Harvest losses due to droughts, intensive rainfalls, plagues or other extreme climatic or environmental events cause a high vulnerability for local farmers, because these directly affect the local living conditions and can provoke an increase in poverty rates. Other internal factors are excessive interest rates or other aspects which limit a farmer's capacity to take out loans in order to purchase input factors. These limitations can affect the farmers' competitiveness in the market.

Low income and the loss of jobs on the supply side again negatively affect the demand side, because more employees get lower wages or become unemployed, which limits the access of additional people to food. An extreme vulnerability of the local people would arise in the case of an increase in the number or the intensity of influencing factors, e.g. because of a loss in harvest. In this case, people would be limited on two sides at the same time: in their access to food due to low economic resources on the demand side and due to losses in production within subsistence farming or a general low local supply in food products on the supply side. The increase in unemployment strengthens the conditions of income concentration and environmental diseases: the vicious circle starts again. The supply and the demand side are closely connected and influence each other and both can be negatively affected by additional internal influencing factors.

In addition to internal influencing factors, there are also external aspects that can negatively affect national poverty and hunger rates. On the demand side, a dependency on international food prices can be an external factor resulting in higher poverty rates, especially in the case of sudden price fluctuations. The effects such fluctuations can have on national poverty rates can be observed in the case of Mexico, as it happened during the tortilla crisis in 2007/2008 (see chapter 4.2.4.2).

There are a lot of different factors influencing poverty and hunger, which tend to feed off each other and strengthen the vicious cycle, making it very difficult to break. Therefore, one central aspect of fighting hunger and poverty is to establish strategies for the most critical and severely influencing points and to provide effective exit strategies. That means that strategies – in addition to improving the people's living conditions – should mend structural lacks and immediately help the most vulnerable and then offer well-designed strategies to accompany the people's exit out of poverty. People should – in the best case and in long-term oriented cases – become independent from outside help, become integrated into local economies and into society and get sustainable access to sufficient and adequate food.

Moreover, they should become able to work by being healthy and vital enough to realize daily activities by getting access to sanitary and health installations or by becoming able to live adequately from subsistence farming. Indeed, they should not only find themselves in better living conditions, but become independent – in the long-term – from cash or material transfers or other programs. A survey conducted by the Brazilian IBGE reported that 2/3 of the families who in 2004 already were covered by cash transfer programs still lived in conditions of food insecurity, which is a sign "that the cash transfers are not sufficient in themselves, to ensure access to adequate food on a regular basis" (Takagi, 2011, p. 171). But, as will be shown within the specific Brazilian case in chapter 4.1, there is a correlation

between low income and food insecurity. Generally, the strategies against hunger and poverty in the period from 2002 to 2004 have shown a reduction in poverty. These results indicate that the combination of both – a higher availability of jobs *and* cash transfers – succeeded (Takagi, 2011, p. 171).

The Brazilian experience indicates that it is crucial to establish cash transfer programs together with programs generating employment. Moreover, a program should provide exit strategies, i.e. the program should help the poor to break the vicious circle of poverty and hunger and, in the long term, to become independent from the governmental programs, through their integration into available social and economic structures. Thus, it is crucial to provide a system which is also able to integrate the poor.

Figure 3 gives an overview about both internal and external influencing factors. But, the external influencing factors which refer to the effects of trade liberalization on poverty is a complex topic which will be explained in detail in the following subchapter.

2.3.1 Trade Liberalization as an External Influencing Factor to Poverty

As shown in the vicious circle of hunger and poverty, high fluctuations in food prices – strong price increases or decreases – as result of trade liberalization are an important external influencing factor to hunger and poverty rates. According to FAO, the volatility of food prices is not only one out of many factors influencing hunger, but one of the most important reasons for food insecurity (FAO, 2011, p.1). In a lot of cases, international negotiations favoring trade liberalization and the establishment of non-tariff barriers has resulted in an increase in food insecurity and in national poverty rates. Whether there are considerably serious interrelations between national trade policies, increasing prices and poverty rates or not, depends, among other things, on the traded goods themselves and the existence of national policies favoring rural development. Thus, they are country-specific phenomena (Winters, 2002, p. 1340). On the one hand, there is the widespread opinion that, in the long run, open trade markets can have positive effects on a country's development by favoring economic growth. On the other hand, open markets are often subject to price speculations and to international discussions regarding overspilling side effects such as distorted competition, e.g., or undesired internal processes such as sectorial unemployment, among others.

There is the extensive assumption that the opening of markets exposes national economies to shocks, or, more generally, to external influences which can generate additional uncertainties inside of national borders and, by undermining national, social and economic developments, increase a country's vulnerability (Winters, 2002, p. 1339). The channels, through which trade liberalization can negatively affect national food security and poverty rates, are very complex and difficult to analyze, because they are – as mentioned above – country-specific. This chapter aims at explaining the most important channels affecting poverty through trade liberalization processes in order to provide a basis for understanding the way strategies work, opposing these influencing factors. They are a crucial part of comprehensive anti-poverty and anti–hunger policies.

Effects of trade liberalization on poverty and hunger still have not been a central part of detailed scientific analysis and empirical data collection, because there is still a lack of historical experiences. In the paper "Trade Liberalisation and Poverty: What are the Links?" the author Alan Winters analyzes the main channels through which a nation's poverty can be affected by trade liberalization. First of all, Winters states that a first step in the identification of the influencing factors is the previous drawing up of a detailed poverty profile. Additionally, it is important to consider that trade liberalization can have significant effects on poverty, but is not its main cause. "[…] it could have significant effects on the stock of 'poor', while apparently having little to do with that stock directly" (Winters, 2002, p. 1341).

Furthermore, poverty is not a static condition. The structures and influencing factors – such as processes of trade liberalization – can at any time cause a rapid and significant turnover of families into and out of poverty (Winters, 2002, p. 1341).

Winters emphasizes four main channels through which trade policies can have effects on poverty: *households*, *distribution channels*, *factor markets*[7] and *government*. Furthermore, he "consider[s] the dynamic questions of volatility, long-term economic growth and short-term adjustment stresses" (Winters, 2002, p. 1340). The four main channels are explained in detail in the next paragraphs.

2.3.1.1 Households

A poverty profile is often measured in the amount of poor individuals or households. A household refers to people who live together in a close relationship, being confronted daily with internal questions of production and consumption. This concept refers mainly to rural households, but can also refer to other households which are occupied in the production of goods or services. In simple terms, a household's welfare can be expressed by the difference of the household's income and the sum of the prices of goods and services a household periodically has to cope with. Income is recognized to be the sum of all the earned wages, financial and material transfers, extra remittances, official financial transfers and profits generated by a household's production decisions (Winters, 2002, p. 1341).

In case of a price change, the effect on households depends strongly on the amount this good is consumed and of its proportion to total expenditure, and a household's net supply of that good at current prices. "In practical terms, then, to predict poverty effects we need to know the price changes implied by a shock and poor household's net supply position" (Winters, 2002, p. 1341). The effect of a shock on a household's welfare depends on how these households will respond to the fluctuation in prices. On the one hand, if a family is considered to be vulnerable and is not protected by social policies or able to change their consumption patterns in an adequate way, it is highly probable that this household is going to be affected in welfare and – in the worst case – becomes poor. On the other hand, the confrontation with a price shock can push families to search for additional sources of income and thus decrease their general vulnerability (Winters, 2002, p. 1342).

Indeed, the sizes of external shocks for which the households have to compensate, depend on how they share their factors, work and capital, in relation to their income/return/wages, and the extension of the change. Within an analysis of the question how jobs are taken by rural workers, it is important to keep in mind that, especially in developing countries, rents can vary significantly depending on the location and on the type of work. Generally, it is not surprising that an employment with a higher wage is preferred to a job with a lower one. But, it has some significance to analyze the trade-off between wages for a "traded" labor and "virtual" work at home, i.e. the question, for which wage a person decides to take up explicit work. This is a question which may be also balanced with probable transportation costs or additional costs for outside alimentation (Winters, 2002, p. 1342).

In case that a shock causes the loss of an employee, the probability that a person will fall into poverty is very high, but this case also depends on a person's capacity to switch to another occupation. Also a central part of an analysis on whether a shock provokes poverty or not, is the structure of land distribution and the families' properties of other assets. High concentrations of land, indeed, are not caused by trade liberalization, but are an internal structure which can strengthen the household's

[7] Factor markets are those markets in which the selling and buying of the production factors are realized, e.g. the capital- or the labor market (Economic Glossary, 2008).

impoverishment due to a higher vulnerability, whereas people owning land have more possibilities to respond in a flexible way (Winters, 2002, p. 1342).

However, the internal structures within a household also have significance. Income is not always well-distributed between a family's members and it is often argued that women, children and elderly people are more vulnerable to impoverishment than men. This is why another relevant aspect to consider is the intra-household distribution. Winters stresses two possible approaches to investigate the respective structures. First, one interested in further investigation can present a detailed description of the households followed by an extra-analysis regarding the intra-household distribution. Or, and this is the second possibility, one can investigate welfare on the individual level and add some descriptions of inter-personal transfers.

Winter points out that the former variation, to describe generating household activities first and, second, to create a model of distribution, is a much easier and more effective option. But, on the one hand, it is still very difficult to find available data for respective gender questions and, on the other hand, influencing factors of intra-household distributions are case-specific, which is why the separation within a distribution model is just not feasible (Winters, 2002, p. 1343). However, gender roles and inter-generational distribution patterns as well as different grades of vulnerability of family members are interesting and very important questions of investigation. Nevertheless, the present work is not able to examine such details, which is why intra-household distribution will not be treated in the programs' evaluation or within the analysis of country-specific poverty structures.

2.3.1.2 Distribution Channels

Direct Effects of a Price Change – The Distribution Sector

As previously explained, price fluctuation can affect households' welfare through different channels. One of them is the distribution sector. If a change in price is caused by a change in the custom tariff, a change in the exchange rate or a change in the price for a single good, it can have significant effects on the household's welfare for both imported and exported goods. Regarding an imported good, the price after crossing a border is influenced by the world's price of that good, the tariffs it faces and the respective exchange rate. Inside the importing country, the wholesale price is comprised of additional domestic taxes, costs for distribution, internal regulation and monitoring costs among others. If the product is sent to more distribution points, it is possible that it faces additional costs such as taxes or regulatory fees. Winters calls the final resulting price the retail price. From this point, the good is distributed to individuals and to households. Now, the way the price of the good influences the household's welfare includes relevant aspects such as the number of household members and the respective income structure, the available time, personal skills as well as the access to land and technology. In case that the price shock comes together with other significant influencing factors such as an extreme climate event, the family's vulnerability to climate change plays a key role, as shown in the vicious circle of hunger and poverty. But for example, if a family owns a piece of land and has access to any input factor which could increase the yield or prevent climatic shocks this can have positive effects on a household's vulnerability (Winters, 2002, p. 1344).

A good for export, after its production, faces local marketing patterns, becomes part of the national supply and is finally sold to foreign countries. The final price includes all the respective incurred costs and mark-ups. In case that there is a given world price for the products, all the mentioned additional costs come off the farm-gate price (Winters, 2002, pp. 1344 – 1345).

An analysis of the transmitting channels and the involved institutions and agents is crucial for a detailed investigation regarding the effects of trade liberalization on poverty and hunger. Different buyers – monopsonistic ones, marketing cooperatives or individuals – respond to price shocks in a completely different way. But there are policies which can effectively block the transmission of shocks to households. Two of those policies are the regulation of a fixed market price for essential food products and compensatory stock-piling of products within the basic basket of food. These are mechanisms, which – as the present work will show in later chapters, especially in the case of Brazil – prevent the population from experiencing the effects of external price fluctuations. If a price shock is considerably high, it can cause higher poverty rates and thus isolate households from the market – a consequence that has a double effect on the people's impoverishment, because it affects both the demand and supply side, where people probably have to pay their credits and other related inputs for agriculture or marketing.

There are many different factors influencing whether trade liberalization will have significant negative effect on poverty or not (Winters, 2002, p. 1346).

> This discussion prompts three comments. First, and most obviously the effects of liberalization depend on where you set off from. […] Second, usually many goods are liberalized at once, so that the effects on individual households will be the sums of many individual shocks. When some of the goods affected are inputs into the production of others, the net effect is quite complex and it is important to consider the balance of forces […]. Third, one needs to know how the household will accommodate the price changes (Winters, 2002, p. 1346).

The more the prices of goods are affected and the more the affected products play a key role within a household, the higher the impact of trade liberalization on poverty. Maize, as it is the basic food in Mexico, plays a key role in most of traditional food preparation and a price shock in corn obviously will have a severe effect on the household's welfare. In case that farmers depend on goods, confronted with price fluctuations and need them for their own production, the total effect will be even more complex, which is why it is important to consider all the respective interrelations of production factors.

Finally, the question of how households are able to face price changes is the central point. On the one hand, in case that they depend highly on their regular activities, the losses can be significantly high. On the other hand, if the families can switch to other activities and thus are flexible in their reaction to price shocks, the losses are relatively small. Here, families may take advantage of those changes and have additional benefit instead of great losses.

Indirect Effects of a Price Change – The Domain of Trade

If a shock is transmitted from an exported or an imported good to a household, it may also channel the shock further to other markets and thus cause quantity effects[8]. Important here is the domain in which the good is traded and the question of which kinds of agents are involved. If a product is traded only on the local level, the domain is relatively small and the effect of a price change is going to face a geographically more limited area, but economically it will have a considerably high significance. In the case of a price shock, a product traded on national level — will cause quantity effects on the national level, probably also in the case of relatively small price changes. Generally, changes in prices are widespread and can switch or extend from one region to another, being transmitted from one market to another (Winters, 2002, p. 1346).

As previously mentioned, there is the general assumption that trade liberalization has positive effects on a national economy. In case of agricultural markets, trade liberalization can stimulate local production

[8] A quantity effect is, e.g., in case that a price increases, this causes that lower units of this product are sold. This situation result generally in lower revenues. Furthermore, an increase in the price of a good can lead to an increase in the price of other products, if it is central ingredient of another product, e.g. (Yale Department of Economics, n.y., p. 1)

and thus can also help to overcome poverty. An increase in the demand of agricultural products can push local economies and thus generate overall employment.

However, both countries of investigation, Mexico and Brazil still show, particularly in rural areas significantly high rates of poverty and unemployment. Moreover, the access to sanitary installations, education and other infrastructure is often even worse than in urban areas. But, especially rural areas are considered to have an excess in human capital, i.e. labor, which can, although many workers are unskilled, be a good starting point for integrating them successfully into markets and by that let local production and incomes grow. This can be an economic stimulation with the capacity to push the whole national economy.

With this in mind it is important to assume that the import of a good, if prices always were fixed, is just a lost opportunity to generate jobs and additional income by the export of goods. But, if a country imports, it is also very probable that a country aims at supporting its production additionally for exports in order to generate sufficient income to pay for the imported goods. But, if the production of export goods is realized mainly within urban areas and does not generate jobs for the poorest, the positive effects for poverty alleviation are not as large as within agricultural economies and non-skilled workers (Winters, 2002, p. 1347).

2.3.1.3 Factor Markets

"Trade Theory" – Fixed Factor Supplies

Winters assumes that within poverty analysis the central factor market is unskilled-labor. For this reason, this subchapter stresses two different forms within markets. "The first form stresses that in a traditional international trade theory the factor supplies are exogenously fixed because goods are considered to be homogenous and wages of labor perfectly flexible" (Winters, 2002, p. 1348). The second market form prevails when the supply for unskilled-labor would be perfectly elastic. If a good changes in price, the industry's incentive to produce it will change too and with it the consumption of the technologies used within production.

The Stolper-Samuelson Theorem presents a simple and useful possibility to analyze the mechanisms of these incentives and also the respective overspills into other markets. One result was that a higher price of a good mainly produced by unskilled-labor, as would mainly be the case in agricultural production, increases unskilled-labor wages and – at the same time – decreases the income of skilled work. This is because an increase in a product's price results in an increase in production and thus pulls production factors away from the skilled-intensive production sector.

The increase in production generates additional vacancies for unskilled people, raising the demand for that labor, increasing respective wages and thus pushing industries to employ more unskilled-labor per unit of output than skilled labor. This in turn, increases the marginal product of unskilled labor. However, what sounds theoretically logical faces various complications in the real, imperfect world. The Stolper-Samuelson Theorem cannot answer all the questions regarding trade and poverty. First, as previously mentioned, the distribution of income is often per household and not per person, e.g. due to differing intra-household distribution patterns, making it difficult to investigate the members' levels of vulnerability. Second, if the model is confronted with two immobile factors and two goods at the same time, an analysis will be very complicated. Third, the model considers labor as a perfectly mobile factor between all sectors and regions with economic structures.

But, if these markets, sectors and regions are segmented, labor markets will be different non-interacting factors. Thus, the effects of increased demand, e.g. due to trade liberalization, on labor markets and prices is difficult to model.

However, despite these kinds of complications, the Stolper-Samuelson Theorem seems to offer plausible data for investigation and stresses some interesting facts. If the price of a good rises, the incentive to produce it increases, too. This situation, considering the increasing earnings, makes it possible to invest in highly skilled labor or special equipment. In case that there is a further surplus of output, also investments in non-specific or mobile factors could be reasonable. Then, if at least one of these mobile factors increases, another one will decrease. If there is an increase in market liberalization processes within developing countries where unskilled-labor is more abundant than skilled-labor, one can assume that open trade – if it integrates rural workers – stimulates an increase in the need for unskilled labor and generally results in higher wages among the poor.

But it is not always a given that the poorest people, and thus the people with the lowest skills, are going to be the primary workers for the production of tradable goods. In the case that trade liberalization gives jobs to moderately educated people, e.g. with primary school, the effects for unskilled workers could be even worse, again following the above mentioned effects among mobile factors. This is why it is crucial to support rural production providing employment for non- or low-skilled workers, so that the poorest part of the population can benefit from free trade markets.

Unskilled Labor as Perfectly Elastic Supply

As mentioned above, in a developing country there is supposed to be a high abundance of unskilled labor, an available factor supply which can be used to boost national economic and social development. The following figure presents a factor supply curve of the factor of production, which in this case is unskilled labor, and puts it into relation to the factor's price. In theory and following the logic of economies, a higher factor price results in an increase in the supply factor, i.e. the higher the wage for unskilled workers, the more unskilled workers are willing to supply the respective labor.

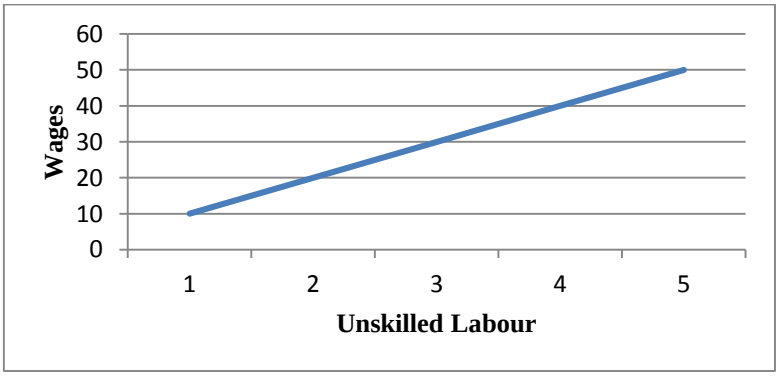


Figure 4: Factor supply curve for unskilled labor in Latin America.
Source: Exemplary Illustration.

If the factor for supply were infinitely elastic, there would be an infinite supply of unskilled labor. Thus, in the case of a perfectly elastic supply, an increase in demand would not result in an increase in wages, because there already is an infinite supply for a fixed price. That means, in theory, that employers have the choice among an infinite number of unskilled workers.

Figure 5: Perfectly elastic supply.
Source: Exemplary Illustration.

Now, it is assumed that these infinite units of labor could be hired out at the price level of subsistence farming. This transfer in type of labor for unskilled workers only has a positive effect on poverty alleviation if the "new" wage is higher than for the previous subsistence farming. Employers who offer a minimum wage to their workers in sectors with an excess supply would probably increase the farmer's wages and therefore positively affect the reduction of poverty. Generally, when the opening of markets increases the value of the marginal product of labor, there will be a positive effect to poverty alleviation and increase the people's demand.

If the established mechanisms decrease the value of the marginal product and the provision of jobs, this has a negative effect on poverty. If, for example, trade liberalization, raises employment within urban areas and provokes subsistence farmers to migrate to cities, an eventual higher wage must be – within their decision-making process – balanced with a higher probability for urban unemployment and an increased vulnerability to suffer urban poverty. Here, in the worst case, the opening of trade markets leads to an increase in urban poverty rates instead of rural poverty alleviation.

Another important aspect within the effects of trade liberalization on poverty is the consideration of an international capital flow. On the one hand, if there is an inflow of capital into a sector which has been pushed through the opening of trade markets, this situation can boost wages and provide additional employment, generally increasing the people's welfare and eventually reducing poverty rates. On the other hand, outflows of capital out of sectors with a shrinking demand can have adverse effects on benefits and poverty alleviation.

Homogenous and Differentiated Goods

In case that a good is traded or a service is offered exclusively within a country, the consumer price is only influenced by national developments in the production sector. These prices are determined to balance local markets and to influence the supply by endogenous changes in factor prices. An analysis of the production sector should investigate if goods are homogenous, i.e. whether the respective products for the consumers have the same benefit so that they do not prefer one product over the other. In this case, the buying decision normally is positively influenced by the cheapest price. Here, trade would determine the price for the good which is traded on international level as well as the domestic production.

Then, the prices for trade define the producer and the consumer price. If a good is not homogenous but differentiated, there are different prices for traded and non-traded goods and two separate demand curves are available. If there are goods with different demand curves and prices, the transmission of a trade shock is diffused to more products and thus can result in a quantitatively lower shock dimension. Generally, the assumption exists that the easier a product is substituted, the less extreme a price shock is considered to be (Winters, 2002, p. 1352).

2.3.1.4 Government

Taxes and government spending is a fourth channel through which trade and poverty are interrelated, because trade liberalization is often accompanied by the establishment of regulations and restrictions in the form of customs tariffs. Generally, the opening of markets comes together with a harmonization in customs tariff rates, or is regulated by the removal of exceptions or exemptions, which regularly increase tariff revenues. In the first phases of trade liberalization, most governments are likely to reduce tariffs, to liberalize markets and decrease trade barriers. These policies cause a fall in countries' revenues and thus have – in a lot of cases – a negative effect on the internal governmental capacities to spend on social or poverty alleviating issues. Moreover, in order to compensate financial losses, taxes may be increased for other products which also are consumed by the poor and thus a double negative effect on poverty is caused (Winter, 2002, p. 1352).

Another important consideration is whether trade liberalization binds governments to WTO commitments, which constrain governments in anti-poverty policies. Often it is assumed that "the ban on variable levies, which stabilise the domestic prices of internationally traded goods, could hurt the poor by subjecting them to greater uncertainty" (Winters, 2002, p. 1353). Moreover, the *Uruguay Round Agreement on Subsidies* restrains government intervention through subsidies, constraints which are in reality weak for developing countries. But in this case, a country complaining about rural subsidies given by government would have to prove that it is personally harmed. Nonetheless, an appropriate act seems to be unlikely considering that in developing countries, rural subsidies aim at integrating the poor and especially subsidies for production factors, regional development or consumption are not part of the WTO constraints (Winters, 2002, p. 1353).

2.3.1.5 Risks and Vulnerability

In order to get detailed results, an analysis should measure the direct effects of trade liberalization on poverty. Respective investigations can provide data about the way trade liberalization influences the transmission of shocks and how households are able to meet high uncertainties and price fluctuations in country-specific cases. Generally, both foreign as well as domestic economies can be the central subject of external shocks, a sign that markets are not completely integrated in the mechanisms of trade liberalization. The opening of a market favors foreign exposure and therefore increases the vulnerability to domestic shocks which can negatively affect domestic welfare. Indeed, there is a relation between the level of trade and the domestic risk a country takes.

As the paper will stress within a later example regarding Mexico, a significant increase in poverty rates can be clearly related to respective price shocks by trade liberalization. Thus, a low level in trade or in trade liberalization can have positive effects on the overall domestic risk exposure. However, trade liberalization also modifies a government's ability to cope with respective countering policies, e.g. in the establishment of price stabilization policies. The implementation of a fixed tariff, e.g. in the state of relatively stable food prices, could result in an increase in instability and thus have a contrary effect (Winters, 2002, p. 1354).

Poor farmers can suffer a more severe shock when they switch – in response to new open markets –from one crop to another, e.g. if they change from a subsistence crop to a cash crop. Instead of increasing their profits, this can favor various uncertainties and increase their vulnerability. For example, they could have difficulties in returning probable loans in the specific cases of harvest losses or price decreases. Indeed, developments such as these are especially critical for poor, regularly unskilled people, who lack profound knowledge in management, organization or in other areas of entrepreneurial activities.

Respective uncertainties make it more difficult for poor people to integrate and to benefit from open markets.

Therefore, a broad approach is needed in order to integrate the poor into markets and to ensure that they benefit from free trade. The benefits of trade liberalization can be effectively disseminated by measures such as the establishment of security nets and increased efforts in spreading education and information among others. However, trade liberalization also can provoke positive effects on uncertainties through the support of international mechanisms against inflation or corruption within national borders. On the whole, "trade liberalisation has ambiguous implications for macro stability" (Winters, 2002, p. 1355), and thus success also depends on national economic and social policies and established mechanisms of protection.

2.3.1.6 Technology and Economic Growth

Generally, economic growth can positively affect poverty rates. An average increase in income rates is presumed to cause a decrease in the number of poor people, because the income of a poor person increases proportionally to the overall wages; but a lot of exceptions exist (Winters, 2002, p. 1356). Trade liberalization can stimulate economic growth. However, an increased national income does not guarantee an equal distribution. But both aspects, poverty and unequal structures, have to be separately treated. An analysis of the national poverty structures and influencing channels could be followed by an investigation of how benefits generated from trade liberalization can be equally distributed within a country and integrate the poor in beneficiary markets. This depends on established tariffs and quantitative restrictions[9] (QRs), the levels of credibility and negotiability of trade barriers, among others. Additionally, domestic markets have to be efficiently integrated into newly opened markets and be accompanied by stable policy interventions in order to promote a fair competition and generate generally a state of macroeconomic stability[10] (Winters, 2002, p. 1357).

However, there is no guarantee that opening markets creates economic growth and whether it does or not, is another analysis of a considerable complexity. In case trade liberalization is followed by technical progress, new inputs, modern technologies or management techniques and are available for local producers, this can positively influence rural development. One example is the green revolution, which elaborated and distributed high numbers of improved seeds and other additional technological inputs such as irrigation systems intensifying local production and thus had a positive effect on poverty alleviation. But, these flows can be generated by trade stimulation or by direct financial flows from foreign countries, e.g. in the form of investments for research and development projects.

As explained above, an increase in production efficiency can stimulate demand and thus positively affect the factors of production. However, there is the opinion that technology in the long-term could decrease the demand for unskilled labor. This could be true in some cases, but has more relevance within the question of whether high technical development substitutes human labor (Winters, 2002, p. 1358).

Examining trade liberalization and economic growth, especially long-term effects play a key role. In the short term, a country may need a certain period of adjustment in which the internal changes are presumed to often generate negative effects for the poor, because the most considerable structural complication lies in the labor market of less skilled people. A strong increase in unemployment rates was observed in

[9] A quantitative restriction in trade regularly is placed on the amount of a good or of a provided service, which can be imported into a country. The objective is to protect the price of domestically produced items and/or to balance trade deficits or trade quota (BusinessDictionary, 2013).

[10] Policies for a macroeconomic stability include all strategies to achieve a macroeconomic balance with a high employment rate and a stable price level, i.e. all political strategies which influence the economic development (Gabler Wirtschaftslexikon, n.y.).

various country-specific cases, among others in Mexico. If trade liberalization in the beginning causes high poverty rates, it is important to analyze whether the generated loss of jobs is long-term unemployment or if people switch within short periods to new employments, probably with an increased income. The key aspect here is how quick unemployed people can turnover to alternative jobs after the structural changes and how flexible the factor markets react. This turnover is supposed to be quick in industrialized countries. In developing countries the situation is yet to be analyzed.

Winters stresses that the losses within adjustment processes seem to be more intensive, the more protection a sector originally enjoyed, and, obviously, the greater the shock is. In the case that a labor market suffers a shock over a long period of time, it runs the risk of becoming dysfunctional, because people may, assuming they have a job, hesitate to resign or to apply for other employments. This could lead to a stagnation of the labor market. Especially poor people regularly have a low stock of assets or do not have access to credit, which is why they are especially vulnerable to fall into poverty after losing a job. Indeed, for them it can be already difficult to cope with transitional changes, switching from one informal job to another.

Thus, in order to cope with eventually high unemployment rates, policies should focus on the poor or those who are, considering financial aspects, close to poverty. Unfortunately, this is rarely the case, and middle classes of society are more in the center of transition policies (Winter, 2002, p. 1361). However, to avoid high unemployment rates within trade liberalization adjustment periods, a country should establish cushioning regulations which very probably may prevent unemployment and help workers to immediately enter formal jobs (Winters, 2002, p. 1359).

The effects of trade liberalization on poverty rates can be very complex and reach high intensities on national poverty rates. Thus, the protection of national economies from trade shocks is a fundamental part of every anti-hunger and anti-poverty policy. Research and the generation of data may take a bit of time, but an integration of the poor into national economic and trade structures can also have significant positive effects on a country's economic growth. The next chapter provides ten questions which directly are taken over from Winters and recommended within an analysis of the effects of trade liberalization on national inequality and poverty rates (Winters, 2002, pp. 1361 – 1363).

2.3.1.7 The Effects of Trade Liberalization on Inequality and Poverty

Of course, there is no general answer to the question of whether the establishment of free trade zones or an increase in non-tariff barriers will impact the overall benefit of a nation or cause rising poverty rates (Winter, 2002, p. 1340). The effects can vary significantly between individual households as well as different countries. Thus, an analysis of the effects of trade liberalization on poverty was selected as evaluative part of the present investigation in the Brazilian and the Mexican case.

These ten questions are answered for both Brazil and Mexico in the country-specific analysis, in order to give introductory comprehensiveness about the most important identified country-specific effects of trade liberalization on Mexican and Brazilian poverty rates. The following paragraphs describe the respective questions:

1. Will the effects of changed border prices be passed through to the rest of the economy?

A shock by trade liberalization primarily is passed on to domestic welfare through prices. If a government manages regulations which prevent the transmission of price changes to the household level, direct effects on poverty (positive as well as negative) can be completely annulled. Respective strategies can include the support of local economies, the establishment of food stocks or the provision of a

minimum price guarantee for local food products, and so forth. A key role plays here to prevent dependencies on food imports and on international food price fluctuations.

2. Is reform likely to destroy effective markets or create them?

If there is a shock by trade liberalization that weakens national economies, the government should be able to cope with it. Furthermore, a reform favoring job turnovers after adjustment processes or supporting rural production, or introducing new goods and services can have positive impacts on poverty.

3. Is reform likely to affect different household members differently?

As previously explained, intra-household distribution can lead to inequalities within families. If a household's income generally increases, some especially vulnerable members, as women and children, could personally lose within the distribution of income. Thus, it is recommended to implement special reforms e.g. focusing on improving wages for women.

4. Will its spillovers be concentrated on areas/activities with relevance to the poor?

If there is an adjustment process to cope with shocks, this may be transmitted from one market to another. If there is no special focus on the poor, the diffusion may have very little impacts on protecting the poor. Thus, a defined concentration on extremely vulnerable groups of society is needed.

5. What factors are used intensively in the most affected sectors and what is their elasticity of supply?

In the case of a price change, there is an impact to the factor's wages according to the intensities of those factors. In case that salaries decreases due to a fall in a product's price, it depends on the intensity of the labor whether unemployment will be caused or not. If a price change positively affects wages and employment, this can have a poverty alleviating effect. However, if the factors are elastic in their supply and there is a decrease in prices and thus in wages for unskilled labor, this could cause unemployment and increase poverty.

6. Will the reform actually affect government revenue strongly?

If a government cuts tariffs, it can result in a decrease in government revenue, but generally trade liberalization negotiations generate long-term positive revenues for a country by economic growth through export markets, e.g. If not, and a trade reform negatively affects national income, this may cause an increase in taxes and/or a decrease in social government spending, and thus strengthen poverty.

7. Will reform expose the poor to greater risk?

In the case that the opening of economies may result in a high variability of prices and provoke national uncertainties and an increase in poverty, mechanisms for distributing risks can reduce negative effects to certain sectors or localities. It is necessary to analyze affected markets and provide respective support. Furthermore, it is essential that support is given equally within all sectors and among all affected groups of society, and not solely focus intensive production or high-income classes. Doing this, it can be avoided that poor people are the most exposed people to risks and especially negatively affected by trade liberalization.

8. Does the reform depend upon or affect the ability of poor people to take risk?

People living in extreme poverty can suffer significantly even from small negative shocks because they are especially vulnerable. Especially the poor need support in integration into markets by mechanisms of adjustment after trade liberalization reforms are introduced. If not, they can be confronted with high

risks during job turnovers and could avoid them even though these could provide higher incomes. In this case, poor people could not benefit from the positive effects of trade liberalization by successfully entering new markets and would just be confronted with negative effects. Furthermore, in the case farmers change from subsistence to cash crops, e.g., they might be faced with a generally higher vulnerability. The reasons are that changes in production often are related to the intake of credits or the use of seeds which may not that adaptive to local climate patterns as local seeds naturally are.

9. Will the reform stimulate growth? Will the growth be particularly unequalizing?

If an economy grows due to trade liberalization, this can have a positive effect on poverty alleviation. In this case it is important to ensure an effective distribution of additionally generated income. If this is not the case, growth will strengthen income concentrations and inequality.

10. Will transitional unemployment be concentrated on the poor? Will it be deep or long-lived?

For the poor, even short periods of unemployment can have extreme effects on their vulnerability and increase poverty rates. If there are structural changes in national employment, it is important to analyze where jobs are created and where jobs are affected. If trade liberalization integrates the poor, employment turnovers should be accompanied by effective employment reforms in order to help people to access jobs with increased incomes.

However, the fight against hunger and poverty cannot be solved solely by the establishment of trade liberalization or immediately succeeded by completely avoiding the opening of markets. As it shows the vicious circle of hunger and poverty, there are a lot of influencing factors which require a well-defined multi-dimensional approach including internal structural changes and regional development. The next chapter describes essential internal influencing factors on poverty.

2.3.2 Deficits in Structure and Development as Internal Influencing Factors

Besides external influencing factors, there are various internal aspects which significantly affect poverty and hunger. On the one hand, there are structural deficits e.g. a lack in infrastructure, a lack of accessible social assistance and historical consequences of unequal land or income distributions, too low employment due to regional effects of the vicious circle of hunger and poverty or general national low economic growth. On the other hand, if a country is lacking in the support of regional development and does not provide farmers an access to credits or to general input factors for production, this presents a high vulnerability to climate change and unforeseen environmental events. This is because, then, these are other internal influencing factors to poverty and hunger.

In addition, inefficient small farmers, too low yields or losses in harvest can also affect the regional availability of food and thus increase the respective prices (Carlsen, 2008). Income and land concentration as well as social exclusion were selected as two central internal influencing factors on poverty and thus subject of the country-specific analysis presented in chapter 4.1 (Brazil) and 4.2 (Mexico).

3 Methodology

In this chapter, the methodology for the country-specific analysis of Mexico and Brazil and the evaluation of both programs *Fome Zero* and *Oportunidades* is presented. The country-specific analysis is comprised of two parts. First, the principal relevant current structures of each country are examined using three different perspectives regarding food security: the amount, the access and the diet perspective. Afterwards, for Mexico and Brazil, three main reasons for poverty and hunger will be emphasized and analyzed: First, income and land concentration, second, high food prices and food price fluctuations, and, third social exclusion. Second, the respective anti-hunger program of study is presented which, in this case, are *Fome Zero* and *Oportunidades*. Then the present paper will show which structural and specific policies were established by *Fome Zero* and *Oportunidades* in order to meet each of the three mentioned reasons for poverty. This structure will be repeated for each of the three main reasons. In the end, the first analytic part will give an overview about the main results of both programs.

The country-specific analysis has the objective to put the most relevant structures and the respective strategies of both countries next to each other in order to bring them onto a comparable base. The evaluation of both strategies will be realized by comparing the countries' efforts while considering eight steps, which were identified to be essential within the establishment of efficient and sustainable anti-hunger and anti-poverty programs. Thus, the evaluation is based on the result of the country-specific analysis. These eight steps are:

1. Identification and coverage of the poor
2. Country-specific analysis of the internal and the external influencing factors of poverty
3. Definition of strategies for cash transfers and social assistances
4. Definition of strategies of emergency
5. Definition of structural strategies
6. Definition of exit strategies
7. Evaluation of efficiency and sustainability
8. Establishment of an effective change management

In order to evaluate both programs as strategies for improving food security, an examination of each step and an analysis of how it was realized in both countries shall help to bring the evaluation into a comparable base.

3.1 Country-Specific Analysis

3.1.1 Three Perspectives for the Analysis of Food Security and Poverty Structures

For the comparison of the relevant structures of Mexico and Brazil in the present work, a framework was selected in order to bring some of the structures of both countries and the analyzed programs onto a comparable basis and to separate the different mechanisms of *Oportunidades* and *Fome Zero*. This chapter briefly presents the methodology used for the structures' examination.

Due to the growing confrontation with global undernourishment and hunger, in 2011, the *Büro für Technikfolgen-Abschätzung beim Deutschen Bundestag*[11] (TAB) published the detailed study "Possible Contributions of Research to Solve the World Food Problem — Approaches, Strategies,

[11] The *Office of Technology Assessment at the German Bundestag* (TAB) is an independent scientific institution. It is in charge of advising the *German Bundestag* and its committees on matters which are related to research and technology (TAB, 2013).

Implementation". According to this study of TAB, the discussion about the world food issue is accompanied by two closely connected main perspectives: The amount perspective and the access perspective. The *amount perspective* focuses on the overall amount of food produced and demanded within a specific area. The *access perspective* considers the real access of people to produced food, i.e. the respective distribution patterns. Each of the perspectives includes different kinds of relevant aspects and strategies in order to combat hunger (Dusseldorp & Sauter, 2011, p. 39).

The amount perspective puts the total amount of produced food into a relationship with the total demand for food. This perspective is often made subject of discussion with the question of how to feed the fast growing global population in the future. Regarding this aspect, the total number of people is multiplied by their average caloric intake and so the needed total amount of food is calculated (Dusseldorp & Sauter, 2011, p. 40). In this paper, the analysis of the amount perspective will include the description of the relationship between national food availability and demand, will analyze the national production structures and give an overview of the specific structure of import and export in both countries. Furthermore, the analysis emphasizes the specific situation of the rural farmers.

The access perspective does not consider the calculated available amount, but the real accessibility of food to people. Access exists when people can supply themselves through subsistence farming or have sufficient economic resources to acquire adequate food from markets. The reality shows, that, despite a regular existing food production surplus, millions of people do not have any access to food (Dusseldorp & Sauter, 2011, p. 41). This situation prevails in Brazil and in Mexico, where enough food is available but poverty is a reason for the people's access to food to fail.

Thus currently, the opinion predominates that the access perspective plays a more relevant role within the problem of food insecurity than the amount perspective. This is because the amount perspective is an essential, but not a sufficient condition in order to avoid hunger and undernourishment. If the produced food is not available for hungry people because it is too expensive or is being distributed unequally, the existence of food is a necessary but not a sufficient condition in the fight against hunger (Dusseldorp & Sauter, 2011, p. 7). In the present paper, the access perspective is addressed by examining the specific poverty and food insecurity structures. Additionally, an overview of the conditions of the rural poor is given.

However, in the future, due to population growth, climate change, more resource intensive consumption patterns (especially in the industrial countries) and an increased pressure to agricultural land, the amount perspective is going to play a more important role in the discussion of food security (Dusseldorp & Sauter, 2011, p. 41).

According to the amount and access perspective, food insecurity can be addressed by two main approaches. The first one refers to intensifying food production through an increase in agricultural land or/and in productivity. The second one aims at improving people's access to food. First, by supporting subsistence farming, which can include strategies such as land distribution, improved access to input factors (seeds, fertilizer, technologies etc.) and second, an increase in income in order to be able to purchase food (Dusseldorp & Sauter, 2011, p. 41). Both *Fome Zero* and *Oportunidades* include strategies to address the amount and especially the access perspective, which are going to be presented within the analysis of the programs.

As it was shown in chapter 2.1.3, food security is not solely an issue of the amount and the access to sufficient food, but includes various additional components. Therefore, it is crucial to add a third perspective to the two mentioned before, which is the diet perspective. Chapter 2.1 included a theoretical part where a difference was made between food security and food sovereignty, and the diet perspective

is reflected by the food sovereignty concept in a more comprehensive way. This is because food sovereignty gives importance to traditional methods of food production and preparation and considers the support of conventional methods of agriculture and fishing, the establishment of fair land policies within adequate ecological, social, economic and cultural circumstances (Oswald Spring, 2009, p. 5).

Also, the quality of food is not considered in a sufficient way within the amount and access perspective, which is the reason that food insecurity still does not clearly include issues such as malnutrition, overweight and obesity in a lot of cases. These conditions of food insecurity are principally caused by low quality food or products with a high content of sugar, fat, carbohydrates (Dusseldorp & Sauter, 2011, pp. 48 – 49), which are mostly contained in industrialized goods in excessive amounts.

Within the diet perspective two main issues play a central role. The first one is – beside the food quality – the combination of certain ingredients and the preparation of food. The second one emphasizes the question, why people eat food items in excessive amounts, causing and favoring overweight and obesity because of its content. This is an issue of the individual consumption behavior (Dusseldorp & Sauter, 2011, p. 49).

There are a lot of aspects which play a central role within the diet perspective, but a comprehensive analysis is beyond the scope of this paper. For the present analysis, three aspects of the diet perspective were selected which are first, a brief overview of the consumption patterns and malnutrition, second, a short introduction into the importance of organic agriculture, and, third, some information regarding the water access. Access to water is an important issue also within the access perspective, but a detailed analysis of this issue cannot be included in this paper.

These three aspects of the diet perspective can show, first, how far a country presents food insecurity regarding malnutrition, an aspect which is crucial to consider within the establishment of food security policies. Second, an overview of the development of organic agriculture presents an idea of how a country intends to use its natural resources in a sustainable way. In the end, third, access to drinking water is essential for human beings and a central aspect in the prevention of a lot of environmental and other diseases.

Then, the country-specific analysis presents an examination of the three main reasons for poverty. The first reason is considered to be income and land concentration, which plays a central, historical role in the development of national inequality both in Brazil and Mexico. High food prices and food price fluctuations were identified as a second reason for poverty, which, on the one hand, often causes a limit in the access to food due to low income, and, on the other hand, high food price fluctuations highly affect the people's vulnerability and can cause unemployment as well as increases in poverty rates. Social exclusion will be described as a third reason for poverty, because it prevents people from the ability to participate within socio-economic systems and also includes gender and racial conflicts. In the end, the chapter presents a brief overview about the program's main important results.

3.1.2 Addressing Poverty and Hunger

The second part of the country-specific analysis provides a background to both strategies *Fome Zero* and *Oportunidades*, describes the central institutions, the framework and the main objectives and shows how the program's policies counteract the respective three main reasons of poverty. Here, the strategies are separated into structural and emergency policies. The last part of the country-specific analysis shows an overview of the main results of both programs.

However, the generation of an exact comparable basis for both countries is not possible. There are a lot of differences in the national social, economic and political structures. Where it is possible, the paper

intends to use the same indicators, but a lot of them vary significantly. Nonetheless, similarities were found which are crucial in the establishment of anti-poverty and anti-hunger policies, and variations in some essential national structures and political mechanisms show significant difference in objectives, treatment and effectiveness.

The main differences and the effectiveness of both programs are examined in the second analytic part of the present work, the evaluation.

3.2 Evaluation: Eight Essential Steps for Strategies to Improve Food Security

The first analytic part of the present paper provides an overview of the background, the fundamental actual structures of Brazil and Mexico regarding poverty and food security as well as describes both cases by separating the country-specific strategies into efforts in order to counteract three different main reasons of poverty. A detailed description of both countries and the two programs intends to give the reader a comprehensive background of *Fome Zero* and *Oportunidades* as well as of the country-specific poverty and food security conditions.

For the respective evaluation of the effectiveness of both programs, eight fundamental steps were identified which should be included and elaborated by governments and institutions in a comprehensive way within the design, the establishment and the carrying out of a sustainable strategy to improve food security. Thus, the evaluation part will sum up the most important actions of both countries and evaluate their respective efforts within each of the respective presented step.

3.2.1 Step One: Identification and Coverage of the Poor

The availability of a comprehensive poverty profile is an essential foundation for the establishment of effective anti-hunger and anti-poverty strategies. If a country lacks a detailed poverty and hunger analysis, it neither will be able to analyze the country-specific main influences on poverty and hunger levels nor to identify the main central structural lacks. Furthermore, the design and the establishment of anti-hunger and anti-poverty policies requires detailed knowledge of the location and situation of the target group. If such information is not available, and anti-hunger or anti-poverty strategies are arbitrarily distributed, the programs probably will not integrate those in most need, i.e. the programs do not provide horizontal equity. This means that not all groups of poor people get the opportunity to become covered at once, which causes an unfair treatment of similar groups of population (Bawden, 1972, p. 812).

Furthermore, a later equalizing and adaptation progress may be very cost-intensive and need a lot of time. Moreover, as stressed by Winters (see chapter 2.3.1), the establishment of a poverty profile also provides the essential basis for an analysis of the country-specific channels (*households*, *distribution channels*, *factor markets* and *government*), by which trade liberalization can affect national poverty and hunger rates. Therefore, a comprehensive analysis of a country's poverty profile has been identified as a first, fundamental step within the establishment of an anti-hunger and antipoverty strategy.

Moreover, food security policies should cover large parts of the poor population at once, in order to assure horizontal equity and also to take advantage from positive spillover effects of established programs. If, for example, anti-poverty programs have the objective to integrate farmers into local markets and support production by improving access to input factors, an improved economic situation of other parts of society would have the capacity to assure the consumption of these locally produced food items. If a program only accelerates production but does not focus on the demand side, spillover effects and thus the program's effectiveness may be constrained and provoke additional costs.

This part evaluates the countries' efforts in order to identify the most vulnerable groups of society and in order to achieve horizontal equity.

3.2.2 Step Two: Country-specific Analysis of the Internal and the External Influencing Factors to Poverty

Poverty and hunger interact and may be caused by different internal and external influencing factors (see chapter 2.3). These factors depend highly on country-specific social, economic, political and environmental structures. It is recommended to make a first separation between internal and external poverty causes, and to go forward with a respective research identifying the specific main influencing factors.

Internal Influencing Factors

As previously mentioned, internal influencing factors are endogen, i.e. arise within national borders and depend on other variables of the national economic model. A country which is highly affected by climate change[12] for example, may be confronted with a high amount of vulnerable farmers or may be exposed to significant periodical effects on national food production. High inequalities in income or land distribution can be another cause for increasing poverty rates and create social exclusion within different groups of society. Internal influencing factors can vary considerably in intensity and amount between countries and also fluctuate constantly, along with a nation's development and specific time-related events. Thus, internal influencing factors can be very intensive but short-term (e.g. a significant loss in harvest) or cause poverty rates during many years and decades (e.g. historical land concentrations). As mentioned before, the country-specific analysis of the present work examines two main internal influencing factors to poverty, which are land and income concentration as well as social exclusion.

A comprehensive analysis of the internal influencing factors is crucial in order to identify the central structural lacks and the main causes of poverty and hunger within national borders and therefore to find out where respective mending policies have to be implemented. The country's strategy to counteract the internal influencing factors will be evaluated on basis of the country-specific analysis, which shows *Fome Zero's* and *Oportunidades*' response to income and land concentration as well as social exclusion.

External Influencing Factors

As described in chapter 2.3.1, trade liberalization is a fundamental external, exogenous influencing factor, because national poverty rates can be intensified by external national economic systems, e.g. due to internal and external interactions as is the case during imports and exports. Therefore, as observed in various country-specific case studies, trade liberalization can be a significantly intensive influencing factor to poverty. Whether it is so highly depends on different factors which have to be identified within comprehensive studies regarding the respective economic channels by which trade liberalization can affect national poverty rates. In the case of Brazil and Mexico, this country-specific analysis provides an examination of some of the most important effects of trade liberalization on national poverty rates.

Indeed, there is no general answer to the question whether the establishment of free trade zones or an increase in non-tariff barriers will impact the overall benefit of a nation or cause rising poverty rates (Winters, 2002, p. 1340). The effects can vary significantly between individual households as well as different countries. Thus, an analysis of the effects of trade liberalization on poverty was selected as

[12] The present paper considers climate change as an internal influencing factor, because the relevant effects take place within national borders. Of course, climate change also can be result of external events and also cause food price fluctuations due to climate disasters in other countries causing harvest losses, for example.

evaluative part of the present investigation in the Brazilian and the Mexican case. The respective questions which were directly taken over from Winters were presented in chapter 2.3.1.7 as a "checklist" of ten questions for governments or other interested researchers in order to give an orientation or a manual for respective analysis (Winters, 2002, p. 1361). This part of the evaluation briefly examines the most significant differences among Brazil and Mexico and their method in order to prevent external influencing factors on poverty.

3.2.3 Step Three: Definition of Strategies for Cash Transfers and Social Assistances

Generally, within the establishment of anti-poverty programs, it is important to consider that one invested dollar is not equivalent to an increase of the poor people's benefits of one dollar. Indeed, the total costs for a program exceed the achieved growth in welfare, because each strategy is related to costs for administration and the program's realization. But what is social welfare? This question is difficult to answer. Principally, social welfare is evaluated comparing the wealth status of one person with another, and in theory, social welfare "is then maximized when everyone's income is made identical through lump sum taxes and transfers" (Bawden, 1972, p. 809). This state, of course, is neither feasible, nor desirable, among others because it would ask for the welfare function of each person in the world, and then claim for an equaled balance among them. Furthermore, each individual may define welfare completely differently. A much more adequate way to define a program of social assistance and cash transfer is to improve the living situation of the poor in an adequate manner, so that a cash transfer is justified by the achieved improvement in living conditions and based on the government's willingness to pay for the respective changes. The establishment of a cash transfer also confronts the government with a couple of questions, which also can help in the evaluation of an adequate program. These questions are (Bawden, 1972, pp. 809 – 810):

1. How much should be transferred?

The amount of a cash transfer is country-specific and depends on the program's objective. When implementing cash transfers aims at better food security, a good indicator would be to measure the percentage of the transfer which is spent on food by a household or family.

2. What form should the transfer take (e.g. cash, food, medical services, housing, etc.)?

Within neoclassic theory, the opinion was widespread that the most efficient transfers were cash-transfers, because they give flexibility to the recipients and enable families to decide on their own consumption. If the establishers of a program would evaluate the situation of a low-income family and conclude that their situation is better because of an increased income, the transfer of cash was good when not even better than in-kind[13] transfers. If the giver, e.g. the government, analyses the long-term consequences of a cash transfer program and families probably used the cash transfer in an "inadequate" manner, in-kind subsidies might have been more suitable (Bawden, 1972, p. 810). The real needs of the recipients might differ from the government's perception thus leading to a use of transfers for other purposes than intended by the government. Here the intra-household distribution, as explained in chapter 2.3.1.1, comes into effect. If the transfer is in form of cash and thus increases the household's income, it does not necessarily mean that the transfer reaches the most vulnerable family members such as children, women and elderly people. This leads to the following question (Bawden, 1972, pp. 810 – 811):

[13] In-kind subsidies are material subsidies ≠ cash transfers (author's note).

3. To whom should the transfers be made, and in what amount?

Generally, the decision on the amount of a transfer becomes more complicate when the number of recipients increases. One essential part of this decision is that both horizontal and vertical equity can be reached. Horizontal equity means that all persons living in the same circumstances are covered by the program. Vertical equity refers to the program's consequences, i.e. it has to be avoided that a person runs the risk of ending up in worse living conditions after a cash transfer than before (Bawden, 1972, p. 812). One case could be that poor people take on risks by the intake of loans which they cannot pay back in the end. That means that cash transfer programs should aim at addressing all people living in similar poor conditions and that the beneficiaries of a respective program should receive exit strategies[14] into better living conditions.

4. From whom should the transfers be made, and in what amounts?

Generally, cash transfer programs are financed by national tax revenues. The more different givers are involved in the financing of a social assistance program, the more complicated the interrelations get, especially if the program requires structural changes. Therefore, the less institutions involved in the establishment of a cash transfer program, the easier the realization of a respective change management (Bawden, 1972, pp. 811 – 812).

5. How are answers to the above question influenced by

a) the effects of the program on the recipients?

The effects of a cash transfer program have to be monitored during the whole process of implementation and it is essential to stay flexible in order to be able to mend lacks or overcome complications in the realization and adapt the strategy. Transfer programs can have different kinds of negative externalities and generate unintended effects. Cash transfers, e.g., can reduce the people's efforts to find work and to try to improve their living conditions independently. This can negatively impact the long-term efforts to establish well-functioning exit strategy and by this counteract the objective to make people independent from social assistance in the future, by their efficient integration into local markets (Bawden, 1972, p. 812).

b) the efficiency of administering the program?

The more efficiently the program is administrated, the more utility it will generate for both the giver and the recipient. Here, the involved time and the administrative expense required to create a fair, transparent and tangible program play a key role. Indeed, in theory almost everything is easier than it is in reality, and governments or other givers can be confronted with serious complications during the implementation of a cash transfer program. These complications can relate to uncertainties regarding the financing, to differences in interests of program givers or complications in the creation of an equal basis for the population in need. Moreover, when the program is established, it is crucial to analyze the program's consequences and to verify if the cash transfers fulfill the intended purposes. Thus, the program should be monitored in order to prevent missing the target and to be able to mend eventually upcoming lacks. Additionally, it is important to consider that the recipients who are habitants and thus potential taxpayers, are simultaneously program givers (Bawden, 1972, p. 812). Here, a distribution of income takes place, i.e. income from higher classes of society is transferred to lower classes of society by cash transfers. This is also why it is important to consider that administrators of cash transfer

[14] An "exit strategy is a way of 'cashing out' an investment" (Investopedia, 2013). In this case it means to provide beneficiaries of cash transfer programs the opportunity to become independent of transfers by becoming successfully integrated into social and economic systems.

programs are not always neutral. Because of being taxpayers, they are also givers and thus can find a channel in order to take some influence. Another aspect is that the more administrative institutions are involved in the establishment of a respective program, the higher is the danger to lose some transparency and control. Especially in developing countries, the establishment of poverty programs in the past sometimes favored conditions of corruption more than helping the poor (Bawden, 1972, p. 812).

These steps will be evaluated considering the respective cash transfer programs, which in the Mexican case is *Oportunidades* and the Brazilian case *Bolsa Familia*.

3.2.4 Step Four: Definition of Strategies of Emergency

As presented in the vicious circle of hunger and poverty (see chapter 2.3), there are different kinds and levels of food insecurity. The most affected people are those who already are undernourished, hungry, and those who daily suffer limitations of their ability to have a healthy and active live. Thus, the establishment of emergency strategies aims at immediately attending them to prevent further constraints and more severe health problems. People who are hungry and undernourished need help immediately and are among the most vulnerable groups of society. That is why emergency programs have to be a central part of every food security strategy. Here, the emergency strategies of both countries will be considered within the evaluation.

3.2.5 Step Five: Definition of Structural Strategies

Structural strategies have the objective of mending existing lacks in a system's structure, such as lacks in access to social installations (e.g. educational and health institutions) or the need for other respective improvements in infrastructure. Structural strategies also can aim at equalizing deficiencies which probably developed over a long period of time in a country, causing inequalities such as high income or land concentrations, among others. High poverty and hunger rates mostly are the result of long-term deficiencies and inequalities and can be increased by additional unintended or unexpected events (such as extreme climate events, negative shocks by trade liberalization, great changes in existing structures, e.g. due to resettlements). Therefore, the definition of structural strategies in both countries was selected as step five.

3.2.6 Step Six: Definition of Exit Strategies

Strategies to improve food security that include programs aiming at poverty alleviation and at improving structural lacks should also provide well-defined exit strategies, i.e. that beneficiaries attended by respective programs for a certain period of time should, in the long-term, become capable of exiting the programs and maintaining an improved economic status independently, assuring access to food, health and educational installations.

The provision of exit strategies is essential for two reasons. First, if a program not only offers attendance but also the opportunity to independently exit poverty, the strategy has the capacity not only to improve the people's situation *because* of being beneficiaries, but by helping them to help themselves to become part of social systems. When a program successfully integrates people into local economies and thus supports them to become independent in the long term, this also can be a good indicator for successful poverty alleviation. Second, if cash transfer programs, for example, attend families with children, send them to school to join basic education, the system also should provide a well-functional exit strategy, enabling the children to get access in the long term to public universities, e.g., in order to follow their studies and thus widen their professional opportunities. Respective strategies can have the objective to

invest in highly skilled workers, e.g. and to integrate them as human capital into national economies. This can have a double positive effect. Poor people can exit poverty and national labor markets benefit in the long term through their investments into human resources. In the end, when food security strategies are well-defined, poverty alleviation is not only related to high social expenditures, but is a long-term investment with high economic potential for national development. This step evaluates the provision of exit strategies of both programs and proposes an integrated institution for a program-intern development and design of adequate exit strategies.

3.2.7 Step Seven: Evaluation of Efficiency and Sustainability

Obviously, the effectiveness of food security programs should be monitored and regularly improved in the case of lacks or unintended side effects. Therefore, it is crucial to generate periodically relevant data and to realize comprehensive studies for the strategies' evaluation by governments, *Non-Governmental Organizations* (NGO's) or international institutions, which are independent of respective results. The program's evaluation should include a comprehensive report about the mechanism's and strategies' sustainability. This part should aim at monitoring and controlling the sustainability regarding the people's integration into social and economic systems, but also have the objective of assuring sustainable development of the use of the natural resources: Improving and extending ecologic agriculture, protecting the environment as well as the people from an extensive use of pesticides and fertilizers, promoting the use of renewable energies and locally produced items so that environmental pollution and respective diseases mainly can be avoided.

3.2.8 Step Eight: Establishment of an Efficient Change Management

A detailed examination and proposal of an efficient change management for poverty alleviation in Mexico and Brazil is beyond of the scope of this paper. However, within the establishment of effective anti-hunger and anti-poverty strategies it is crucial to adapt to changing circumstances and to continuously improve existent policies.

4 Results

4.1 Brazil Actual State Analysis

As described in chapter 3, this part of the present work has the objective to provide information regarding the three perspectives in the country-specific case of Brazil and to describe the strategies intervention regarding the three reasons of poverty.

4.1.1 Amount Perspective

4.1.1.1 Brazilian's Food Production

For the past twenty years, the Brazilian food production shows a constant increase in most of its items. Products like soya, sugar cane and maize, which are produced within extended monocultures for food export, increased between 138% and 188%. Products which were cultivated for the internal market, such as tomato, onion, rice, wheat, beans, potato and oats increased between 42% and 91%. The manioc yield did not grow in recent decades. The stock of cattle increased significantly about 218%. The amount of pork stayed at the same level and the stock of sheep decreased 20%. The growth in cattle is the result of a significant extension in the livestock activities in the northern Brazilian regions, which still had a minor stock in 1997 and in 2009 increased to almost the same level as the Southeast, which is in second place after central east Brazil (CAISAN, 2011, p. 15).

The increase in agricultural production for most of the Brazilian cultivations and livestock was partially reached by more efficient productivity. In specific cases, especially within the production in monocultures, the increase was result of an expansion in the area of production. The area for sugar cane and maize was extended 10.8% and 3.8% per year, whereas the area for rice shrank about 7.1% per year.

In Brazil, historically exists a high concentration of land. There are high numbers of land plots up to 50 hectares which amount to 82% of the total number of agricultural establishments, but only contribute to 13% of the total area used for agriculture. In contrast, there are properties larger than 500 hectares, corresponding to 2% of the total number of establishments and occupying 56% of the total agricultural land. The production of rice, beans and manioc is realized averagely in properties of about 300 hectares; 70% of the agricultural establishments are smaller than 50 hectares. 42% of them occupy 0 to 10 hectares and only 3% are of larger extension than 2500 hectares (CAISAN, 2011, p. 16).

4.1.1.2 Brazilian's Import/Export Structure of Food

In 2011, Brazil's value in merchandising trade was 256,039 million US-$ for merchandise exports and 236,964 million US-$ for merchandising imports. Thus, Brazil is a net export country ranking number 22 in the world market. The exported commodities can be classified into three groups: 33.8% agricultural goods, 30.1% fuels and mining products as well as 32.8% products from manufacture. The proportion of the imported commodities is 72% manufactured products, 22% fuels and mining products as well as 6% agricultural products (WTO, 2013a).

In Brazil, the basic food basket contains 15 food products which are bovine meat, pork, poultry meat, fish, rice, beans, eggs, milk, coffee, sugar, flower, bread, oil, butter, vegetables and fruits (Portal Brasil, 2013). These food items are considered to be the most essential food products for the Brazilian population. This means that people are especially vulnerable to price shocks of these items, which may be caused by trade liberalization. In this case, people could lose their access to essential food products and thus be at a higher risk to suffer food insecurity or hunger.

The origin and the purpose of the mentioned food products are described in the following table:

Table 1: Origin and purpose of the essential items of the Brazilian basic food basket.

Item	Production (1000 t)	Import Quantity (1000 t)	Export Quantity (1000 t)	Domestic Supply Quantity (1000 t)	Food Supply (kcal/capita/day)[15]
Grand Total					3173
Vegetal Products					2436
Animal Products					737
Cereals (Excluding Beer)	66701	9679	9005	67875	959
Wheat	5056	**6381**	473	11464	384
Rice	8438	606	588	8457	352
Sugarcrops	672157		0	672157	12
Beans	3487	110	33	3409	151
Vegetable Oils	6799	430	1781	5448	429
Vegetables	11027	490	267	11251	35
Fruits – (Excluding Wine)	37124	510	9482	28152	129
Coffee	2440	1	1859	550	4
Bovine Meat	8935	32	1648	7319	153
Pigmeat	3130	1	871	2260	86
Poultry Meat	10414	1	3636	6779	149
Butter, Ghee	88	7	2	94	9
Eggs	2037	0	47	1990	29
Milk - Excluding Butter	29249	766	335	29680	230
Fish, Seafood	1240	497	61	1677	13

Source: FAO, 2013a.

Table 1 shows that in Brazil sufficient food is available in order to supply each of the country's citizens with 3173 kilocalories per day. A closer look to Brazilian import/export structure points out that most of the domestic demand is supplied by internal production of food.

There are a few critical items within the basic food basket which are more vulnerable to price shocks than others. The Brazilian production of rice, for example, has not increased significantly in the past twelve years. This led to an increase in the price of rice within Brazilian regions other than the area of production, which is concentrated in the Brazilian South. In the period from 2005 to 2006, there was a need of an increase in imports, because national demand was exceeding supply. The international price increase of rice provoked a growth in value about 152% in exports in the period from 2007 to 2008. To counter those tendencies policies guaranteeing a minimum price for food products were established in order to find an internal balance in the case of destabilizing variations of supply and demand (CAISAN, 2011, p. 17).

Maize is not necessarily a product of the basic food basket, but is essential in considerable amounts as cattle feed, because Brazil is a main export country of meat, and meat is part of the basic food basket. The production of maize has increased in recent years, a production policy which counteracts

[15] This calculation refers to a total population in 2009 of 193,247 people (FAO, 2013a).

international price fluctuations since it occurred 2007 and 2008 due to a global increase in bioethanol production (CAISAN, 2011, p. 17).

Another and probably the most critical food item is wheat, because only half of the national demand is produced in the country, principally in the Brazilian South. Therefore, Brazilian supply is dependent on international imports (CAISAN, 2011, p. 17). Wheat is consumed and processed to flour, breadcrumb coatings and mixtures for bread, among other things, in all the Brazilian regions.

Manioc is part of the Brazilian staple food. The tubers contain a high value of carbohydrates and thus provide considerable levels of energy for the Brazilian population. It is mainly consumed as tapioca, which is a pancake of manioc starch and water (Food Safety Network, 2005), and is commonly combined with coconut milk, margarine or condensed milk. It is produced principally in the northeastern regions and in the north, but harvest did not increase in the past decades. Although, together with maize, it substitutes partially the consumption of wheat. The production of fruits and vegetables mainly is realized within small rural properties; 58% of the commercialization of fruits, and 73% of the vegetables are concentrated in the Southeast (CAISAN, 2011, p. 17).

Altogether, considering the balance of demand and supply of the mainly consumed food products in Brazil, which are rice, beans, maize, soya as grain, bran, oils and wheat, it is only the production of wheat which is insufficient for the national demand. But, the internal stock of wheat, which should provide 1/12 of the overall yearly demand at every moment, is held above the minimum stocks to assure security of supply. Brazil, over a certain period of time, has observed the price tendencies of the products in the basic basket of goods and thus could identify the products with the highest price fluctuations (CAISAN, 2011, p. 17).

From 1994 to 2010, a comparison of the prices of Sao Paulo showed, that the strongest variations were within wheat, milk, French bread, beans, sugar and meat. The prices for goods like powdered coffee, butter, potato, rice, bananas and oil presented were more stable. There are two periods which show significant price increases for food, one in the year 2002 and the second one in 2007 and 2008 and in 2010. These years reflect international food crises (CAISAN, 2011, p. 17).

In past years, Brazilian agricultural production showed a significant increase and ensured a sufficient supply for inhabitants with essential food products. Therefore, the availability of food is given and is not a relevant, critical aspect in the question of food security within the amount perspective. Nonetheless, a guarantee for a sufficient production of food in the future is not given, especially in these times of regional and global climatic changes (CAISAN, 2011, p. 18). The *Pan-American Organization of Health* (OPAS) confirms that there is a high probability for various climatic variations in regions and locations of Brazil and that an increase in temperatures and a decrease in rainfalls can have significant effects on the yields in tropic and sub-tropic climate zones. Furthermore, an increase in sea level could cause flooding in some areas which are used for agriculture and could negatively affect potable water. Those regions of Brazil where agriculture depends highly on periodical precipitations are especially vulnerable and in those climatic disasters have direct effects on the vulnerability of farmers, e.g. who depend on subsistence farming, and where relations are close between agricultural activities, income generation and poverty (CAISAN, 2011, p. 18).

A consideration of both the import/export structure as well as the internal production patterns show that Brazil produces most of the food items which are part of the basic basket of food in a sufficient amount. As the production of fruits and vegetables mainly takes place within small rural properties, family farmers play a central role in the supply of the domestic demand. As will be explained in the next chapter

and as the internal distribution of land shows, family farmers are not integrated into the Brazilian export market and thus do not benefit from profits earned by trade liberalization.

It was shown that Brazilian poverty is not caused by an insufficient amount of food. One of the main causes of poverty in Brazil is the unequal distribution of land and of income. The next chapter focuses on the group of society, where high rates of poverty are concentrated – family farmers living in rural areas.

4.1.1.3 Family Farming

Family farming in Brazil is practiced by millions of families and thus is a very important starting point for establishing strategies to fight against hunger and poverty. In 2006, according to the last *Agriculture/Livestock Census* of the IBGE, in Brazil there were 5,175,489 establishments of agriculture or livestock. 84% of those establishments, which are 4,367,902, belonged to family farmers. 80 million hectares of land were occupied by family farmers, a 24% of the total area used for agriculture and livestock activities (Del Grossi, 2011, p. 308). Only 16% are non-family establishments, but these occupy 76% of the overall area for agriculture. As mentioned before, there are high concentrations of land, as 2% of the total number of agricultural establishments occupy 56% of the total area for agriculture.

However, family farms play an important role in the provision of rural jobs. In 2006, 12.3 million people (Del Grossi, 2011, p. 309) which is 75% of the 16.5 million workers (CAISAN, 2011, p. 16) were employed in family establishments for agricultural production. Averagely, family farming occupies more than 15 people per 100 hectares of agricultural land. Only 4.2 million people worked within non-family establishments, i.e. approximately two people per 100 hectares (Del Grossi, 2011, p. 309). Almost 70% of the workers are men, only 30% woman, a percentage which is distributed relatively equally over all Brazilian regions.

Family farmers play a key role in the supply of the internal market with food products, dominate in the national production of manioc (87%), black-eyed beans (83%), black beans (77%), goat milk (67%), pork (59%), cow milk (58%), coffee "Robusta" (55%), colored beans (54%) and poultry (50%) and are substantial in the production of maize (46%), coffee "Arabica" and rice (34%), and cattle (30%).

Table 2: Characterization of agricultural/livestock activities establishments according to the classification of family farming.

Features	**Family Farming**		**Non-Family Farming**	
	Value	**%**	**Value**	**%**
Number of Establishments	4,367,902	84	807,587	16
Area (million ha)	80,3	24	249,7	76
Labor (million people)	12,3	74	4,2	26
Production Value (R$ billion)	54,4	38	89,5	62
Revenue (R$ billion)	41,3	34	80,5	66

Source: Del Grossi, 2011, p.309.

In 2006, family farms contributed 38% to the gross production value and 34% to the total rural revenues. They generated R$ 677 per hectare and thus were almost twice more labor intensive than non-family establishments, which averagely produce a value of R$ 358 per hectare. They play a key role in the provision of jobs and within the overall Brazilian agricultural and livestock production of food. Family farmers therefore are essential in order to achieve national food security (Del Grossi, 2011, p. 309).

As has been shown, family farming is essential for national food production and is an important activity for millions of Brazilians. However, at the same time, it is a sector with very high poverty rates, as will be described in the examination of the Brazilian poverty structure in the following chapter. Therefore, various policies within *Fome Zero* were established with the objective of increasing the rural production of food, to create employment and income and thus to decrease the vulnerability of low-income farmers (Del Grossi, 2011, p. 308).

4.1.2 Access Perspective

If someone only would take into consideration the amount perspective of Brazil, one could conclude that not one Brazilian should be hungry or undernourished. The reality is different, and as in a lot of other countries, hunger is not the result of not enough food, but of an unequal distribution and a limited access to food for large parts of the society. An examination of the Brazilian poverty structure presents the prevailing conditions and shows how many people are currently affected by poverty and food insecurity. Therefore, this chapter analyses Brazilian's poverty and food security structure, and provides a closer look at rural poverty.

4.1.2.1 National Structure of Poverty

At the end of the 20th century, the Brazilian government initiated a broad analysis regarding the country's current state of food security and engaged experts, representatives of NGOs, research institutions and social movements to collect and to investigate detailed and sound food security-related data in order to bring it together within the national *Citizenship Institute*[16]. A large part of the data was generated within the *National Household Sample Survey* (Pnad) and the *Brazilian Institute for Geography and Statistics* (IBGE) in 1999 (Da Silva, Del Grossi & De França, 2011, p. 19).

In the beginning, five main indicators were established in order to measure food insecurity. The first one measures the availability of food by taking into consideration the total supply of calories and the distribution of access to calories (Takagi, 2011, p. 166). The second one refers to food input, i.e. the physical amount of food which is available for each household. The third one provides information on the nutritional status, particularly for children, because it measures their relation of height to weight; the fourth indicator measures people's vulnerability, taking into account things such as livelihoods and the possibility of practicing subsistence farming. Finally, the fifth one measures the people's access to food by income or other (Takagi, 2011, p. 166). Whereas indicator one, two, three and five mainly consider nutritional aspects of food security, i.e. the amount of available calories and the physical amount of food, the nutritional status and the access to food, indicator four measures a condition of food sovereignty, which is, in this case, the possibility to practice subsistence farming.

Generally, there were two different methods in order to measure the percentage of population which suffers food insecurity. The direct method collects anthropometric[17] and survey data in order to get the total number of people and families with an insufficient caloric and protein intake (Takagi, 2011, p. 167). The indirect methodology uses data regarding the peoples' per capita income. This is because there is the widespread assumption that a lack in income is the main reason why people have insufficient

[16] *The Citizenship Institute* has its origin in the so called *Parallel Government* established by Lula da Silva in 1989. From 1999 to 2002, the institute was in charge of extensive issue-oriented projects dedicated to comprehensive analysis and the development of proposals for public policy. During Lula's presidency from 2002 to 2010, the institute worked on special issues, projects, debates and seminars, in collaboration with other institutions and was responsible for the monitoring of various governmental policies and projects, among them the project *Fome Zero* (Instituto Lula, 2012).

[17] Anthropometrics are measurements which refer to the physical dimensions and properties of a human body (Medical dictionary, 2013).

access to food and thus reflects the amount of people who live below the poverty line. Nonetheless, this data may not exactly show the total amount of people suffering hunger because people who live below the poverty line may be supported by other programs such as a distribution of food baskets or stamps or donations among others. Thus, these data needs to be partially corrected (Takagi, 2011, p. 168).

The results of the data collected by *Pnad* and the IBGE are shown in table 3. As mentioned before, people's income is a useful indicator for examining a country's poverty structure and that facilitates the comparison of two countries. In 1999, 44 million poor people lived in Brazil, i.e. 9.3 million families suffered food insecurity because of earning less than one US-$ a day.[18] This number of total poor amounts to 28% of the Brazilian population and to 22% of all the nation's families. 9 million people or 2 million families, i.e. 20.45% of the total number, were situated in metropolitan areas. Most of the poor people, 45.45%, live in non-metropolitan areas, i.e. small or medium-sized cities in rural areas. The highest number of poor, with 20 million people or 4.3 million families, lives in non-metropolitan areas and the rural areas show the highest poverty rate, which is 46%, representing 15 million people or 3 million families.

Table 3: Brazilian's poverty structure in 1999 in million people/families.

Area	**Brazil**		**Metropolitan areas**			**Non-metropolitan areas**			**Rural areas**		
	Total	**% of pop.**	**Total**	**% of local pop.**	**% of total poor**	**Total**	**% of local pop.**	**% of total poor**	**Total**	**% of local pop.**	**% of total poor**
People	44	28	9	19	20.45	20	25	45.45	15	46	34.1
families	9.3	22	2			4.3			3		

Area	**Northeast**	**Southeast**	**North**	**South**	**Mid-west**
Poor people living in %	50	26	9	10	5

Source: Da Silva, Del Grossi & De França, 2011, pp. 18 – 19.

The highest concentration of poverty was registered in the Northeastern region, were 50% of the poor people lived. Although the southeast region is a more developed part of Brazil, still 11.5 million poor people or 3 million poor families lived there, amounting to 26% of the total number. Also in large metropolitan cities like São Paulo, where Brazil's highest concentrations of wealth can be found, the number of poor people has been increasing significantly (Da Silva, Del Grossi & De França, 2011, p. 17).

The results of the study showed that the numbers of poor people living in Brazil were considerably higher and poverty in general could no longer be seen as an occasional side effect. It had to be considered as the result of a deep lack within the internal structures, of a high unbalance in the national growth model which concentrated high amounts of wealth in one part of the society, but created poverty and hunger in another one. Unemployment and underemployment in combination with rising costs for food and other expenses such as housing, health care, transportation and education, among others caused a negative spiral of growth in large areas and created poverty conditions in the midst of high income families and concentrations of wealth (Da Silva, Del Grossi & De França, 2011, p. 17).

[18] One US-$ a day is the worldwide poverty line which has been adopted from the *World Bank* (Da Silva, Del Grossi & De França, 2011, p. 17).

The described study by *Pnad* and the IBGE was published in 1999. In 2010, a further study was conducted by the IBGE, which presents the following result: In 2010, 16.27 million Brazilians still lived in conditions of extreme poverty, amounting to 8.5% of the Brazilian population. Of those, 4.8 million have no income at all and 11.4 million have a median per capita income between R$ 1 and R$ 70. 46.7% of people living in extremely poor conditions live in rural areas. At the same time, only 15.65% of the total population still lives in rural areas. Approximately ¼ of the rural population is poor and most of them or 59% of the overall number, live in the North and in the Northeast. 56.4% of the rural poor live in the North, in the Northeast 52.5%. In urban areas, most people living in extreme poverty are women; in the rural areas, most of them are male. 71% of the extreme poor are black or colored. Only 26% of the poorest population is white (CAISAN, 2011, p. 18). 40% of the overall 818 million indigenous people live in conditions of extreme poverty. Half of the people living in extreme poverty is under the age of 19. 39.9% of the extreme poor are children younger than 14 years. In the Southeast, 12.8% of the poorest people are over 60 years old (CAISAN, 2011, p. 19).

In the years 2002 – 2003, the total expense for food of the overall society averagely amounted to 20.6% of the families' total consumption. This number shrank until 2008/2009 to 19.8%. Among others, this is the result of the increase in the overall middle income, the increase in the consumption of other goods and services as well as generally lower prices in comparison with the inflation rate. The *Research Institute of Family Budget* (POF) provided data to the proportion of food expenses to the overall income of families who earn above the average income and who find themselves between the first and the fourth quintile of the total income. In 2008 – 2009, the first quintile, which refers to the group of population with the lowest income, spent an average of 29.8% of their total expenses on food. The fifth quintile is the part of society with the highest rent and spends far less on food than the average Brazilian, which is 15.2% of their total income[19]. Also the population's custom to eat outside of the house, i.e. in restaurants and similar installations, has increased. The first and the second quintile still are below of the Brazilian average, and spend 5% and 5.6% in restaurants, the fourth and the fifth quintile 6.5% and 6.3%. This indicator also presents one reason for a general higher consumption of industrialized food, which often is rich in fat, sodium and sugar. This is an important aspect within studies about food security (CAISAN, 2002, p. 19).

This chapter showed that the Brazilian poverty rate decreased significantly from 44 million people in 1999 to 16.27 million people in 2010. As mentioned in chapter 2.3, poverty and hunger are interacting and sometimes difficult to differentiate. Therefore, the next chapter presents a closer look to the country's condition of food insecurity in the last decade.

4.1.2.2 Conditions of Food Insecurity

The *National Research Center for Domicile Samples* points out that in the period from 2004 to 2009 the situation of food security has significantly improved in the specific households. In 2009, almost 70% of the households lived in conditions of food security, 5% more than in 2004. The best result could be reached within rural areas where the percentage increased about 8%. In 2009, 70% of the urban households lived in conditions of food security.

In 2009, 19% of the urban population suffered low food insecurity, 6% lived in moderate food insecurity and 7% were in conditions of severe food insecurity. On average, in the rural areas, 65% of the households lived in food security, 20% were confronted with low food insecurity, 9% lived in moderate

[19] Of course, there are other factors which influence the comparison of the amount spend on food of different quintiles such as the very probable fact that high-income classes buy more expensive food items or higher amounts of food products (author's note).

food insecurity and 7% in severe food insecurity. Although the conditions of food insecurity have improved significantly in all regions, there are still high rates in the Northeast with 46.1% and in the North with 40.3%, whereas in the Southeast the rate is 23% and in the South 19%. The rates of food security are determined by the household's income rates. Almost 44% of the people with a mensal per capita income up to ¼ of the minimum income lived in moderate or severe food insecurity in 2009. Indeed, there is a strong relation between food insecurity and poverty.

However, there are other influencing facts to food insecurity, such as gender aspects. The proportion of households living in extreme poverty was higher if it was dominated by a woman. Furthermore, especially black and colored people suffer food insecurity, 43.4% of this group of society, and 18.6% moderate or severe food insecurity, whereas 24.6% of the white population lived in a condition of food insecurity (CAISAN, 2011, p. 19). This data indicates that food insecurity has its roots not only in income and land concentrations which equally affect all groups of society, but also is a phenomena of social exclusion, gender and racial conflicts.

As poverty shows increased rates in rural areas, the next chapter provides a further examination of the poverty structure in rural areas.

4.1.2.3 Poverty Structure in Rural Areas

As described in chapter 2.2, the methodology for fighting against hunger contained the implementation of specific anti-hunger policies, in order to reduce poverty by increasing the farmers' income and support the rural development. This chapter describes the development of the rural poverty rates as well as of the farmers' income. For a better understanding of the rural structures, the analysis takes into consideration people living in rural areas as well as urban citizens who are occupied in rural areas. The families were separated into four different categories: family farming, industrial farming, non-rural agricultural families and rural wage-earners.

The term *family farming* is comprised of families occupied within an agricultural activity and employing up to two employees. It is not significant if they live in an urban or a rural area, if they are landowners themselves, or not. Families living in a rural or urban area, but offering jobs to more than two employees are considered to undertake *industrial farming*. People who live in a rural area but are involved in other than agricultural activities are defined to be *non-rural agricultural* families. Often they are family members of employers or self-employed. *Rural wage-earners* are employed by their rural community members and are comprised of people who live in urban or rural areas and are occupied in agricultural activities, and of those who live in rural areas but do non-agricultural activities (Del Grossi, 2011, pp. 314).

Table 4 shows that the most significant reduction in rural poverty rates was reached within family farmers. In the period from 2003 to 2009, the number of poor within this family type decreased from 7,709,000 to 3,570,000, a total reduction of 4,139,000 people, i.e. 759,000 families.

Table 4: Agricultural families or occupied rural families living in varying poverty structures.

Type of Families	Number of People				Number of Families			
	2003	**2009**	**Difference**	**%**	**2003**	**2009**	**Difference**	**%**
Family Farming	7,709	3,570	**- 4,139**	**53,69**	1,504	746	**- 759**	**50.47**
Industrial Farming[20]	0	0			0	0		
Non-agricultural Families	998	575	**- 423**	**42,38**	198	129	**- 69**	**34.85**
Rural Wage-earners	7,855	4,662	**- 3,193**	**40.65**	1,585	960	**- 624**	**39.37**

Source: Del Grossi, 2011, p. 314.

The fourth category, the rural wage-earners, refers to the highest number of poor people in Brazil, still accounting for almost 1 million poor families. Nonetheless, the number of poor rural wage-earners shrunk in the same period significantly from 7,855,000 to 4,662,000 people, i.e. 624,000 less poor families amounting to a reduction in poverty of approximately 40% in this category. A significant drop in the number of poor can also be observed within the third category, the non-agricultural farmers. In the period from 2003 to 2009, 423,000 poor people from originally 998,000 found a way out of poverty (Del Grossi, 2011, pp. 314 – 315).

In the last chapters, relevant aspects for both the amount and the access perspective were described. The next chapter gives a brief overview about important aspects regarding the diet perspective, which is comprised of food safety and relevant health aspects within consumption.

4.1.3 Diet Perspective

The diet perspective of the present work gives a brief overview on some aspects regarding food safety, sustainability and the change within consumption patterns. Changes in the population's alimentation and consumption patterns often indicate changes in traditions of production and food preparation, and are therefore clearly an aspect of food sovereignty. Furthermore, the diet perspective refers to the broad approach of food security (see chapter 3.1.3), which considers obesity, overweight and malnutrition also as a state of food insecurity.

4.1.3.1 Consumption Patterns and Malnutrition

As presented within the example of the United States in chapter 2.1.3, people with no or little income follow a certain structure in their principal behavior. They buy from their income increasingly cheap food in order to maintain a certain amount of food until they begin to eat less. The lower the amount of food consumed is going to be, the higher is the probability of suffering from deprivation or health problems. But already the group of population which in a lot of cases still does not present health problems already suffers from being unsatisfied because of not getting enough to eat (Takagi, 2011, pp. 169 – 170).

However, as studies of the program *Bolsa Familia* show (see chapter 5.1.5.6), poor families with a little increase in income tend to consume more frequently food items with a high contain in carbohydrates, such as sugar, rice, cereals, milk, industrialized products, meat, beans, oil, fruits and roots, than before

[20] As mentioned before, industrial farmers are considered to have three or more permanent employees and thus principally do not show poverty rates.

and vegetables and legumes in minor quantities (Ibase, 2008, pp. 6 – 7). This is why, especially within poor population groups, people often show a change in consumption patterns and an increasing rate of malnutrition. The present chapter presented the Brazilian poverty rates while taking into consideration the people's state of income and its modification over a certain period of time.

Therefore, in the analysis of food security, it is crucial not only to focus on energetic aspects, i.e. to solely consider if people are able to consume the minimum amount of 1800 kilocalories per day (see chapter 2.1.3), but also to include the question as to whether people have access to healthy and adequate food products. According to studies by the *Research Institute of Family Budget POF*, the consumption of carbohydrates averagely is not higher than the nutritional recommendations of the World Health Organization (WHO). But, the data indicates that the consumption of simple carbohydrates is too high in relation to the consumption of complex carbohydrates, which principally is caused by a higher consumption of refreshments, juices and other beverages with added industrialized sugar (CAISAN, 2011, p. 20).

This change in food consumption favors the development of long-term diseases such as obesity, diabetes and high blood pressure, among others. An analysis of the people's consumption patterns also shows an increase in the total consumption of fat, especially of the monounsaturated and polyunsaturated fats, which goes beyond the recommended total consumption amount (CAISAN, 2011, p. 20).

Generally, it can be observed that the alimentation in rural regions is more adequate than in urban areas, especially within the relation between consumed complex carbohydrates and fats. Foods like rice, beans and tuber vegetables indicate a decrease in consumption, an increase is observed in alimentation through biscuits, refreshments, processed and fast food. Additionally, people eat larger amounts of meat such as beef, chicken and breaded food. There is a lower consumption of fish and a minor increase in fruit consumption. The use of vegetables and legumes in the Brazilian alimentation is stable (CAISAN, 2011, p. 20).

The indicators for undernourishment and slow growth of children under 5 years for the North present the two levels of 3.3% and 14.7% respectively. In the Northeast, the indicator of slow growth is 5.8%. The percentage of children with obesity in the same age is still not significant – in contrast to children over five years – because most of them are being breast-fed and thus to some extent still protected from malnourishment (CAISAN, 2011, p. 20).[21] Measurements show that the level of children with reduced growth in households earning up to ¼ of the minimum wage is 8.2%, and those of households earning up to ½ of the minimum income present 6.8%. This is another indicator reflecting a direct relationship between slow growth and/or undernourishment and the household's income.

The national rate of undernourished adults is 3.6% for women and 1.8% for men. People above the age of 20 and with up to ¼ of the national minimum income present 5.7% of women and 3.8% of men, with up to ½ of the minimum wage 6% of the women and 3% of the men.

Additionally, the rate of obese people is of high significance within the question of food security in Brazil. 21.5% of the young men and 19.4% of the young women within the age of 10 to 19 years are overweight. The percentages are higher in the South, in the Southeast and in the Central East of Brazil (CONSEA, 2011, p. 21). Especially the percentages of obese adults are alarming. 50.1% of the Brazilian men and 48% of the women are overweight. 16.9% of the women are obese, which is a higher level than

[21] Whereas obesity among children under 5 years is still not that relevant, a high relationship exists regarding undernourishment of the mother and child mortality (A Buttha et al., 2008, p. 41). Furthermore, studies indicate that breastfeeding reduces mortality in infants and young children significantly (A Buttha et al., 2008, p. 43).

men with 12.5%. Most of them live in the South of Brazil and the lowest rate is presented in the areas with a higher rate of undernourished people, in the North and the Northeast.

Within the group of society earning up to ¼ of the minimum wage, 30.9% of men and 43.8% of women are overweight, 5.5% of the men and 15.1% of the women are obese. These levels are especially interesting in comparison with the groups of society with the highest mensal income. Here, 63.2% of the men are overweight, and 45.7% of the women. The obesity of men is significantly high at 17.1%, as also among women, at 16.8% (CAISAN, 2011, p. 21).

In the year 2008 and 2009, the first *National Inquiry of Health and Nutrition of Indigenous People* was realized by the *Brazilian Association of Post-graduation in Health Aspects* (ABRASCO). The study points out that 2.3% of the indigenous women aged 14 to 49 years are undernourished, 30.2% are overweight and 16% obese, i.e. 48.5% live in a condition of food insecurity. On a national average, 26% of the indigenous children show a slow growth – in the Northeast up to 41.1% (CAISAN, 2011, p. 21).

Another aspect of food safety and also of sustainability is the practicality of organic agriculture. Although a sustainable use of natural resources is considered to be essential in the agricultural long-term development and plays a key role within food sovereignty, detailed studies are beyond the scope of this paper.

4.1.3.2 Organic Agriculture

Organic agriculture still is not very common with farmers, and only 1.8% of the production respects ecological production methods. There is generally a very high use of pesticides and fertilizers in Brazil. The production of soya, cotton, maize, sugar cane uses 87% of the total demand of pesticides, smaller cultivations of vegetables consume approximately 30% (CAISAN, 2011, 16). The high use of pesticides in the Brazilian agriculture is an important aspect negatively influencing a healthy and adequate alimentation. In Brazil, 14 essential food products show an increased content of pesticides and fertilizers. These products are bell pepper, strawberries, grapes, carrots, lettuces, tomatoes, papaya and oranges among others (CAISAN, 2011, p. 22).

A lack of access to water also is an aspect of food security because water is an essential part of human beings. Nonetheless, the present work solely provides a brief overview about the population's access to water, because further analysis is beyond of the scope of this paper.

4.1.3.3 Water Access

The North and the Northeast of Brazil are the regions with the lowest access to water national-wide, with a supply rate of 58% and 78% of the households. The Southeast is an area with a generally very high access rate to water, which amounts to 92% of the households. This region also has the best supply of sewage systems. The Central East shows the lowest rate in available drainage systems (48% of the households). The Northeast follows with a supply rate of 55%. There is also still a very low water and sanitary supply in primary and secondary schools: only 22% of the schools in the Northeast have access to water, only 4% provide sanitary installations. In the Northeast, the rates for both are 49% and 19%, and in all other regions, with exception of the Southeast, they are below 50% (CAISAN, 2011, p. 20).

4.1.4 Reasons for Poverty

In Brazil, the high poverty rates are related to three different main aspects. First, the purchasing power of the majority of the population is very low due to high unemployment rates and low wages, which result in a low demand for food. This development was the result of the country's significant

concentration of income, which oppresses the national competition, combined with high unemployment and under-employment rates. The wages are generally very low, which finally results in low or negative growth rates. The unemployment rate within poor families is three times higher than in other classes of society. These patterns are endogenous, i.e. they depend on other variables in an inseparable way of the prevailing national economic system (Takagi, Del Grossi & Graziano da Silva, 2005, pp. 4 – 5). Thus, the first reason refers to *high income and land concentrations* (see chapter 4.1.1.1).

Second, the food prices are too high and a lot of products are not as accessible as they should be, especially for Brazilian low-income classes. Thus, the second reason refers to the *high prices* of Brazilian food items, an aspect which is related to price fluctuations due to trade liberalization. The third aspect refers to the *social exclusion* of large parts of society, especially unemployed, elderly people, children and other deprived population groups from the social protection network, which makes it difficult for them to integrate into social and economic systems (Takagi, Del Grossi & Graziano da Silva, 2005, pp. 4 – 5). Therefore, the third reason is considered to be social exclusion.

4.1.4.1 First Reason for Poverty: Income and Land Concentration

The term *income distribution* is defined as a statistical concept which presents the people's income structure regarding work, savings, and investments etc., i.e. financial issues which are the result of personal decisions interacting with the respective economy and influenced by the national tax system (Levy, 2008).

Brazil is a country with historically[22] high inequality in income and land distribution. As mentioned in chapter 3.1.2, most of Brazilian land plots (82%) have a size of up to 50 hectares but only amount to 13% of the total agricultural area. By contrast, 5% of the agricultural establishments are larger than 500 hectares and occupy 56% of the total land for agricultural production (CAISAN, 2011, p. 16). The high concentrations of land are accompanied by large concentrations of income.

The term income inequality refers to an unequal distribution of income across the inhabitants within an economy, and often is measured as the percentage of income which belongs to a percentage of the population. A high inequality is considered to prevail if a lower percentage of the population has a bigger part of a country's income and therefore is richer than the larger group of society which has a lower percentage of income. A fair income distribution would exist if the total income would be distributed in more or less equal parts over the number of inhabitants (Investopedia, 2013).

A common tool to measure a country's income distribution or expenses for consumption of individuals or households is the Gini index, which shows the deviation from a perfectly equal distribution (The World Bank, 2013).[23]

Brazil is a country with historically very high social inequalities and is ranked 17 of the worldwide most unequal countries[24] (CIA – Central Intelligence Agency, 2013). In the last two decades, due to an

[22] Brazil has a highly concentrated land-ownership structure, which has its origin in the colonial days and was intensified after the implementation of the *Green Revolution* in the 1960s and by the current model of agriculture and livestock farming (Sauer & Pereira Leite, 2011, p. 3). For further information read "Agrarian structure, foreign land ownership and land value in Brazil" by the authors Sérgio Sauer and Sergio Pereira Leite (author's note).

[23] The curve, which presents the real distribution of wealth, was developed by the American economist Max Lorenz in 1905. Beside the Lorenz curve the graph contains a diagonal line representing a perfectly equaled distribution of wealth (Investopedia, 2013). The Gini index is a coefficient which measures the distance between the Lorenz curve and the hypothetical line of perfect equality. The curve starts with the poorest individuals or household and then plots the aggregated percentages of total income against the cumulative number of recipients. An index of 0 indicates perfect equality in wealth, 1 refers to a perfect inequality.

[24] It is important to consider that the years of the Gini index generation vary among the different countries. The data generated in Brazil is from 2012. To compare, Germany, in 2006, presented a Gini index of 0.27 and is on rank 126 of a total of 136

increase in the minimum wage, a growing Brazilian economy and the establishment of cash transfers programs as *Bolsa Familia*, among others, the Gini index decreased from 0.559 points in 2004 to 0.508 in 2011 (IBGE, 2012). In the period from 2001 to 2011, the share of the 20% Brazilians with the highest income could be reduced from 63.7 to 57.7% of the total income, whereas the 20% poorest families could increase their share from 2.6 to 3.5% of the total income. However, high inequalities still persist, as the 20% richest people hold almost 60% of the country's total income in comparison to the 40% poorest, who possess 11% (IBGE, 2012).

4.1.4.2 Second Reason for Poverty: High Food Prices and Food Price Fluctuations

According to FAO, one of the most significant reasons for food insecurity is the volatility of food prices (FAO, 2011, p. 1) which are often caused by the increase of trade openness or the establishment of non-tariff barriers. The most important interrelations among trade policies and national poverty rates were presented in chapter 2.3.1, and it was shown that price fluctuations are country-specific and depend on the concerned goods as well as on national policies (Winters, 2002, p. 48).

This chapter examines the effects of price fluctuation and trade liberalization on national poverty rates in the case of Brazil. The methodology is based on the presented ten questions of Winters (see chapter 2.3.1.7), in order to give a brief overview about the most influencing factors of trade liberalization on Brazilian food prices and poverty-related issues such as employment and wages.

In Brazil, a first extensive trade liberalization reform took place in 1988 and was accompanied by significant reductions in trade barriers and limitations in tariff dispersion. Before the reform, imported goods were confronted with especially high tariff barriers and some significant non-tariff barriers. In the period from 1988 to 2005, the tariff for imports fell from 40.4% to 11.1% and caused a considerable increase in trade openness in all Brazilian states. Additionally, it led to changes in national trade protection policies and trade patterns. Studies regarding the effects of trade liberalization on Brazilian wages and employment examined that there was a downward effect of the national skill premium[25], which fell in the period from 1988 to 2004 and that trade liberalization had no equalizing effects on Brazilian income distribution.

In Brazil, the case is contrary to some other Latin American countries, for example to Mexico, because the reductions in tariffs mainly concern skilled-labor intensive industries and not low-skilled labor sectors (Castilho, Menéndez & Sztulman, 2009, p. 2). Brazil is comprised of 27 federal units, i.e. 26 states and the Federal District, and the available data provides information to both the effects of a specific state exposure to tariff cuts and to international trade and the respective impacts on poverty and inequality. The following paragraphs examine the effects of trade liberalization on Brazilian welfare, employment and poverty rates.

Studies show that within the period of increased trade openness, national welfare indicators generally decreased and that there are still high inequalities across different Brazilian states and urban and rural regions. But, it is considerable that "Brazilian states that were more exposed to tariff cuts (i.e. had a greater share of workers in industries with large tariff cuts) experienced smaller reductions in household poverty and inequality" (Castilho, Menéndez & Sztulman, 2009, p. 4). Indeed, states which were confronted more with cuts in tariffs because they show higher rates of industrial workers, were slowed

countries. The countries with the most equal distribution of income are considered to be Sweden, Slovenia and Montenegro (CIA – Central Intelligence Agency, 2013).

[25] The skill premium is the difference in the income between unskilled and skilled labor (Dictionary Central, 2013).

down in poverty alleviation, although Brazil in general showed good results regarding anti-poverty mechanisms.

Furthermore, the studies ascertained that "the effect of a tariff reduction is poverty and inequality increasing in urban areas, but inequality reducing in rural areas (there is no significant effect on rural poverty)" (Castilho, Menéndez & Sztulman, 2009, p. 4). Tariff reduction showed inequality increasing effects especially in urban areas. Furthermore, it is crucial to point out that imports generally had poverty increasing effects, whereas the growing export rates within Brazilian states basically presented positive effects on poverty and inequality alleviation (Castilho, Menéndez & Sztulman, 2009, p. 4). The following paragraphs examine the most significant effects of Brazilian trade liberalization on Brazilian poverty and inequality in a more detailed way, by answering the ten questions of Winters:

1. Will the effects of changed border prices be passed through to the rest of the economy?

A changed border price – if there is a decrease or an increase – can have significant effects on a specific household. In Brazil, the government established some mechanisms in order to protect the national economy from the passing through of changed border prices. The establishment of a minimum price guarantee is able to cushion a significant fall in prices and protect sellers from severe profit losses. The implementation of food stocks can maintain the demand at specific prices and thus prevent the passing through of increased prices from foreign countries over a certain period of time. In the middle of the 1990, the first public investments to family agriculture were launched. In 2003, debates about the establishment of food stocks and of a *Policy to Guarantee a Minimum Price* (PGPM) were reorganized in order to assure budgetary and financing resources for the investments, by establishing a minimum price for Brazilian farmers (CAISAN, 2011, p. 25).

Within the last decades, both policies came into effect twice. During the harvest of the years 2003/2004, the minimum prices were realigned by a renewal of public stocks. In 2008/2009, during the global food crisis, the Brazilian government partially regulated the prices for products such as rice, wheat and maize through the *Policy to Guarantee a Minimum Price*. In recent years, more products were included to the PGPM, especially food products which are used for the extraction of substances, like acai, the babaçu palm, the baru nut, the carnauba wax palm, the Brazil nut, mangaba, pequi (souari nut), piaçava and the umbu fruit, among others (CAISAN, 2011, p. 25).

Moreover, the policy was extended by the establishment of a minimum price especially for indigenous people and tools were aggregated in order to enable the commercialization of their products for the *Food Acquisition Program* (PAA). This included an extension of the capacities to act and react for family farmers through a fairer distribution of resources for production, a more equal regional distribution and a broader allocation for the indigenous citizens and communities (CAISAN, 2011, p. 25). In both cases, the Brazilian government could cushion the transmission of significant price shocks and – in combination with an essential support of the comprehensive established food security and anti-poverty mechanisms – prevent an increase in national poverty rates.

Especially one of these established anti-poverty strategies needs to be considered. Family farmers were integrated into regional markets. It was guaranteed to them that their locally produced goods would to be preferably demanded over imported goods, because at least 30% of the food products needed for state purposes (e.g. for the school meal program) are guaranteed to be purchased from local family farmers by law, in order to stimulate and maintain local supply (MDA.gov.br, 2008, p.3). This mechanism does not protect economies directly from price shocks due to trade liberalization, but generally decreases the people's vulnerability.

There are some food products which showed more significant variations in prices in the past – such as wheat flower, milk, French bread, beans, sugar and meat (CAISAN, 2011, p. 17). As mentioned before, wheat flower, milk, beans, sugar and meat are products which are an essential part of the basic food basket, so fluctuations in their prices are considered to be especially critical. Goods such as coffee, butter, potatoes, rice, bananas and oil presented more stable prices (CAISAN, 2011, p. 17).

The Brazilians are affected by price increases, but are protected by the established anti-hunger and anti-poverty strategies which generally increased the people's income. Furthermore, the Brazilian government established a couple of mechanisms in order to cushion high fluctuations in food prices. In the end, the stimulation of local production supports the supply of various domestically produced goods, which makes people more flexible within price fluctuations, because in the case of price shocks they may switch to other, locally produced food more easily.

2. Is reform likely to destroy effective markets or create them?

The establishment of trade liberalization in Brazil was accompanied by an increase in imports especially of manufactured goods and thus had mainly negative impacts on the national manufacturing industry. An increase in export of agricultural goods, by contrast, positively affected the agricultural sector where Brazil, due to its large areas of fertile land, has a big international competitive advantage (Castilho, Menéndez & Sztulman, 2009, p. 14). This is why the export of agricultural items in Brazil increased in the period from 1989 and 2004 about 551%, whereas there was slow growth in industrial products of about 168%. The import situation shows the contrary situation; the import of agricultural products increased about 36%, whereas the imports of industrial goods show 268% growth (Castilho, Menendez & Sztulman, p. 21). Therefore, trade liberalization in Brazil had contrary effects on the Brazilian markets and poverty rates, partially *destroying* or slowing down existing manufacture industries and *creating* or supporting the export of agricultural goods.

3. Is reform likely to affect different household members differently?

The Brazilian opening of trade markets had distinguishing effects on differently located households; especially positive influences on rural households which were involved in agro-industries, and partially negative influences on the manufacturing sector. Within this research no evidence was found for distinguishing effects on different household members.

4. Will its spillovers be concentrated on areas/activities on relevance to the poor?

Profits from trade liberalization in Brazil did not have any equalizing effects and thus did not contribute to poverty alleviation. In contrast, studies show that especially those Brazilian states which were confronted with more tariff cuts showed a slowdown in poverty reduction and income distribution than those with prevailing less affected economic sectors (Castilho, Menéndez & Sztulman, 2009, p. 18). Moreover, it is crucial to stress that there is a difference in the effects of trade liberalization in Brazil among rural and urban poverty rates. The impacts of tariff reduction result generally in an increase in inequality in urban areas and a decrease in rural regions, whereas not having direct positive effects on poverty reduction (Castilho, Menéndez & Sztulman, 2009, p. 19). One reason could be that urban workers mainly were negatively affected because of principally working in the manufacturing sectors, such as automobiles, apparel and textiles. The mining sector shows the lowest cuts in tariffs, the agricultural sector indicates an average tariff (Castilho, Menéndez & Sztulman, 2009, p. 6). In the end, due to large areas of fertile land, Brazil reached a significant increase in the export of food products, but respective profits favored rural agribusiness and had no direct poverty alleviating effects.

5. What factors are used intensively in the most affected sectors and what is their elasticity of supply?

The development in recent decades in Brazil showed that until 2005, trade liberalization did not have any equaling effects on national wages (Castilho, Menéndez & Sztulman, 2009, p. 4). One reason could be that reductions in trade tariffs generally were realized within industries intensive in skilled workers and thus did not focus on an integration of the poor, whose labor supply mainly contains low skill capacities.

Furthermore, Brazilian trade liberalization did not favor transitions of informal workers to formal employees with higher wages, but resulted in more informal work and unemployment by especially presenting "labor displacements from import competing industries in the 1990s, but neither comparative-advantage industries nor exporters seem to have absorbed trade-displaced workers for years" (Castilho, Menéndez & Sztulman, 2009, p. 13). The opening of trade markets in Brazil caused unemployment and led people to switch to informal work. Workers who lost their jobs generally were not integrated into trade-gaining labor markets. An analysis of the respective factor's elasticity of supply is beyond the scope of this paper, but it can be summarized that these tendencies favored a growth in poverty rates, especially in urban areas.

Urban citizens, as previously explained, generally are more vulnerable to fall into poverty after the loss of a job than rural citizens. This might be because interpersonal relations within rural areas are generally stronger than in cities and people may remain more protected by their families and other social relations within the communities. If there is a price change affecting manufacturing workers and leading to job losses, people might be socially excluded and fall out of the urban economic structures more quickly. If people lose their jobs and there is no social system available to protect them from poverty, they might also lose their home and be obliged to live in urban slums[26].

Furthermore it is important to consider that in Brazil and in Mexico people often live in conditions of food insecurity, but possess their own home, which is transmitted from generation to generation from one family to another. This is traditionally still more frequent within rural areas. Additionally, it is supposed to be easier to purchase food in rural areas through e.g. changes of labor or in-kind transitions among families than in urban areas, where food often can only be obtained in commercial supermarkets. In the end, and if there is no social net, the unemployed people enter the vicious circle of poverty and hunger.

6. Will the reform actually affect government revenue strongly?

When a government cuts tariffs, it can result in a decrease in government revenue, but generally trade liberalization negotiations show long-term positive revenues for a country. If this is not the case and a trade reform affects the national economy negatively, it may be balanced by an increase in taxes or a decrease in social government spending, and thus provoke higher poverty rates than before (Castilho, Menéndez & Sztulman, 2009, p. 5). In Brazil, the first widespread reduction in trade barriers and a limitation in tariff dispersion took place in 1988 because of a comprehensive liberalization reform. As mentioned in the introduction of this chapter, during the period from 1988 to 2005, Brazil opened its

[26] Generally, differences between urban and rural poverty exist. Urban poverty is principally associated with a lack in social services, low education, insecure labor, low wages, informal abodes and so forth, whereas rural poverty has a closer connotation with geographical remoteness, social exclusion and lacks in the access to food (Torres Salcido, n.y., p. 49).

markets considerably and the tariffs fell from 40.4% to 11.1% on average (Castilho, Menéndez & Sztulman, 2009, p. 6). These reductions in tariffs surely resulted in decreasing government revenues.

7. Will reform expose the poor to greater risk?

A respective risk analysis regarding Brazilian trade liberalization must be separated from the effects of export and import processes. As mentioned before, the latter plays a significant role in increasing poverty rates in all Brazilian states, whereas "growing export exposure appears to reduce both poverty and inequality quite significantly" (Castilho, Menendez & Sztulman, p. 6). This indicates that Brazilian trade liberalization processes exposed at least some specific groups of society to a greater risk, especially affected workers from the manufacture industry set up in urban regions (Castilho, Menendez & Sztulman, p. 18). This is why – among others – the greatest impacts of Brazilian trade liberalization are not principally observed among the poorest of the poor, who are often located in rural areas.

8. Does the reform depend upon or affect the ability of poor people to take risk?

As mentioned in the theoretical chapter about trade liberalization, especially the first periods of trade liberalization reforms should be accompanied by adjustment strategies in order to help the poor and unemployed people to integrate into the market. Brazilian trade liberalization includes high amounts of agricultural exports, which are mainly produced in monocultures and large production areas. Family farmers, possessing small land plots are usually not integrated into the production for export. By contrast, trade liberalization provoked transitions to informal jobs and increased unemployment rates. Reform especially limited the ability to take risk within those groups of people which were affected by job losses.

9. Will the reform stimulate growth? Will the growth be particularly unequalizing?

Brazilian trade reform stimulated the export of agricultural goods, but did not favor a decrease in inequality. Moreover, especially production factors influenced by import processes and, within states, with sharper reductions in tariffs presented lower results in the fight against poverty and inequality, whereas rural regions were less affected than urban areas.

10. Will transitional unemployment be concentrated on the poor? Will it be deep or long-lived?

The unemployment resulting from trade liberalization is concentrated within the manufacturing sector. Thus, the resulting unemployment and job transitions were more concentrated on urban citizens than on rural people and did not affect the poorest of the poor. This type of caused unemployment regularly was not transitional: this means the people did not lose their jobs for a short time in order to enter a better one with the option of more income within in a short time period. Unemployment was an unintended side effect of trade liberalization.

The Brazilian example indicates that trade liberalization reforms can have contradictory influences on poverty and national inequality rates, and the question whether an established reform exposes the poor to a greater risk or not, is not easy to answer and requires a case and country-specific analysis. In Brazil, trade liberalization negatively affected poverty and income inequality, but a considerable increase in export and simultaneous anti-poverty policies had a positive and protecting effect on the same.

4.1.4.3 Third Reason for Poverty: Social Exclusion

Social exclusion is a term which is difficult to determine and includes wide-range meanings within different contexts. According to the *WHO Social Exclusion Knowledge Network*

> exclusion consists of dynamic, multi-dimensional processes driven by unequal power relationships. These operate along and interact across four dimensions – cultural, economic, political and social – and at different levels including individuals, groups, households, communities, countries and global regions. Exclusionary processes contribute to health inequalities by creating a continuum of inclusion/exclusion (SEKN, 2008, p. 36).

The mentioned continuum of inclusion or exclusion always is accompanied by a specific unjust distribution, albeit regarding available resources, capabilities or human rights. To reach social inclusion, strategies should have the objective to provide fundamental conditions in order to meet and exceed basic needs, to enable people to participate within social systems, to respect and value diversity, to assure human rights and conditions of peace as well as to sustain respective environmental systems (SEKN, 2008, p. 36). Social exclusion refer to all the people which lack of an access to social installations because they are living in remote areas. Furthermore, especially the Brazilians living in extreme poverty are vulnerable to social exclusion, because a lack in the access to food prevents them to participate in other social systems related to education, labor markets and health installations, for example.

The next chapter presents the recent Brazilian anti-hunger and anti-poverty policies, which principally consist in the program *Fome Zero* and the superseding *National Food and Nutrition Security System and Policy* (Pnsan).

4.1.5 Fome Zero and the National Food and Nutrition Security System and Policy (Pnsan)

In the last decade, food and nutritional security has been one of the key issues of the political agenda in Brazil (Chmielewska & Souza, 2011, p. 5). The first fundamental established strategy in order to improve the national food security was *Fome Zero*, which was initiated and implemented during the two consecutive terms of the Brazilian president Luiz Inácio Lula da Silva (2003 – 2011). The objective of this program was to reach those people who suffer social and economic exclusion and do not have sufficient income to get adequate food (Da Silva, Del Grossi & De Franca, 2011, p. 21). *Fome Zero* was developed over one year in collaboration with experts, NGO representatives, research institutions, organizations and social movements, also engaging trade unions, association, universities, schools, churches and entrepreneurial organizations, among others. Another central step was taken when the access to sufficient and qualitatively adequate food became a law in 2006 and later was declared a citizen right in 2010. These events considerably strengthened the question of food and nutritional security as political issue in Brazil and favored a comprehensive governmental intervention (Lula da Silva, 2011, p. 13). The guarantee for access to sufficient and adequate food officially became state responsibility.

It is important to consider that *Fome Zero* is a name given to a couple of strategies which were established under Lula da Silva's presidency (2003 – 2011), and is not a program itself. After the switch in presidency from Lula da Silva to Dilma Rouseff, various changes in the Brazilian food security strategy took place. The strategies under the program *Fome Zero* were reformed and are now partially integrated into the *National Food and Nutritional Security Policy*[27] (Pnsan). Here, various governmental sectors worked together with civil society participation, including the following main institutions:

[27] Some of these reformed strategies are the *National Program for the Strengthening of Family Farmers* (PRONAF), the *Technical Assistance and Rural Extension* (Ater), the *Program of Minimum Price Guarantee for Family Farmers (*PGPAF*)*, the *Family Agriculture Food Acquisition Program* (PAA), the *National School Meal Program* (PNAE), the *Policy to Guarantee a Minimum Price* (PGPM), *Bolsa Famila* (PBF) and the *Worker's Food Program* (PAT), among others (CAISAN, 2011, pp. 23 – 30).

- ***Caisan:*** The Inter-Ministerial Chamber on Food and Nutritional Security
- ***Consea:*** The National Council on Food and Nutritional Security
- ***Cnsan:*** The National Conferences on Food and Nutritional Security

In 2010, the collaboration of these main institutions created the fundament for a decree which implemented *Pnsan*, included further regulations on the *Food and Nutrition Security Organic Law* (Losan) and provided guidelines for the *National Food and Nutritional Security Plan*. The main objective of *Pnsan*, actually, is to "promote food and nutritional security and to ensure the human right to adequate food" (Chmielewska & Souza, 2011, p. 5).

As the Brazilian experience is exemplary regarding a successful inclusion of civil society and democracy processes into food security policies, the following chapter provides a closer look at the three established main institutions.

4.1.5.1 The National Council on Food and Nutrition Security (Consea), the Interministerial Food and Nutrition Security Chamber (Caisan) & the National Conferences on Food and Nutritional Security (Cnsan)

Over the last 20 years, Brazilian civil society, social organizations, networks and movements, public managers and researchers mobilized to establish networks and to create a specific and responsible organization in order to promote the *Human Right to Adequate Food* (DHAA)[28] and to focus on national food sovereignty and food and nutrition security. The new institution was proposed to combine a *National Food and Nutrition Security System and Policy* (Pnsan) and social participation in order to improve the drawing up, the implementation as well as the monitoring of established anti-hunger strategies and respective actions. Therefore, from its beginning in 1993, *Consea's* establishment was supported and recognized by a broad and strong social movement (Maluf, 2011, pp. 267 – 268), but started with little capacity to influence social policies. Within this first implementation, *Consea's* activities lasted only until 1994 (Maluf, 2011, p. 269). It was resumed in 2003 and significantly strengthened within the two periods of the Lula administration (Maluf, 2011, p. 267).

The institution's membership consists of representatives from the federal administration and civil society. It is the responsible body for social participation and democracy processes regarding food and nutrition security. It has the objective to express the varying opinions of different positions and stakeholders, to deal with conflicts within government and society and between existing agreements, to develop proposals for public policies, to provide technical competencies and to preserve the autonomy of civil society organizations as well as the government's responsibilities, among others (Maluf, 2011, p. 267).

Consea is formed by one third of governmental representatives, i.e. 19 state ministries and respective secretaries related to food and nutrition security. The other two third consists of representatives of civil society, i.e. participants of 38 civil society organizations as NGO's, social movements, religious institutions and professional associations, which are chosen and approved within the preceding conferences. Other federal councils, international organizations, international cooperation organizations and the *Federal Prosecutors Office* are represented within *Consea* as a specific type of observers. A plenary session of the council proposes *Consea's* chair from the civil society and is finally nominated by Brazilian's president (Maluf, 2011, p. 273).

[28] The *Human Right to Adequate Food* (DHAA) in Brazil requires the definition of public policies in order to "protect, promote and provide human rights. The food and nutrition security policies and other programs interrelated are on the government actions to ensure the realization of DHAA" (Consea, 2010, p. 22).

Consea, principally, is a platform for social participation, responsible to directly advice the president, and – at the same time – a controlling body of the public policies and the *Interministerial Food and Nutrition Security Chamber* (Caisan), which is an intersectoral governmental establishment connected to the cabinet of the *Ministry of Social Development and Hunger Combat* (MDS)[29]. *The System of Food and Nutrition Security* applies the same mechanisms as *Consea* (Maluf, 2011, pp. 272 – 273).

Caisan, the *Interministerial Food and Nutrition Security Chamber* is a strong governmental establishment in charge to transfer *Consea's* proposals into governmental policies. Civil society representatives are not part of it, but it consists of the same 19 ministries represented within *Consea* and is coordinated by the *Ministry of Social Development and Hunger Combat* (MDS).

Another part of the *National Food and Nutrition Security System* is the *National Conferences on Food and Nutrition Security*[30] (Cnsan). Today, it takes place over a four-year period, involving thousands of people. The national conferences are preceded by state, district and municipal conferences where delegates are selected to participate in the national conferences in order to represent and address specific topics and areas or actions of interest. The national conferences set the guidelines and the priorities and evaluate the most important proposals in order to adopt them as activities of *Consea* and *Caisan*. In past nine years, three conferences took place in Brazil and each of them mobilized over 2,000 persons from civil society and government representatives (Maluf, 2011, p. 273).

As described in figure 6, *Consea* is additionally responsible to transmit the conferences' results into proposals for the *National Food and Nutrition Security System and Policy* (Sisan and Pnsan), which in a next step is transferred to *Caisan* for its perusal. Brazil is a Federative Republic in which states and municipalities are involved in the establishment and the financing of public policies. This is why each of the institutions and agencies has to be represented at both municipal and state level. *Consea* is already represented in each of the 27 Brazilian states as well as at federal and municipality level. Until 2011, the council was embodied within 600 of the in total 5,564 municipalities (Maluf, 2011, p. 275). In the case of a proposal it has to be formalized by the national level confirming the state and municipal's participation and adhesion to a *National Food and Nutrition Security Policy* (Pnsan).

Figure 6 shows the system's structures and related functions:

[29] In 2003, the Brazilian government created the *Extraordinary Ministry of Food Security* (Mesa). This institution was transformed into the *Ministry of Social Development and Hunger Combat* (MDS) in 2004 (Chmielewska & Souza, 2011, p. 5).
[30] In 1994: Hunger, a national issue; in 2004: Establishment of a *National Food and Nutrition Security Policy*; in 2007: For a *Sustainable Development of Food and Nutrition Security and Sovereignty*; in 2011: *Adequate and Healthy Food: Right to Everybody* (Brasil.gov.br, 2011a, p. 14).

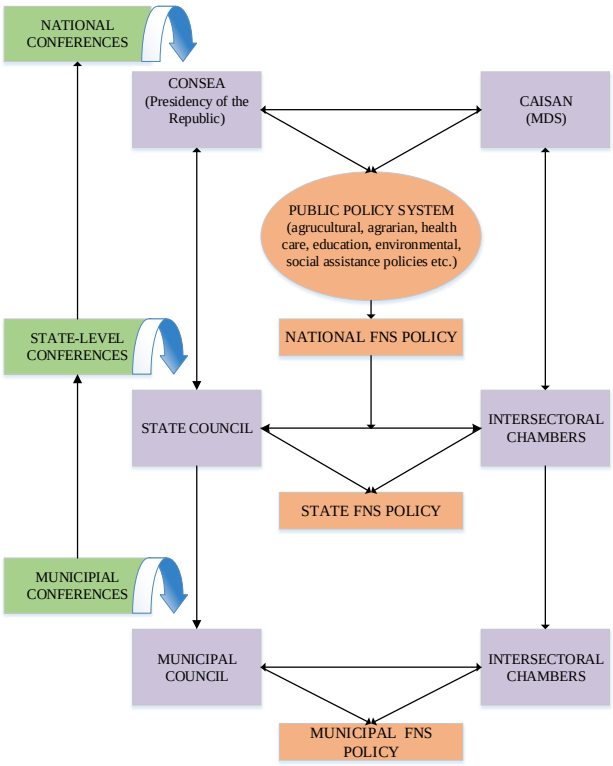


Figure 6: National Food and Nutrition Security System and Policy.
Source: Maluf, 2011, p. 274.

One of the most important outcomes of the collaboration between *Caisan* and *Consea* was the *Food and Nutrition Security Organic Law* of 2006 (Losan, law n. 11,346). The mentioned law provided the legal framework (CAISAN, 2011, p. 11) for the creation of the *National Food and Nutrition Security System* (Sisan) and the *National Food and Nutrition Security Policy* (Pnsan). In 2010, the law became a social right and was anchored in the Brazilian Federal Constitution (CAISAN, 2011, p. 15). Additionally, *Consea* – in civil and governmental partnership – initiated the national campaign *Alimentação: um direto de todos* (food: a right to all people).

> This campaign led the National Congress to promulgate Constitutional Amendment n. 64/2010, which included the right to food in the list of social rights provided for in article 6 of the Constitution, such as the right to education health care and housing, among others (Maluf, 2011, p. 271).

The campaign initiated by *Consea* included the people's right to food into the Constitution, and thus obliged the State to ensure adequate food in sufficient quantity and quality to the Brazilian population through permanent strategies in participation of the three government spheres[31] and society commitment (Maluf, 2011, p. 271).

There were two other significant methodologies developed by *Consea*. The first one focuses on the monitoring of the real implementation of the people's right to adequate food. Therefore, the council initiated the calculation of indicators generating data within four areas of research:

- Social integration and participation
- Implementation of universal and indivisible rights
- Preservation of the already achieved results and an efficient management of natural resources
- Accountability of *Sisan's* elements

[31] Legislature, judiciary, executive (author's note).

The monitoring of indicators regarding the right to adequate food is based on data about inequalities between different classes of society and focuses on more vulnerable groups of the population. The seven indicators of monitoring have been developed related to the specific policies and refer to:

- Food production
- Food availability
- Income/access to and spending with food
- Access to adequate food
- Health care and access to health services
- Education
- Public policies

The second methodology developed by *Consea* contains the idea of a *Subsystem for indicators, budget and monitoring* as monitoring part of *Sisan* and proposes to combine first the two components – indicators and budget – and second the availability of detailed information in different governmental sectors as well as in respective institutions of research. The establishment of this subsystem would have the objective to improve the system's transparency by the provision of detailed information regarding data, treaties, laws and rules among others to its different stakeholders within the different areas and levels, and thus be a tool including both public management and social control, creating closer relations between these two elements, generating similar positive effects as within *Sisan's* other parts. It would have the potential to prevent conflicts by the involvement of different stakeholder requests, as the public manager could use it for the improvement of the system's structure and – at the same time – the society could exert social control (Maluf, 2011, pp. 278 - 279).

The combination of the *National Food and Nutrition Security System and Policy* (Sisan and Pnsan) contains a conceptual development of a systematic approach to *Food and Nutrition Security* and has three mayor advantages. First, it identifies interdependencies and relationships between its components and mechanisms. Second, it generates positive synergetic effects among them and third, it prevents conflicts by evolving the strategies including contradictions of present economic, social and political structures into its process. Therefore, the policies and actions regarding food and nutrition security are designed, implemented and monitored based on its inter-sectoral and integrative character, i.e. they are planned and established including the government, social organizations, and other sectors of interest, strengthening the relations between them (Maluf, 2011, p. 272).

Sisan is the result of an integrated inter-sectoral collaboration tying into bundles the ideas, proposals and public actions of different levels, stakeholders and sectors in order to transfer them into national food and nutrition security policies. Therefore, and because the programs are sectoral and principally financed by their own funds, *Sisan* itself is a very complex system with little autonomy because it depends from the coordination of its mechanisms and does not manage the programs independently. It is based on two principal guidelines: The first one is the inter-sectoral character of its actions, policies and programs. The second one refers to social participation and is an example for "participatory democracy in the drawing up of policies in different areas in Brazil" (Maluf, 2011, p. 275).

Consea was established as a council in charge to advise the Brazilian president and to develop proposals within *Food and Nutrition Security*, but not provided with a mandatory ability for the Executive Branch (Maluf, 2011, p. 280). Therefore, when it was resumed in 2003, *Consea* achieved various successes but at the same time developed proposals which finally were not established. Part of its successful work was its participation as a forum within the establishment of the *Family Agriculture Food Acquisition Program* (Pronaf) where in addition a special plan for harvest for family farmers was developed.

Another success was the selected group of civil society and government representatives who together drew up the *Food and Nutrition Security Organic Law* (Losan). Other successful proposals were the development of a per capita amount allocated to the school meal program and the council's participation in the preparation of a bill for an advanced law regarding the same program, as well as some established improving mechanisms for the *Bolsa Familia* program. Not applied, e.g. was its proposal for an increased precaution in the production of genetically modified food and in the development of respective marketing strategies as well as the national adoption of a food supply policy consistent with food and nutrition security requirements (Maluf, 2011, p. 282).

4.1.5.2 Costs & Financing

The *National Food and Nutrition Security System and Policy* refer to two different kinds of expenses. First, it includes the financing of respective conferences, councils, inter-sectoral agencies and other activities related to the governmental sector, i.e. specific actions that maintain and manage the system's elements and mechanisms. The second type contains the expenses of agencies responsible for the implementation of public programs. In order to improve the respective financing structures, *Consea* established a methodology for a better presentation of proposals in combination with a control system regarding the implementation process in relation to financial aspects of the Federal Budget. The multi-year plan, from 2008 to 2011, presented 18 blocks of different food and nutrition security topics. It included 43 programs as well as a total of 149 specific actions.

Finally, 17 different programs comprised of 65 actions of priority within 15 topics were defined which are presented in table 5:

Table 5: 15 different *Food and Nutrition Security* topics and the total budget from 2005 to 2009.

Topics		**Food and Nutrition Security Budget**	
		Year	**R$ (billion)**
1. Agro-food supply	2. Access to food	2005	14
3. Cash transfer	4. Structuring actions	2006	14.6
5. Family farming – *Harvest Plan* and *Food Acquisition Plan*	6. *School Meal Program*	2007	15.6
7. Healthy food habits	8. Biodiversity and traditional populations	2008	18.9
9. Policy management (Sisan)	10. Fisheries and aquiculture	2009	20.3
11. Agrarian reform, land regularization and conservation units	12. FNS for black populations		
13. FNS[32] for indigenous people	14. FNS in the semi-arid regions		
15. Sanitary surveillance			

Source: Maluf, 2011, p. 278.

Table 5 shows that during the period from 2005 to 2009, the total expenses for national food and nutrition security for actions and policies within the 15 different topics increased by 31% from 14 to 20.3 billion R$.

For the second phase of the project *Bolsa Famila*, for the period from 2010 to 2015 were calculated total costs of about 10.215 billion US-$, from which the *Federative Republic of Brazil* borrowed 0.2 billion US-$ from the *International Bank of Reconstruction and Development* (The World Bank, 2010b, p. vi).

4.1.5.3 Framework and Objectives

Within the establishment of *Fome Zero*, it was considered that hunger and poverty must be fought by two different approaches. The first one is *structural* mechanisms which are supposed to be long term policies, i.e. a better infrastructure, solidarity of the overall society to fight against social exclusion, a redistribution of income, the generation of employment and the improvement of conditions for production among others. But, as structural changes need more time in order to generate positive effects, they have to be accompanied by policies directed to immediately help people in need. The second approach therefore includes the establishment of *emergency* or *compensatory* policies (Lula da Silva, 2011, p. 14). Both strategies – of structural and emergency nature – are important to achieve sustainable results. The sole establishment of compensatory policies without improving the country's structural fundament could not – in the long term – improve the people's poverty conditions (Lula da Silva, 2011, p.14).

The achievement of food security is complex and related to a lot of varying difficulties regarding local or national social, economic or political issues. Therefore, in order to fight against hunger, various strategies working within different aspects and diverse areas are necessary. Of the strategies presented in figure 7, none is sufficient to achieve food security by itself. Here, *Fome Zero's* actions to improve food security are divided into structural, specific and local policies. The local policies are considered to be part of the specific strategies which refer to the above mentioned emergency or compensatory

[32] Food and Nutrition Security (author's note).

strategies. Of course, strategies such as the *Agrarian Reform Intensification* are structural, but focus at the same time on rural regions.

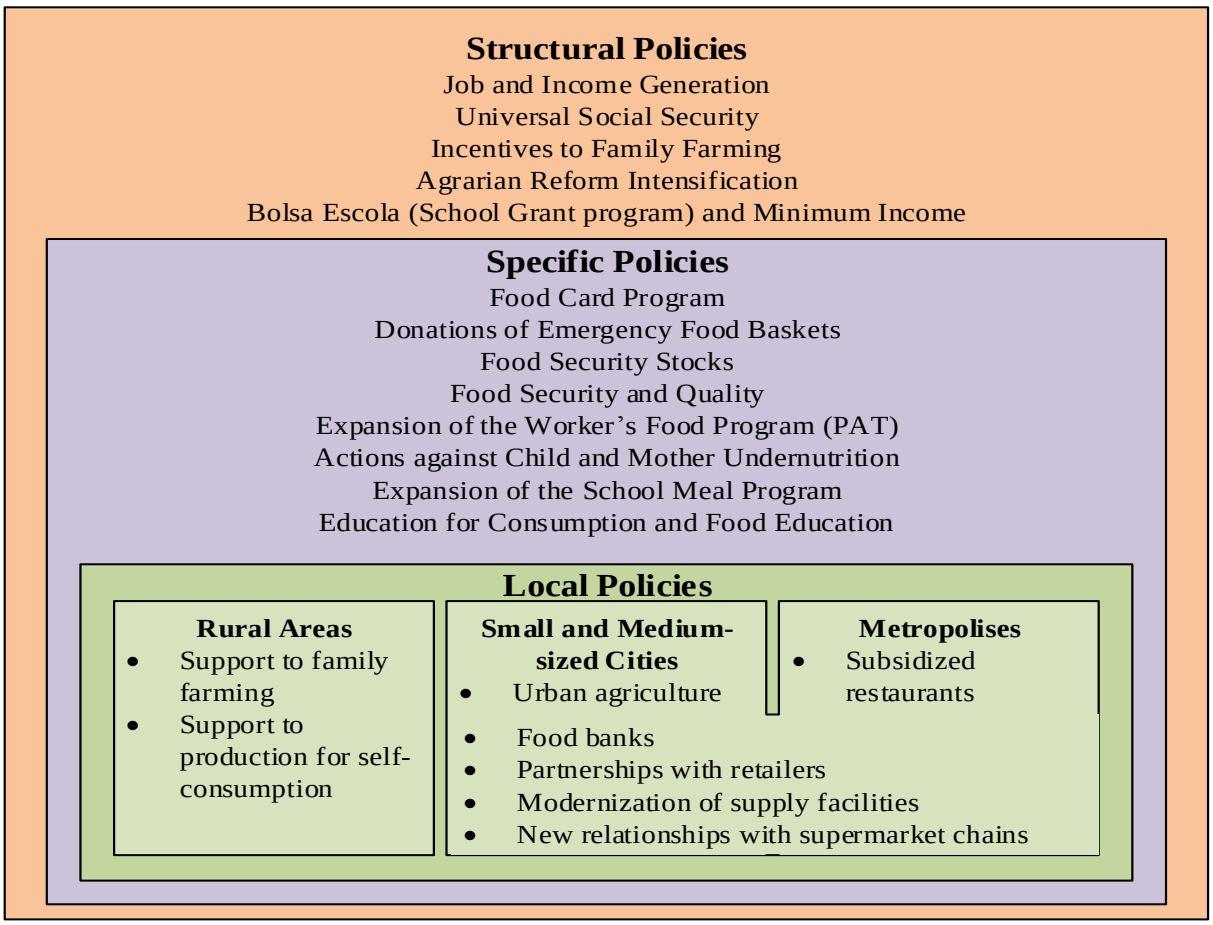


Figure 7: Scheme of *Fome Zero's* proposal.
Source: Da Silva, Del Grossi & De Franca, 2011, p. 22.

As presented in figure 7, the strategy *Fome Zero* included more than 20 different emergency and structural policies on local and state level, in order to fight against poverty and hunger in Brazil. As mentioned in chapter 2.3, there are many different factors influencing poverty and hunger. In Brazil, three main reasons to poverty were identified. Therefore, the next chapter aims at assigning the above presented strategies to the respective reasons, in order to show where the strategies of *Fome Zero* were implemented and which results they showed.

4.1.5.4 Counteracting Income and Land Concentration

This chapter presents the *Fome Zero'* strategies which were established in order to counteract income and land concentration, which – among other strategies – achieved the reduction in the Gini index of about 0.051 points. As presented in figure 7 above, *Fome Zero* includes structural, specific and local policies, which are presented in the following paragraphs.

The structural policies of *Fome Zero* and *Pnsan* for counteracting land and income concentration contain e.g. *Incentives to Family Farming*, which provide farmers a reimbursement of harvest losses due to extreme climate events, technical assistance and micro credits, among others. *Policies designed to generate jobs and increase the income* have the objective of decreasing social inequalities within the Brazilian society by establishing a minimum wage, counteracting seasonal unemployment and supporting the (re)entry of young people and those above 40 years in labor markets. Additionally, institutions provide micro credits for consumers and the overhauling of educational installations and

respective infrastructure. Strategies as the intensification of the *Agrarian Reform* and the *Legal Land Program in the Legal Amazon Region* have the objective to equalize land concentrations by the distribution of available land for family farmers and by legalizing occupied land plots in order to reduce land conflicts.

The strengthening of family farmers in Brazil is an essential part within poverty reduction. This is why the following paragraph provides a closer look at respective strategies.

Fome Zero and *Pnsan* include eight structural policies with the focus to fight against hunger and poverty within rural regions. Four structural policies are considered to be *Incentives to Family Farming*, which are first, the *National Program for the Strengthening of Family Farmers* (PRONAF), second, the *Income and Climate Insurance for Family Farming*, third, the *Family Agriculture Food Acquisition Program* (PAA) and, fourth, the *Harvest Insurance*. Additionally, the program was complemented by four policies to support a sustainable rural development (Del Grossi, 2011, pp. 310 – 313). These contain the intensification of *the Agrarian Reform*, in 2009, the establishment of the *Legal Land Program in the Legal Amazon Region*, the *Technical Assistance and Rural Extension* (Ater) as well as *the Territories of Citizenship Program* (CTP), which was launched in 2008.

Figure 8 gives a brief outline of the eight presented strategies and the respective objectives.

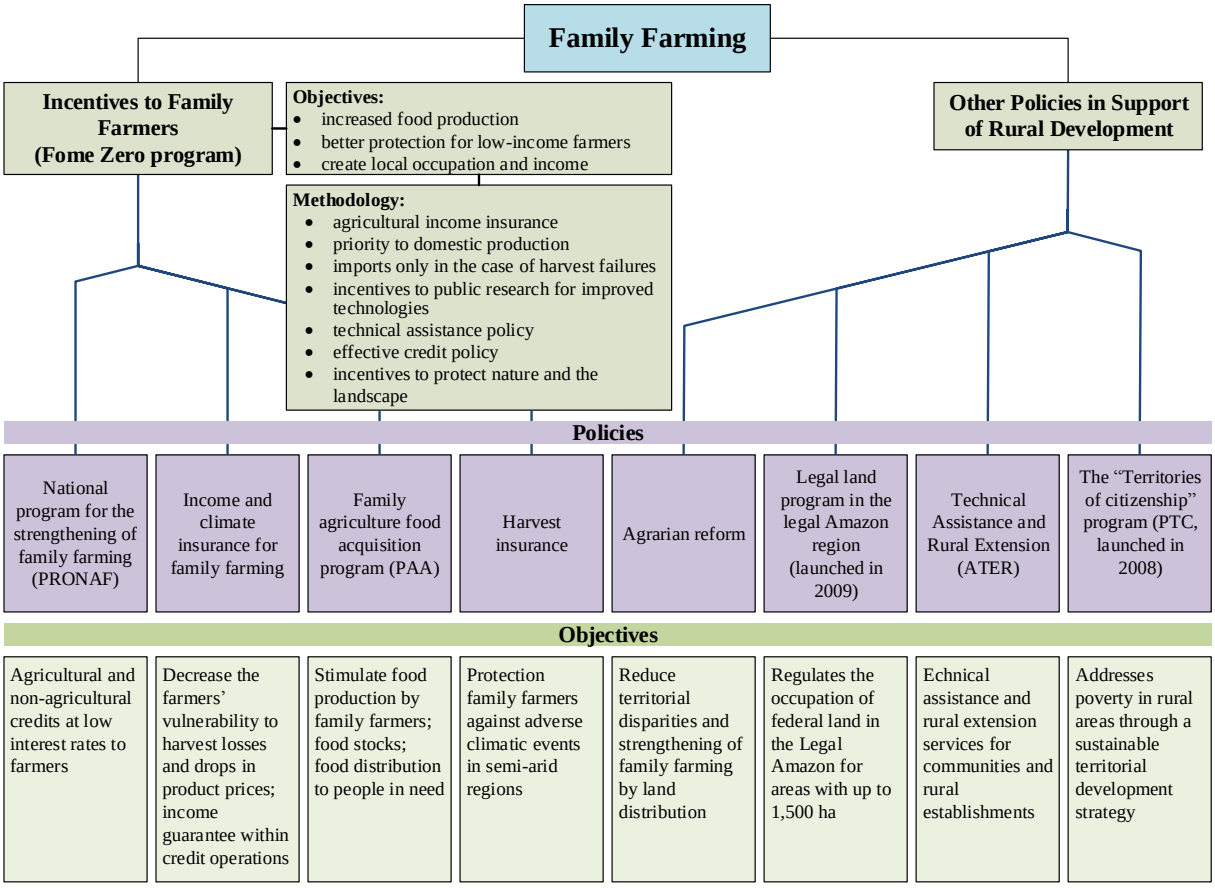


Figure 8: Overview of family farming and the eight established main strategies.
Source: Own illustration.

These eight strategies principally aim at increasing the families' income through the distribution of land, among others, and thus at establishing a positive cycle between occupation and income. An increased income, in turn, is supposed to increase local demand and thus to reduce poverty rates.

Additional specific strategies to support rural areas by *Fome Zero* and *Pnsan* were established. City halls, state governments and the federal administration are encouraged to purchase the needed food items for school meals, day-care centers, hospitals, low-cost restaurants etc. from local family farmers. Parallel activities aim at providing *Technical Assistance and Rural Extension* for family farmers and at reestablishing the *National Program for the Strengthening of Family Farming* (Pronaf) in order to improve the accessibility of credits to low-capitalized farmers. Additionally, the governments from the state and the municipal level guarantee funds to support microcredit associations (Da Silva, Del Grossi & De França, 2011, p. 34). *The Territories of Citizenship Program* (PTC) is aiming to mobilize citizens to integrate rural people in order to counteract poverty and social exclusion in rural regions. The support of production for self-consumption includes the donation of input factors to agriculture and family farmers in order to get a protection from harvest losses due to extreme climate events by the *Harvest Insurance*. The *Food Acquisition Program* (PAA) supports the demand of locally produced food items and implements food stocks in order to balance an increase in food prices in the case of harvest losses.

Another action is to support small farmers in the marketing of their agricultural products. They become related with companies that are interested in buying regional agricultural products on a small scale, help to clean production schemes, or increase the availability of spaces in traditional supply facilities that are already available in cities (fairs and small grocery outlets).

Investments into rural infrastructure are crucial to increase rural employment and to achieve a more efficient and low cost intensive use of municipal facilities and available natural resources. Basically, municipalities are responsible for the construction of bridges, rural roads, ponds, storages and the purchase of transporting vehicles such as trucks, but in reality, they often do not consider the needs of small farmers (Da Silva, Del Grossi & De França, 2011, p. 35).

In small- and medium-sized cities and metropolises, strategies such as the *modernization of food supply facilities and the strengthening of relationships between food suppliers and supermarkets and between municipalities and supermarkets* have the objective of improving the marketing and logistic of locally produced food products and intensifying the cooperation within supermarket chains. Urban agriculture is a valuable tool for supporting food production and counteracting urban poverty and food insecurity. Box I presents further information regarding the strategies which were established in order to counteract income and land concentration.

Box I. *Fome Zero* and *Pnsan*: Counteracting Income and Land Concentration

Structural policies

Incentives to Family Farming

These strategies support the traditional Brazilian food production by increasing the production of food in rural areas and thus decreasing the vulnerability of low-income farmers. The incentives are a combination of an agricultural insurance in the case of harvest losses, the giving of preference to domestic products and the only use of imports in the case of harvest failures. It includes other aspects such as the enabling of lending, the support of public research and an efficient technical assistance for family farmers. Furthermore, part of these policies is to provide financial support to protect the environment and the landscape in compulsory preservation areas, among others (Da Silva, Del Grossi & De França, 2011, p. 25).

Generation of Jobs and Increasing the Income

This strategy aims at reducing social inequalities in Brazil and therefore is a central objective of *Fome Zero* and *Pnsan.* In the beginning of the program, the national minimum wages should be raised up to 100 US-$ and temporary jobs be provided in regions with high seasonal unemployment rates. Employers were supported in helping young people for entering a first job. Furthermore, people above 40 years were enabled to participate in programs to refresh their skills in order to prepare them for an employment's (re)entry. Banks such as the *National Bank for Development* (BNDES), *Banco do Brazil* and *the Federal Savings Bank* (CEF) collaborate to improve the allocation of credits for investment and provide micro credits for consumers in order to accelerate and strengthen local production and consumption. Another part of the strategy is the overhauling of the public primary and lower secondary education, schools as well as an improvement of

the respective infrastructure especially in rural areas. In addition, it includes the recovery of a housing policy (Da Silva, Del Grossi & De França, 2011, p. 23).

Intensification of the Agrarian Reform

As shown in the preceding paragraphs, Brazilian land and income is historically concentrated favoring specific groups of people and regions for monoculture production. This strategy aims at the distribution of available land and is based on four main aspects: First, it supports the distribution of income. Second, it provides additional sources of income to families and third, it improves the access to food through self-consumption; fourth, it boosts the local rural economies (Da Silva, Del Grossi & De França, 2011, pp. 23 – 24).

Legal Land Program in the Legal Amazon Region

The Brazilian territory still contains 58 million hectares of federal public land with 158,000 non-legal occupations. The *Legal Land Program in the Legal Amazon Region* has the objective to regularize and to territorially organize these wide areas of Brazilian land. The program was launched in 2009 and, in its beginning, focused on land plots bigger than 1,500 hectares, occupied by more than 26,000 people within 261 municipalities. The program transmitted land titles to 270 occupants and thus contributed to the reduction of land conflicts. Additionally, the strategy focuses on land, which includes non-regularized federal areas as parts of municipalities in urban areas. The regular transmission of these areas to 170 municipalities will enable the official charge of taxes and facilitate the provision of social services to the citizens (Del Grossi, 2011, pp. 312).

Rural Areas

Technical Assistance and Rural Extension (Ater)

In the 1980s, the Brazilian government drastically constrained funding for rural extension and closed the Brazilian *National Rural Extension and Technical Assistance Cooperation* in 1990 (Embrater), including various state rural extension agencies (Sette & Ekboir, 2013, p. 4). In the beginning of the 1990s, the Brazilian government started to support agribusiness but was confronted by a strong countermovement promoting sustainable agriculture and an adequate management of natural resource management (Sette & Ekboir, 2013, p. 5). This was part of the social movement, which was claiming for rural poverty alleviation and food security, mentioned in chapter 4.1.5.

In 2003, *Ater* was taken up again and the services have been expanded and improved in order to assist communities and agricultural establishments, especially smallholders and middle sized farms with land plots of a size from 10 to 500 hectares (Sette & Ekboir, 2013, p. 7). From 2003 to 2009, the *Ministry of Agrarian Development* (MDA) registered 548 organizations providing 23,000 technical experts. They technically assisted 2.5 million families in all the Brazilian states and offered rural extension services, investing a total of R$ 1.5 billion (Del Grossi, 2011, pp. 312 – 313).

The Territories of Citizenship Program (PTC)

PTC was launched in 2008 with the objective to establish a sustainable territorial development strategy in order to fight against poverty in rural areas. It has the intention to mobilize social society in order to attempt integrating rural citizens into the actions of state and municipal governments and of the federal administration. In 2009, the program ran in each of the federal units, in 120 territories, 1,852 municipalities and integrated 13.1 million people living in rural areas in several actions. In total, it assisted 46% of the Brazilian population, 67% of the people settled under the Agrarian Reform program, 66% of the Quilombo[33] communities, 52% of the indigenous, 54% of the Brazilian fishermen and 46% of the farmer families. In 2009, at federal level, agencies and institutions collaborated in order to establish a matrix of 200 governmental actions and supposed to invest an additional R$ 27 billion (Del Grossi, 2011, pp. 313).

Support to Production for Self-Consumption

The support for production for self-consumption includes the donation of seeds and other input factors to agriculture such as useful tools for production by governments and city halls, in order to increase the use of vegetable gardens and breeders for raising small animals as bees, rabbits, poultry, goats etc. The use of vacant spaces for the production of food in common vegetable gardens should also be supported. The produced food items should be promoted within programs as, e.g., "farmers' fair" (Da Silva, Del Grossi & De Franca, 2011, p. 35).

Harvest Insurance

Extreme climate events such as excessive rainfalls or extreme droughts can have in particular severe effects on the poor. Especially farmers with micro-credits are extremely vulnerable to extreme climate events because they depend on profits by selling their harvest in order to settle their debts. The harvest insurance has the objective to protect vulnerable farmers from unexpected harvest losses and thus, was initiated with the federal, state and municipal governments' collaboration. It supports family farmers living in semi-arid regions that lose more than 50% of corn, beans, cotton, rice and cassava harvest. The fund provides R$ 550 to families which are affected by extreme climate events in the period until the next harvest in order to prevent family farmers from unexpected debt crisis (Del Grossi, 2011, p. 308).

[33] In Brazil, the term *quilombo* describes ancient fugitive slaves living in specific communities, where they still exclusively practice the original, African cultures and religions. Some of these communities have transformed into villages living from subsistence farming and only rarely operating commercial activities. Various registered quilombos still exist in all Brazilian regions, but more do frequently in Alagoas, Bahia, Pernambuco, Goiás, Mato Grosso, Minas Gerais, Pará, Rio de Janeiro and São Paulo (História Brasileira, 2009).

Food Acquisition Program (PAA)

The program *PAA* has the objective to support the local food production of family farmers, to implement food stocks as well as methods for food distribution to people in need and to different institutions as schools, hospitals and charities (Del Grossi, 2011, p. 308).

Small- and Medium-sized Cities & Metropolises

Modernization of Food Supply Facilities

Food supply facilities like small grocery stores should be used as a feasible tool in order to lower food prices. Facilities for a central food purchase and distribution, which are located in the outskirts of metropolitan regions should receive assistance in the support of concessionaires and small retailers regarding marketing and logistics. In turn, they must provide the population with basic food items at lower prices (Da Silva, Del Grossi & De Franca, 2011, p. 32).

Relationship between Food Suppliers and Supermarkets and between Municipalities and Supermarkets

New relationships with supermarket chains strengthen the partnership among food suppliers in order to prevent high concentrations in the retail sector. The improvement of the cooperation with supermarkets is crucial especially within municipalities, where most of the low-income families buy their essential food item in supermarkets and do not produce food themselves. Those kinds of supermarkets also are beneficiaries of the *Food Stamp Program*, increasing their daily customers and thus having positive results to their income. Another aspect of this policy is the improved marketing of local agriculture and agro-industries, being supported by agrarian reform and family farming development programs (Da Silva, Del Grossi & De Franca, 2011, pp. 32 – 33).

Partnership with Retailers

Also on a smaller scale, the investment in distribution facilities and logistics shall strengthen the partnership with retailers. It aims at avoiding high concentrations and guaranteeing low price, but high quality products. The program promotes collaborations of small retailer groups and local public authorities in order to establish a procurement system. Public institutions become responsible for setting a limit to food prices and thus exert some kind of control to retailers' profit margin (Da Silva, Del Grossi & De Franca, 2011, p. 33).

Modernization of Food Supply Facilities

The presence of public authorities in the supply sector of small and medium-sized cities has been improved through the establishment of direct connections between consumers and local farmers. They could organize and instigate campaigns of consumption and distribution, supporting the sale of local food products, like "Farmers' Fair" e.g. Strengthening relationships between farmers and consumers, the establishment of local bonds as well as the emphasizing local tastes and flavors can help to favor local production to food items which were transported over long distances (Da Silva, Del Grossi & De Franca, 2011, pp. 33 – 34).

Urban Agriculture

The objective of this strategy is to support the connection of local agricultural food production and supply in small and medium-sized municipalities. There are supportive initiatives such as "Farmers' Fair", home delivery of fresh food products, trainings in order to support the establishing of vegetable gardens within schools or the registration of idle urban plots for vegetable gardens. Here, interested and unemployed people are allowed to grow food for a certain time period without any charge and the establishment of differentiated property tax rates on plots used for this purpose (Da Silva, Del Grossi & De Franca, 2011, p. 34).

4.1.5.5 Counteracting High Food Prices and Food Price Fluctuations

By the establishment of *Fome Zero and Pnsan*, the Brazilian government successfully implemented strategies to boost family farming. Poor people get the opportunity to increase their income while staying on their farms and spending their labor forces on rural production. Thus, poor people do not have to take on especially risky employment changes, which would probably have been the case in changes in labor markets due to trade liberalization, but are integrated into local economies. Furthermore, the increase in income and production strengthens the family's possibility to cushion price shocks of food items and thus these were partially protected from transmissions of high food price fluctuations.

Additionally, *Fome Zero* and *Pnsan* include specific strategies that in particular help to counteract high food prices by improving the people's access to essential food items. These contain programs which provide food as in-kind-subsidy to the poor, such as the *Food Stamp Program* or the *Donation of Emergency Basic Food Baskets*, programs which are available for extremely vulnerable groups of the population, such as those affected by harvest losses or recently settled citizens under the *Agrarian Reform*, e.g.

In metropolises, the strategies include subsidized restaurants in order to support low-income workers who are not able to eat lunch at home because they live too far away from their jobs. The establishment of *Food Banks* is a valuable tool in order to collect and redistribute food that otherwise would be wasted to low-income families by charities.

Box II presents a closer look at strategies implemented in order to cushion high food prices and improve the people's access to food.

Box II. *Fome Zero* and *Pnsan*: Counteracting High Food Prices and Food Price Fluctuations

Specific Policies

The Food Stamp Program (Cupom Alimentaçao – PCA)

PCA was established to replace an earlier method to combat hunger by supply of basic food baskets. One of the program's advantages is that it reaches the part of the population with the highest need and connects local poor consumers to small farmers, a strategy which stimulates local production (Da Silva, Del Grossi & De Franca, 2011, p. 26).

The program contains three major aspects. First, it complements the household's income of very poor families and lifts them above the poverty line. Second, the adults of the families have to contribute social attendance. According to their respective professional skills they have to offer services within the community or attend literacy or other courses of professional training. Furthermore, they are monitored by special health care teams. The third aspect concerns the duration of attendance: the food stamps are allocated to the families within a previously determined period of six months to one year. This attendance duration can be extended as long as the families still suffer from food insecurity.

The food stamps can be used to buy food products in super markets, stores, fairs or from registered small farmers. They cannot be redeemed within restaurants or similar institutions, and cannot be used for non-food products such as cigarettes, alcoholic beverages, sweets or fast food. When the program was implemented, the idea was to address poor families, which had already been registered by other programs such as the *Agrarian Reform* settlements, *Bolsa Escola*, *Bolsa Alimentaçao*, beneficiaries of the unemployment insurance or from the public health care system. An advantage of benefiting these families is that *PCA* – as it complements the household income – can improve and strengthen the benefits and results of other strategies (Da Silva, Del Grossi & De Franca, 2011, p. 27).

In a first pilot version, the *PCA* program was established for the duration of one year, especially in regions very vulnerable to drought, such as the Brazilian Northeast. Then the program was expanded in order to reach all poor families living under the poverty line. The stamps are printed by the Brazilian mint, have a limited date of validity or are distributed in the form of magnetic cards. Electronic stamps, in contrast to the paper edition, cannot be sold easily within an illegal market, and thus are recommended to be used in urban areas. In medium-sized and small urban cities as well as in rural regions it is complicated to use these cards. As a result, the stamps are equipped with a specific period of validity. Previous calculations consider approximately 9.3 million of very poor families to benefit from the program, which amounts to a total cost of R$ 20 billion within one year (Da Silva, Del Grossi & De Franca, 2011, pp. 26 – 27).

Donation of Emergency Basic Food Baskets

This program targets two special groups of the population. First, people who are considered to be very vulnerable to natural disasters such as droughts, floods as well as, second, those who were recently settled under the *Agrarian Reform* program. Both groups are in the need to receive emergency basic food baskets in order to prevent food insecurity. In the case of natural disaster, the access to food is often more difficult than in "regular" times, not only because of the disaster's circumstances but also because of enterprises maximizing their profit by withholding products and thus causing higher prices or selling products with lower quality. People which normally would fall under the *Food Stamp Program* but live too far away from food markets are an additional target. In the end, the goal is to develop the local food markets, so that these people can be included to the *PCA* program step by step (Da Silva, Del Grossi & De Franca, 2011, p. 28).

Keeping Food Security Stocks

Another policy of *Fome Zero* to improve food security is the establishment of food stocks. This strategy includes the existence of a basic set of food products, consumed regularly by the population, in order to be available in times that require the increase of food imports or an expansion of the national food supply. The organization of a food security stock policy contains two main aspects: first, they should take into consideration the procurement in producing regions for local self-consumption and second, domestic products at every moment should be preferred to imported commodities (Da Silva, Del Grossi & De Franca, 2011, p. 29).

Expanding the School Meal Program

In the beginning of *Fome Zero*, the school's contribution to the daily energetic and nutritional needs of the children is 15% by law, which is considered to be a very low percentage. This policy has the objective to increase this percentage up to 100 in some municipalities. Furthermore, this assistance is proposed to be extended to the student's siblings and, especially in municipalities with high poverty rates, to children's education facilities as day-care centers and municipal schools. Another objective of the program is to strengthen the collaboration with local farmers to improve their incomes and to provide fresher fruits and vegetables for the children, which shall be assured through the provision of technical support by the *Municipal*

School Meal Councils and local farmers. Estimations show that in Brazil the provision of school meals for those of the 35 million children at school-age would amount to a total cost of about R$ 909 million, still excluding the support of their siblings as well as children's education networks located in poorer municipalities (Da Silva, Del Grossi & De Franca, 2011, p. 29).

Local Policies for Metropolitan Regions

Subsidized Restaurants for the low-income Population

Many Brazilians work in metropolitan areas and have to eat out of their homes at least once per day. That is why *Fome Zero* includes subsidies for restaurants to provide qualitative meals for those workers at cost price to satisfy their daily energetic and nutritional needs. Previous surveys determined the costs of such a meal to be around R$ 1.80, including variable costs. This calculation still excludes the restaurant's fix costs as e.g. rent costs, which are expenses that could be carried by the government. Meals could cost close to R$ 1, if city halls, state governments or charities would bear labor as well as infrastructural costs (Da Silva, Del Grossi & De Franca, 2011, p. 31 – 32).

Food Bank

Fome Zero proposes an improvement of the collection and the distribution of food that otherwise would be wasted. Therefore, it strives for an institutionalization of the *Good Samaritan Charter* (Estatuto do Bom Samaritano), which was discussed by the *National Congress*. The goal of this strategy is to increase the availability of food products to charities and thus to low-income families, by freeing the process of bureaucracy, decreasing its costs and cancelling unnecessary responsibilities (Da Silva, Del Grossi & De Franca, 2011, p. 32). The same program is also available on a smaller scale for small and medium-sized cities, which makes it possible to focus more on the appearance and quality of the delivered food products. Donors of food can gain an advantage from the institutionalization of the previously described *Good Samaritan Charter* (Da Silva, Del Grossi & De Franca, 2011, p. 33).

4.1.5.6 Counteracting Social Exclusion

The Brazilian strategies of *Fome Zero* and *Pnsan* which are counteracting social exclusion contain structural strategies such as the school grant program *Bolsa Escola* enabling children of low-income families to attend school. Furthermore, the strategies aim at expanding the *Social Security System* and the *Worker's Food Program* (PAT). Additional policies for counteracting mother-child undernutrition have the objective of providing assistance to particularly vulnerable groups of society. The specific policies include the comprehensive conditional cash transfer program *Bolsa Familia* (PBF), which has the objective of guaranteeing all the Brazilian citizens with their right to adequate food. This program aims at integrating every Brazilian family living in poverty to social and economic systems, by granting a basic, regular income to families and thus balancing the wide social inequalities within the society. *Bolsa Familia* – in recent years – was extended significantly within its budget, institutional and regulatory capacities (CAISAN, 2011, p. 27).

The cash transfers shall people help to break the vicious circle of poverty and hunger and to facilitate their integration into society. In 2009, 12.4 million families received *Bolsa Familia's* financial support. Due to *PBF*, the Gini Index showed a decrease of 11% in social inequalities during the period from 2004 to 2012 (IBGE, 2012). This success was principally the result of an intensive extension in coverage since 2003 with a strong focus on the direst poor living in the most vulnerable areas of Brazil. Studies of the *Brazilian Institution for Social and Economic Analysis* (Ibase) of 2008 indicate that the families covered by *PBF* averagely spend 87% of the cash transfer they receive on food, up to 91% in the poorest region, the Northeast of the country. On average, the families spend R$ 200 per month for their alimentation, which amounts to 56% of the household's total income. Of course, the poorer a family is, the larger the proportion of the household's total income spent on food (Ibase, 2008, p. 5).

As mentioned before, women and children are considered to be the most vulnerable groups of society for suffering food insecurity. Therefore, most of the cash transfer holders of *Bolsa Familia* are women, in total 94%, who are preferably selected for registration and for the cash transfer's transmission (author's note: cash transfers target on households, and not on individuals). 85% of them are aged 15 to 49 years, and 64% are indigenous or mestizos women. 78% of the covered families live in urban areas,

whereas 22% belong to rural regions. Most of the rural *PBF'* beneficiaries, 50%, live in the Northeast of the country (Ibase, 2008, p. 5).

Studies point out that the beneficiary families tend to consume food items such as sugar, rice, cereals, milk, industrialized products, meat, beans, oil, fruits and roots more frequently than before and vegetables and legumes in minor quantities. It is important to mention that a general increase in food expenses is not always accompanied by a healthy way to eat. Therefore, cash transfer programs such as *Bolsa Familia* require to be accompanied by food education and nutrition information to improve results regarding food security (Ibase, 2008, pp. 6 – 7).

Therefore, in the end, *Fome Zero* and *Pnsan* include a strategy to guarantee safe and high quality food products and food. Furthermore, the establishment of food education programs and education for consumption counteract particularly malnutrition, overweight and obesity within the Brazilian society. Box III describes the strategies established to counteract social exclusion in detail.

Box III. *Fome Zero* and *Pnsan*: Social Exclusion

Structural policies

Bolsa Escola (School Grant program) and Minimum Income

Bolsa Escola provides an educational fund for schoolchildren of low-income families in order to improve the education within poorly educated groups. Previous estimates show, that there are approximately 3.3 million children in the age from 7 to 15 years, which are not attending school. The financial support from the federal program *Bolsa Escola* is R$ 45. If the new benefit under *Fome Zero* would be three times higher than the support before the program (which was R$ 45 per month), the costs would amount to R$ 853,7 million (Da Silva, Del Grossi & De Franca, 2011, p. 25).

Universal Access to the Social Security System

In 1988, the *Social Security System* was extended and laid down in the constitution. The positive aspect of this social right is that it provides people which are working within agricultural or livestock activities, with a minimum coverage of social welfare – especially elderly and disabled people as well as widows and widowers. Furthermore, the new law reduced the minimum age for retirement of women. The negative aspect was that before *Fome Zero*, it still did not consider people which were working in other, not agricultural professions. In order to receive welfare coverage, this excluded group of people had to prove to have contributed to the social security system for a certain period of time in order to receive the right to apply for social assistance. Therefore, an expansion of the *Social Security System* was implemented as part of *Fome Zero* with the aim to ensure rural as well as urban workers the right to social security based on a minimum wage, without taking into consideration if they live below the poverty line or not.

Data generated within the *National Household Sample Survey* in the year 1999 indicates that 2.9 million Brazilian do not receive the benefit of social assistance although they have reached the retirement age, because of not being covered by any public retirement or pension system. The costs to assist these people have been calculated to be R$ 6.3 billion (Da Silva, Del Grossi & De França, 2011, p. 25).

Expansion and Re-Channeling of the Workers' Food Program (PAT)

The program PAT, at the moment of *Fome Zero's* implementation, still did not include the persons of the program's focus which are those with the lowest income, i.e. workers and employees of small enterprises. Resources from PAT are exclusively transferred to employed people that fall under the national simple taxation regime. Informal workers and unemployed people are generally able to become beneficiary of PCA, the *Food Stamp Program*. Thus, PAT is an appropriate complementation to the PCA *Food Stamp Program*. It contains a mechanism of compensation for companies which fall under the simple taxation regime. The costs for food-related benefits provided to company's workers are deducted from the total volume of their profit and thus those companies have to pay lower income taxes. According to previous estimates, 15.7 million formal workers, at the moment of *Fome Zero's* initiating, were not included in the PAT program. Their inclusion has been calculated to cause waived taxes of R$ 203.7 million (Da Silva, Del Grossi & De França, 2011, p. 25).

Fighting Mother-Child Undernutrition

This policy not only aims at ensuring universal access to food for undernourished mothers and children, but also at preventing their impoverishment and undernourishment. Therefore, it generally assists pregnant women, mothers during breastfeeding and children aged less than one year. It provides highly nutritive food products, such as milk, essential nutrients (iron, vitamins etc.) for children that are registered in health care or social work networks. The estimated amount of potential beneficiaries is 1.3 million chronic undernourished children and their 1.2 million mothers (Da Silva, Del Grossi & De França, 2011, pp. 28 – 29).

Specific Policies

Bolsa Familia (PBF)

Brazil is one of the Latin American countries which established both food security programs and a comprehensive cash transfer program in order to provide a social assistance for groups which are especially vulnerable to food insecurity (CAISAN, 2011, p. 27). PBF was implemented in 1995 at municipal level and presumed to be a strategy by which Brazil set a trend towards overall Latin America. It is – like the Mexican *Oportunidades* – a conditional cash transfer program which obliges the families to send their children to school. In 2001, the program became federal and two years later, at the same time when Brazil established the additional strategies under the name *Fome Zero*, it was renamed into *Bolsa Familia* (CAISAN, 2011, p. 27).

PBF has the objective to assure the Brazilian habitants' rights to adequate food and to balance the wide social inequalities within the society. Thus, it aims at integrating every family in Brazil living in poverty or extreme poverty conditions and – in recent years – was extended significantly within its budget, institutional and regulatory capacities. The spent amount by the government was extended from R$ 3.2 billion in 2003 to R$ 14.7 billion in 2011 (CAISAN, 2011, p. 27).

In order to become a beneficiary of *Bolsa Familia*, a person has to address the *Reference Center for Social Assistance* (CRAS). CRAS is a decentralized public governmental institution of PNAS and agency in charge for the poor people's entrance to the *Unique System of Social Assistance* (SUAS). The institution is responsible for identifying and to organizing the integration of especially vulnerable groups of society to the *Basic Social Protection System* (MDS.gov.br, 2013). In order to apply for social assistance, the families in need have to fill in an application form within a database. Afterwards the CRAS social workers visit the families in order to prove their socio-economic conditions and – when they are in need – to help them to enter the program *Bolsa Familia* (see appendix II).

Another part of *Bolsa Familia* is the *Continuous Welfare Benefit* (BPC), a program that grants payments in the amount of a minimum wage to elderly people and to disabled people, which are strongly affected in their possibility to access food. *BPC* was established together with the first version of cash transfer in 1995, assisted 3.5 million beneficiaries in 2009 and amounted to a budget of approximately R$ 23.46 billion in 2011 (CAISAN, 2011, p. 27).

Ensuring the Safety and Quality of Food Products

To ensure a safe production of food, *Fome Zero* contains some methods to prevent and avoid risks and to improve the product's quality. It focuses on regular monitoring, the implementation of a food safety information and surveillance system, special education for persons which are working as part of the production chain, scientific investigation as well as the implementation of respective quality improving technologies. Additionally, consumers should have access to information about the origin of food through labels and to additional information regarding the risks of genetically modified items. In Brazil, hunger is not a problem of amount but of access. That is why it is considered

> that the production of transgenic food can [not] help fight hunger in the country. It is also necessary to control the entry of transgenic food products to Brazil until sufficient research is carried out to confirm that they do not pose risks to human health and the environment (Da Silva, Del Grossi, & De Franca, 2011, p. 30).

Nonetheless, transgenic food is still a highly debated topic within Brazil, but a closer look to relevant issues is beyond the scope of this paper.

Food Education programs and Education for Consumption

The education of the society regarding an adequate diet is crucial in order to teach people about quantitative (excess or lack of food) or qualitative inappropriateness within alimentation. Both facts are important to fight against undernutrition and obesity. The *Fome Zero* included two main aspects: first, it mobilized public authorities to promote and organize campaigns and lectures on food education and added education for consumption; second, it created and implemented the *Brazilian Rule for Marketing of Industrialized Food Products*. Food education still is an essential part of *Pnsan* (CAISAN, 2011, p. 30).

4.1.5.7 A Brief Presentation of Fome Zeros' and Pnsan's Results

The previous chapter presented the central strategies established under both programs *Fome Zero* and *Pnsan* and tried to organize them as counteracting policies against three main reasons of poverty. Indeed, it is partially not possible and also beyond of the scope of this paper to take the final results apart and assign them to separate strategies. Chapter 4.1.2.1 gave a brief outline of the Brazilian poverty structure, but did not specify the respective influencing factors. All the presented strategies have a specific focus, depending on whether they were established in order to improve the prevailing structures, to counteract a specific consequence of poverty or in order to work within specific localities.

The following presentation of the strategies' results takes into consideration special tendencies, but is not able to assign the results to the respective strategy. This is because the reduction in Brazilian poverty rates and income inequalities is the result of the sum of all strategies, which are separately working in a

specific way, but also dispersing spill-over effects, and – this is essential – one strategy is complementing another strategy.

Figure 9 presents the Brazilian development of poverty rates and shows that the year 2004, one year after *Fome Zero's* implementation, initiated a sharp reduction of the people living at the national poverty level from 34% to 21.4% in 2009. Additionally, the adjusted net national income was continuously positive and the period from 2004 to 2009 presented an average of 4,725% growth per year.

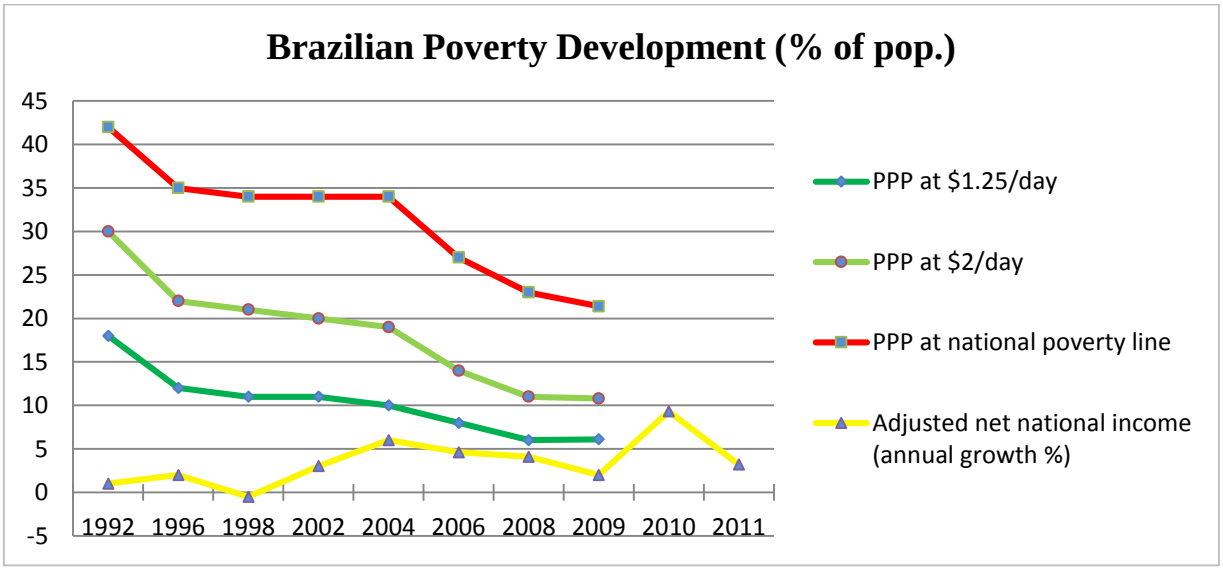


Figure 9: Three poverty indicators[34] in proportion to the net national income (1992 – 2008).
Source: The World Bank, 2013b[35].

In 2009, 10.8% of the population lived with less than two US-$ per day, which is 19.2% less than in 1992. 6.1% of Brazilians still had to cover their daily needs with less than 1.25 US-$.

The national poverty reduction, especially in Brazil, has been principally initiated by the establishment of one of the *Millennium Development Goals* (MDGs) by the *United Nations Organization* in 2000: to reduce total hunger up from 1990 to 50% by the year 2015. As shown in figure 9, a constant reduction of the number of poor from 44 million to 29.6 million, in the period from 1999 to 2009, contributed to reaching the established goal ten years before the official deadline (Da Silva et al., 2011, p. 9; Del Grossi, 2011, p. 305).

The *National Household Sample Survey* (Pnad) showed that in the period from 2004 to 2009 the average monthly real income per capita of households continuously increased in all Brazilian regions. Nonetheless, it is considerable that there is still a deep rift within the incomes in the regions with higher incomes, which is the Southeast, the Central East and the South, and the poorer regions, the Northeast and the Brazilian North. The average income in the Southeast is 93% higher than in the Northeast, and 73% higher than in the North (Caisan, 2011, p.18). Moreover, the incomes for black or colored people

[34] The *Purchasing Power Parity* (PPP) refers to the "amount of adjustment needed on the exchange rate between countries in order for the exchange to be equivalent to each currency's purchasing power" (Investopedia, 2012). The PPP's formula is

$$S = \frac{P1}{P2}$$

S = exchange rate of currency 1 to currency 2
P1 = cost of good x in currency 1
P2 = cost of good x in currency 2

[35] The World Bank provided data regarding the adjusted net national income until 2011, but for the poverty headcount rates only until 2009 (revised date: 05/28/2013).

are still almost half of those of white people, a difference within society which is in a slow adjusting process. But, as shown in chapter 4.1.4.1, the Gini index showed a continuous decrease regarding the middle monthly income of persons above age ten in the same period, which means that there is an equaling development in the national income distribution. The unemployment rate fell in the period from 12.3% in 2003 to 7% in 2010 (Index Mundi, 2013).

The program *Bolsa Familia* contributed significantly to an increase in the total income of more than 5 million families and has to be basically defined as *income from other sources* than labor. 6.7% of the families who previously earned ¼ of the minimum income per capita, and 14.1% of the family with wages between ¼ and ½ of the national minimum income, increased their income by other sources from 5.3% to 31.5% and from 3.1% to 11.5% in the period between 2001 and 2011. In the same period, these groups of society were also able to increase their average labor income. The first group showed an average income growth from R$ 273 to R$ 285, the second one from R$ 461 to R$ 524. In 2001, 9.3% of the indigenous people were part of the 1% of Brazilians with the highest income, in comparison with 16.3% in 2011 (IBGE, 2012).

The previous paragraphs presented a couple of strategies aimed at improving the living conditions, particularly in rural areas, and reducing poverty by generating jobs and increasing local income. This chapter presents the main results of poverty alleviation in rural regions during the period from 2003 to 2009. The next table shows the development on the average income from agricultural and non-agricultural activities.

Table 6: Average monthly household income from agricultural and non-agricultural activities in R$ between 2003 and 2009 (classification by type of family).

Type of Family	**Average Agricultural Income**				**Average Non-agricultural Income**				**Average Household Income**			
	2003	**2009**	**Δ**	**%**	**2003**	**2009**	**Δ**	**%**	**2003**	**2009**	**Δ**	**%**
Family Farming	620	727	**+107**	**17**	239	341	**+102**	**43**	1,138	1,499	**+361**	**32**
Industrial Farming	7,528	7,249	**-279**	**-4**	1,213	1,513	**+300**	**25**	9,737	10,477	**+740**	**8**
Non-agricultural Farming					978	1,172	**+194**	**20**	1,230	1,526	**+296**	**24**
Rural Wage-earners	322	396	**+74**	**23**	317	460	**+143**	**45**	793	1,094	**+301**	**38**

Source: Del Grossi, 2011, p. 315.

The average household income includes the overall income from agricultural and non-agricultural activities, i.e. income from labor and other categories as governmental cash transfers such as retirement pensions and payments from *Bolsa Familia*. The most significant increase in income in the period from 2003 to 2009 could be achieved in the family farming category. In 2009, family farmers could raise their income by R$ 107 due to agricultural activities and R$ 102 due to non-agricultural activities, which – including governmental cash transfers – amounts to a total increase in average household income of R$ 361. The additional labor income contributed 58% to the total increase in the average household income (Del Grossi, 2011, pp. 315 – 316).

In 2009, the rural wage-earners earned averagely R$ 74 more by agricultural activities and R$ 143 by non-agricultural activities, amounting to an increase in labor income of R$ 217. People in this group historically earn very little, which is the reason that the increase in income still not was sufficient to help them out of poverty. The development in rural Brazilian areas shows that the implemented strategies which combine cash transfer policies on the one hand and focus on improving local macroeconomic conditions on the other, were able to trigger positive circles of occupation, job and income generation and removed over five million rural poor people from poverty, i.e. four million of the family farmers and 624,000 from the rural wage-earners (Del Grossi, 2011, p. 316).

Strategies such as the *Agrarian Reform*, which were established in order to reduce land disparities and to support the development of family farms from 2003 to 2009 achieved the integration of 574,532 families in 3,386 projects and thus were settled to over 47.7 million hectares of land. The available fund contained R$ 7 billion in order to buy new land and other necessary investments for settlement. The *Agrarian Reform* was complemented by the *Land Credit Policy* that grants long-term loans to family farmers and thus provides them financial support to buy land or increase their area of production. In the same period, R$ 1.9 billion were invested to families which bought 1.3 million hectares of land (Del Grossi, 2011, p. 312). The *Agrarian Reform* aims – as previously explained – at distributing land to people in need for a collective production in order to overcome the Brazilian historical inequalities in land properties.

However, although some positive results could be reached in the past years, the process of this kind of structural change is reduced due to strong external counteracting interests and doubts of some group of farmers, slowing down the bureaucratic and realization process of financing and technical assistance for newly distributed land plots (see Appendix II).

4.2 Mexico's Actual State Analysis

The Mexican state analysis aims – as was the case in chapter 4.1 about Brazil – to give an overview of the current prevailing structures regarding poverty and food security. This chapter has the same structure as the previous chapter regarding Brazil in order to examine the most essential current developments and to bring both countries into a comparable base.

4.2.1 Amount Perspective

4.2.1.1 Mexico's Food Production

In Mexico, the agricultural sector is highly concentrated and controlled by a few integrated firms, especially regarding livestock such as beef and pork, egg production, as well as crops such as avocado and corn. Public policies support the growth and modernization processes of these firms, but rarely intervenes to agribusiness (UNCTAD, 2013, p. 113). In recent decades, the agricultural sector has significantly decreased in its total share of total employment, which is principally caused by high emigration rates and a high percentage of people living in extreme poverty conditions in rural areas (see chapter 4.2.1.3) (Henriques & Patel, 2004, p. 2).

85% of the Mexican farmers realize their production in small-scale establishments, i.e. *ejidos*, which account for 72% of all national units of corn production. Most of them are small land plots up to 5 hectares. Two thirds of the gross value of the agricultural sector in Mexico is related to corn production, whereas other horticultural crops only contribute 6% (Henriques & Patel, 2004, p. 3). Furthermore "currently fruit and vegetable production accounts for only 15% of total agricultural production, employs just 18% of the agricultural labor force, and makes up just 8.6% of cultivated land" (Henriques

& Patel, 2004, p. 2). The next paragraphs provide a brief overview of the most important food items of Mexican agricultural production.

One of the most essential Mexican food items is corn. It has its origin in Mexico and its production initiated over 5,000 years ago. It is the central element of most of the Mexican traditions and consumption patterns. It is the staple food and plays a significant role in Mexican agriculture and food preparation, particularly in the form of a corn tortilla, which is principally eaten accompanied by meat, vegetables and sauces.

The majority of the domestic corn production consists of white corn, which is used for human consumption. 85% of the white corn harvested is consumed by the Mexicans themselves, while the rest is exported to different countries. Yellow corn, which is primarily used for livestock feed and some industrialized food products is imported in large amounts from the United States and distributed to industries, where it is produced into cornstarch, cereals and different snacks.

Mexico ranks fifth in the world for global corn production, which is concentrated in the Western state of Sinaloa. 15% of the Mexican population grows corn, which amounts to three million Mexican families (UNCTAD, 2013, p. 116). The Mexican small-scale farmers contribute about 62% to the national total amount of produced corn (Henriques & Patel, 2004, p. 3). The commercial corn production is realized by agricultural installations of medium and large-scale, which are partially supported by the government. In the period from 1990 to 2009, Mexican corn production grew significantly by 164%. In recent years, severe droughts and intensive climate events caused a strong downward trend of Mexican corn production and provoked losses of 710 million US-$ in 2010 (UNCTAD, 2013, p. 116). However, national corn consumption exceeds national production, which is why Mexico is a net importer of corn (UNCTAD, 2013, p. 118).

The increasing need to import corn has major consequences as far as biodiversity is concerned. Still today, there are thousands of different natural seeds in Mexico (Henriques & Patel, 2004, p. 3). Mexican farmers are used to changing their seeds to meet specific criteria such as climate adaptability and nutritional ingredients, and storing them from harvest to harvest for different purposes. However, the natural seeds are currently in danger of disappearing due to high amounts of imported genetic modified corn by the United States,[36] and the first fields with genetically modified corn in Mexico, which were planted in 2009 on a trial basis (Bultmann, 2010, p. 4).[37] Most of the farmers are not able to finance improved seeds and other input factors for mass production such as irrigation systems, among others, and thus cannot compete with the cheap genetically modified corn from the United States. There are about 18 million people (farmers and their family members) dependent on corn production.

Avocado is another staple food of Mexico and 70% of the locally produced avocados are consumed within national borders. The rest is exported mainly to the United States, Japan and Canada. Within avocado production, Mexico has a competitive advantage and, with a total share of 68% – together with the United States (15%) – is the worldwide leader in avocado production (UNCTAD, 2013, p. 114). The avocado production is highly concentrated in the three Mexican states Michoacán (88%), Jalisco and Sinaloa, in the Western part of the country. In recent decades, a strong growth in the avocado industry and a high demand for Mexican avocados positively influenced local businesses, created employment

[36] The loss of natural varieties by planting genetically modified seeds is caused by the characteristic of cross-pollination of the corn plant, i.e. that the pollen of genetic modified organisms (GMOs) can contaminate natural seeds (Bultmann, 2010, p. 20).
[37] One variety of the genetically modified seeds of Monsanto (NK603) was planted on a trial basis in Mexico, although it may present a severe danger for human consumption. Studies show that rats, after feeding them with this variety of corn during 90 days, developed significant changes in blood and urine values, as well as in the weight of brain, heart and liver. However, Monsanto argues that there are no differences regarding the health risk of natural or genetically modifies seeds (Bultmann, 2010, p. 33).

and drove investments in equipment for production and new technologies. The opening of the U.S.-markets to the Mexican avocado supply boosted the avocado industry (UNCTAD, 2013, p. 114).

Furthermore, in recent years, Mexican demand for imported beef from the United States grew significantly. The greatest demand is for parts of a cow that have a low market potential in the United States, such as chuck steak and round cuts. The Mexican domestic production for these products is primarily carried out by small ranchers, who process beef and raise calves within grass or pasture areas. Additionally, there are a couple of big enterprises who produce beef within feedlots, i.e. a special type of animal feeding operation. The Mexican domestic market still shows a high demand for carcasses, and of the majority of beef is sold within small butcher shops which can be found clustered together in highly diversified public markets where Mexican food and huge varieties of plants are offered in a traditional way. Urban areas increasingly provide supermarkets, which have beef in varying forms in their inventory. There, the availability of small butcher shops is continuously declining.

In Mexico, the consumption of pork ranks second after poultry. Pork is mostly sold as frozen or processed pork, such as hot dogs or ham. The domestic demand mainly is appeased by imports from the United States and from Canada. Poultry principally is produced for meat and eggs. The production is concentrated in Jalisco, in the West of the country, and amounts to 3 million metric tons per year (UNCTAD, 2013, p. 117).

Many essential food products in Mexico are not produced in sufficient amounts and thus are complemented by imports from different countries, mainly from the United States. The import/export structures will be described in the next chapter.

4.2.1.2 Mexico's Import/Export Structure of Food

In 2011, Mexico had a value in merchandise exports of 349,569 million US-$, and in merchandise imports of 361,068 million US-$, which makes it a net import country on rank 16 in world trade. The commodities of export are comprised of 70.7% manufactured goods, 19.8% fuels and mining products and 6.6% agricultural products. The share of total imports includes 76.5% manufacturing, 13% fuels and mining products as well as 8.3% agricultural products (WTO, 2013b). The country's trade profile shows that Mexico imports a higher amount of agricultural products than it exports. However, the share of agricultural goods within the import's total share is rather small.

In Mexico, the national basic basket of food contains 18 main items which are maize (corn), wheat, rice and potatoes, meat such beef, pork, poultry and fish, milk products, eggs, vegetable oils and butter, beans, vegetables and fruits, honey, sugar and soft drinks such as Coca-Cola (Observatorio, 2013). These 18 food items are considered to be essential for the Mexican population as basic food items. Therefore, the price development of these products is continuously observed in order to check if these products are still accessible for the most vulnerable groups of the population. In case the price for one of these goods rises, the poorer parts of the population in particular become increasingly vulnerable to food insecurity.

The next table presents the origin and the purpose of the basic food products:

Table 7: Origin and purpose of the essential items of the Brazilian basic food basket.

Item	Production (1000 t.)	Import Quantity (1000 t.)	Stock Variation (1000 t.)	Export Quantity (1000 t.)	Domestic Supply Quantity (1000 t.)	Food Supply (kcal/capita/day)[38]
Grand Total + (Total)						3146
Vegetal Products + (Total)						2495
Animal Products						651
Cereals (Excluding Beer)	31195	**14357**	1670	2171	45051	1335
Wheat	4116	**2955**	0	1702	5369	234
Rice	175	**602**	0	70	708	60
Maize	20143	**7331**	1500	398	28575	1022
Potatoes	1501	**500**		6	1996	26
Sugarcrops	49493	0		1	49492	0
Honey	56	0	0	27	29	2
Beans	1041	175	80	20	1276	100
Vegetable Oils	1106	**929**	2	53	1984	249
Vegetables	11725	398	0	5053	7069	41
Fruits (Excluding Wine)	15889	761	3	2713	13940	109
Bovine Meat	1705	287	0	43	1950	57
Pigmeat	1162	**610**	0	85	1688	132
Poultry Meat	2678	**642**		10	3310	112
Butter, Ghee	19	**60**		0	79	14
Eggs	2360	17	0	1	2376	66
Milk (Excluding Butter)	10719	2963	7	165	13524	168
Fish, Seafood	1493	360	0	327	1527	22

Source: Faostat, 2013a.

Table 7 shows that in Mexico the supply of a lot of essential food products is replenished with imports which makes them subject to international food price fluctuations. The supply is completed by imports because the internal agricultural production is not enough to satisfy the national demand of food. The import amounts in bold type in table 7 show the most affected food items such as maize, wheat, rice, potatoes, vegetable oils, pork, poultry meat and butter. These food items, together with some input factors for production such as fertilizers, are subject to price shocks, which can be transmitted through international and national economies to the domestic levels, and thus have a direct effect on the food security of people and on farmers which depend on such input factors (UNCTAD, 2013, p. 93).

Nonetheless, although national supply depends on imports, the daily available amount of kilocalories per person is 3146, which indicates that in theory no Mexican should be hungry, and that hunger is not a consequence of an insufficient supply of food.

However, price fluctuations regarding corn has especially severe impacts on national food security and have caused an increase in poverty rates in recent decades. This is because of two reasons. First, maize presents a national supply of about 28,575,000 tons and is the most consumed grain by the Mexican population. It contributes up to one third of the people's daily energy supply and is the main source of

[38]This calculation refers to a total population of 112,033,000 people in 2009 (Faostat, 2013b).

carbohydrates, proteins and unsaturated fats. Second, approximately one fourth of the domestic corn supply has to be imported, which makes the national maize price subject to international price fluctuations and poor population groups extremely vulnerable to price changes. About 34% of the total national corn supply is imported from the United States, which contributes 35% to the domestic human consumption (UNCTAD, 2013, p. 116). This, among other products, explains why Mexico is the United States' second largest export market.

Although national food supply provides sufficient amounts of food and an energetic value of 3,146 kilocalories per day and person, in the period from 2003 to 2005, the average Mexican only consumed up to 2,350 kilocalories per day. This indicates that hunger in Mexico – as well as in Brazil – is an issue of a lack of access to food and not of a lack in availability (CONEVAL, 2010a, p. 20).

An examination of the Mexican basic food basket reveals that soft drinks such as Coca-Cola are included as an essential food item (MX360°, 2013). The consumption of soft drinks (and fast food in general) is associated with increased risk of noncommunicable[39] diseases such as hypertension, diabetes and hypercholesterolemia. On a national level these diseases are increasingly prevalent, and are responsible for 73.3% of the mortality rate in 2000. In Mexico, "diabetes is the leading cause of death in women and the second in men". This is because of an increasing "risky behavior [..] and risk factors such as being overweight and obesity" (WHO, 2006).

As presented within the concepts in chapter 2.1, being overweight and obesity are part of food insecurity. This is why the incorporation of soft drinks with a high sugar content and other questionable additives into the Mexican basic basket of food seems to be a contradictory fact. Coca-Cola and soft drinks in general are considered one of these mentioned risk factors, which can lead to being overweight and obesity and may cause a shift from undernourishment to overweight. Both are two different types of food insecurity and therefore, a change from too little to too much weight does not mean an improvement in alimentation.

Of course, an increased income widens the people's possibility to decide between more and different food items, and it is difficult to influence the people's buying decision. However, the deliberate support of the consumption of unhealthy food by officially putting health risk factors such as soft drinks into the Mexican basic food basket is inconsistent and raises questions.

There are several reasons why soft drinks are included in the Mexican food basket. First, it is a fact that very often especially poor people are overweight or obese. This is because sweets and soft drinks are often cheaper and more accessible to the poor than healthy food (MX360°, 2013). Second, people perceive the consumption of certain brands such as Coca-Cola, fast food and industrialized goods as luxury and as essential to become part of certain classes of society. To drink Coca-Cola is a symbol for civilized promises of the *New World* and for the "American way of life" (Der Spiegel, 1965, p. 40); at least the brand stands for a happy and carefree standard of living. This, together with the fact that poor people often lack nutritional education, makes them especially vulnerable to the extensive consumption of soft drinks and promising marketing campaigns.

Another reason is that poorer regions in Mexico still often show sparse infrastructures because they are remote, so that in many cases processed food and soft drinks are easier to access than healthy food. Furthermore, especially in areas with no access to drinking water, the consumption of soft drinks is the only way to prevent infections or environmental diseases (MX360°, 2013).

[39] Noncommunicable diseases (NCDs) are not passed from one person to another. Generally, they are chronic, i.e. of a long duration and show a slow progression, such as cardiovascular diseases, cancers, chronic respiratory diseases and diabetes (WHO, 2013).

In order to be accessible, Coca-Cola, e.g., has 1.1 million different distribution points in Mexico such as shops, restaurants and supermarkets. In 2006, the average Mexican consumed 410 bottles of soft drinks, which is the double amount to Brazil and three times the amount of overall Central America (Milenio, 2011). Thus, the soft drinks are in the Mexican basic basket of food because there is a better and more effective distribution of processed food and soft drinks than healthy food products, so that they are especially frequently consumed within marginalized and poor regions (MX360°, 2013).

Cash transfer programs to alleviate food insecurity can often lead to an increased consumption of risky products for the above-mentioned reasons. Therefore, food security strategies should be accompanied by nutrition education in order to prevent a switch from under- to malnutrition in the people's consumption patterns.

The next chapter provides a brief overview of Mexican farmers because the agricultural sector and the lack of rural development plays a key role in Mexican poverty and food insecurity conditions.

4.2.1.3 Mexican Farmers

In Mexico, there are about two million corn farmers. Generally, the production of agricultural goods is achieved by two different methods. There is, first, the commercial type of production, which includes the common use of agricultural input factors such as fertilizers, improved seeds and irrigation. Second, there is the traditional method which only in exceptional cases uses modern technologies. The areas for commercial production are comprised of up to 30 hectares per farmer, which indicates "that only large and mediums sized farms are actually in a position to participate in commercial production" (UNCTAD, 2013, p. 122).

In Mexico, supermarkets increasingly procure the food items from a few national large-scale suppliers and multinational enterprises (UNCTAD, 2013, p. 88). This facilitates supermarkets the standardization of their products and inventory. Mexican corn production in particular is characterized by high concentrations in commercialisation and is realized by middle- and large-scale farmers, which are able to use hybrid seeds and modern input factors for production. Therefore,

> "competition is likely to be reduced, which would have a negative impact on prices, product quality and innovation. Furthermore, from a vertical perspective, the strong difference in concentration along the different parts of the value chain causes strongly diverging levels of market/negotiating power between input providers and farmers and between farmers and processors. This puts producers, and, in particular but not only, the huge number of smallholder engaging in traditional farming mainly located in Southern Mexico, in the position of 'price takers' and makes them vulnerable to possible abuse of market power by hybrid seed producers and corn processors." (UNCTAD, 2013, p. 130).

The high amount of small corn farmers are not integrated into local economies and have no access to commercialisation processes. However, they are dependent on market mechanisms and international corn prices which makes them even more vulnerable. This is because the country historically is marked by high land concentrations. Approximately 6% of Mexican farmers possess land plots with higher sizes than 20 hectares, and most of them are concentrated in the north of the country. The rest of Mexican farmers principally are located in the southern regions and produce corn mainly for self-consumption and very small sales within closely located communities. The productivity of the traditional farmers is considered to be 15% to 20% of the commercial farmers. The northern farms annually produce up to 11 metric tons per hectare, an amount which is comparable to the production level of the United States, whereas the traditional farmers of the south harvest between 1 to 1.5 metric tons per hectare. On average, in 2007, Mexican farmers produced 2.8 metric tons of white corn per hectare for human consumption (UNCTAD, 2013, p. 122).

Rural regions show an especially high vulnerability to poverty and in Mexico small farmers are mainly excluded from local markets. However, "agricultural development is regarded as an opportunity within the Mexican economy to be exploited to create jobs, reduce poverty and enhance food security" (UNCTAD, 2013, p. xv), which makes the development of rural regions in Mexico to a central anti-poverty and food security strategy.

4.2.2 Access Perspective

4.2.2.1 National Structure of Poverty

In order to examine Mexico's poverty structure, two main data sources are consulted in this chapter. First, data generated by the World Bank is used like it was in chapter 4.1.2.1 regarding Brazilian poverty structure. Second, data generated by the *National Council for the Evaluation of Social Development Policy* (CONEVAL) and the *National Institute of Statistics and Geography* (INEGI) is used. *The World Bank* offers various indicators regarding poverty in order to get comparable data for different countries. This data from *the World Bank* is used here in addition to the *INEGI*, because it provides comparable data to the Brazilian poverty statistics. For this paper, the following four indicators were selected:

- Adjusted net national income (annual % growth)
- Poverty headcount ratio at $1.25 a day (PPP[40]) (% of pop.)
- Poverty headcount ratio at $2 a day (PPP) (% of pop.)
- Poverty headcount ratio at national poverty line (% of pop.)

The poverty headcount ratio describes the percentage of the population which has $1.25 or $2 a day available in order to cover daily needs. To make this value comparable, it includes the *Purchasing Power Parity* (PPP) at international prices (The World Bank, 2012), because different countries have different currencies and an individual person can buy more in one country for $1.25 than in another one.

The following two figures show the selected data linked to the net national income, in order to obtain eventual relations. The years were chosen by considering the available data for both of the countries and for each one of the indicators.

[40] The *Purchasing Power Parity* (PPP) refers to the "amount of adjustment needed on the exchange rate between countries in order for the exchange to be equivalent to each currency's purchasing power" (Investopedia, 2012). The PPP's formula is $\mathbf{S}=\frac{\mathbf{P1}}{\mathbf{P2}}$

S = exchange rate of currency 1 to currency 2
P1 = cost of good x in currency 1
P2 = cost of good x in currency 2

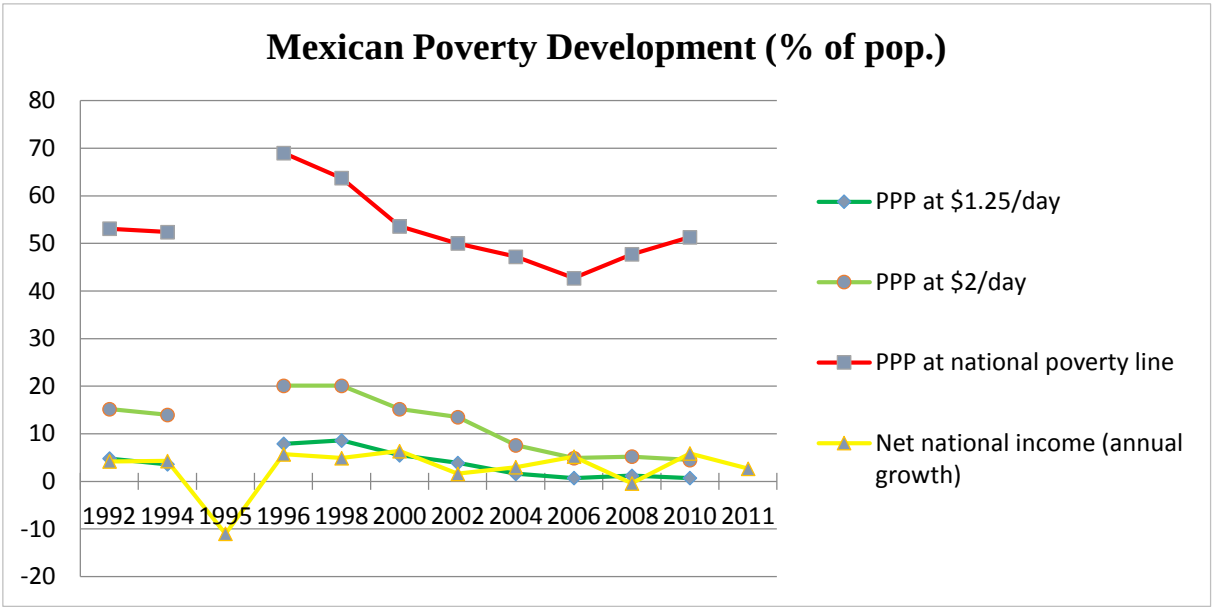


Figure 10: Four poverty indicators, in proportion to the net national income (1992 – 2008).
Source: The World Bank, 2013.

As shown in figure 10, not all the data is available for each of the years. Especially data for the PPP of 1995 is not available within *The World Bank*. However, it is important to plot the net national income of the year 1995, which shows a significant decrease in the annual growth from 4.3% to -11%. In Mexico, in the period from 1992 to 2008, the proportion of people living at the national poverty line decreased from 53% to 48%, the PPP at $2 per day from 15% to 5% and the PPP at $1.25 per day from 5% to 1%. Furthermore, the figure indicates that the Mexican poverty rate did not automatically decrease with a growing net national income, and vice versa. In the years from 1992 to 1996, the national poverty rate increased despite a growing net national income, whereas in the period from 1998 to 2002 the contrary situation of a decreasing poverty rate despite a shrinking net national income can be observed.

In Mexico, generated data regarding national poverty rates and food security is edited and published by the *National Council for the Evaluation of Social Development Policy* (CONEVAL). The executing institution of the data generation is *the National Institute of Statistics and Geography* (INEGI), which every two years collects data at the state level, and every five years at the municipal level.

CONEVAL measures poverty by considering a household's income, as was the case in Brazil (see chapter 4.1.2.1. The methodology to measure poverty by the people's income is based on the prices of the Mexican basic food basket and was developed in 1992 by INEGI-CEPAL (CONEVAL, 2009a, p. 3). One advantage is that this indicator refers to a globally accepted and used poverty line. Another advantage is that this measurement has been constantly developed and improved over a long period.

However, as explained in chapter 2.1.2, poverty is not a one-dimensional concept, but multi-dimensional, including different areas within which a human being can be limited in its personal development and welfare. Whereas in Brazil the five main indicators established by the IBGE and *Pnad* measure different dimensions of food insecurity, Mexico first generated comprehensive data regarding the people's overall poverty conditions. Poverty is identified and measured by eight main indicators:

1. Per capita income
2. Average backlog in education
3. Access to health services
4. Access to the social security
5. Quality and space of the family's residence

6. Access to a housing's basic services
7. Access to food
8. Grade of social cohesion (CONEVAL, 2011b)

According to constant price changes of the basic food basket's items, the respective poverty lines were continuously adjusted and present different values over the years. CONEVAL describes Mexico's poverty structure as separated into nutritional, capability and patrimonial poverty rates[41] in order to meet different aspects and dimensions of poverty. According to the respective measured dimension of poverty, the poverty line is found a little bit higher or lower in the chart. *Nutritional poverty* refers to the first one, the lowest line, because hunger and undernourishment affect the most vulnerable groups of society and those whose total income is below the price of a basic food basket. The second line is named *capability poverty* and measures the people's access to educational and health institutions. The third poverty line is the highest line, the patrimonial poverty line, and measures the people's ability to meet their needs within housing, clothing and public transportation (CONEVAL, 2009a, p. 3) (CONEVAL, 2013).

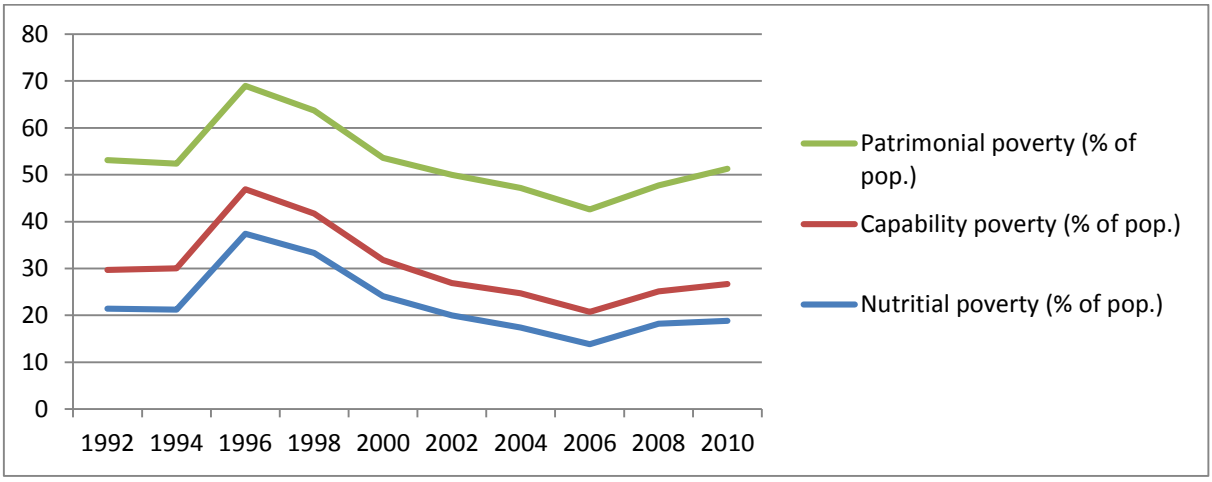


Figure 11: Poverty development by national income from 1992 to 2010[42].
Source: Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL, 2012).

Figure 11 shows that in Mexico, in the period from 1992 to 2010, the patrimonial poverty decreased from 53.1% to 51.3%. That means that more than half of the Mexican population has limited capacities to live in adequate housing, to purchase clothes and to use public transportation. The capability poverty shrunk from 29.7% to 26.7%, which presents the percentage of the population with a lack of the capacity to go to school and to draw on health institutions. The lowest poverty line, which presents the nutritional poverty status, indicates a reduction from 21.4% to 18.8% of the population. The high peak in the poverty rate of 1996 was provoked by Mexico's entry to the *North American Free Trade Agreement* (NAFTA) in 1994, which confronted Mexican farmers with the subsidized agricultural products from the United States, undermining the national supply (see in detail chapter 4.2.4.2). In 2010, almost one

[41] **Patrimonial poverty:** households or persons with an insufficient per-capita income to meet basic needs like housing, clothing and public transportation (in 2006, the upper limit of per-month income in rural localities: 1,282.36 Mexican Pesos; 1904.84 Mexican Pesos in urban areas). **Capability poverty:** households or persons with an insufficient per-capita income to meet the education and health needs of each household member (in 2006, the upper limit of per-month income in rural localities: 835.52 Mexican Pesos; 1,164.41 Mexican Pesos in urban zones). **Nutritional poverty:** households with an insufficient per-capita income to buy the *INEGI-ECLAC* basic food list (National Institute of Statistics and Geography) (in 2006, the upper limit of per-month income in rural localities: 706.69 Mexican Pesos; in urban zones: 949.38 Mexican Pesos) (SEMARNAT, 2008) (CONEVAL, 2009a, p. 4).

[42] *CONEVAL* is going to publish data on the national poverty rates for the years 2011 and 2012 in July 2013 (CONEVAL, 2012).

fifth of the Mexican population did not have enough income to purchase an adequate amount of food, considering the prices of the items of the basic food basket.

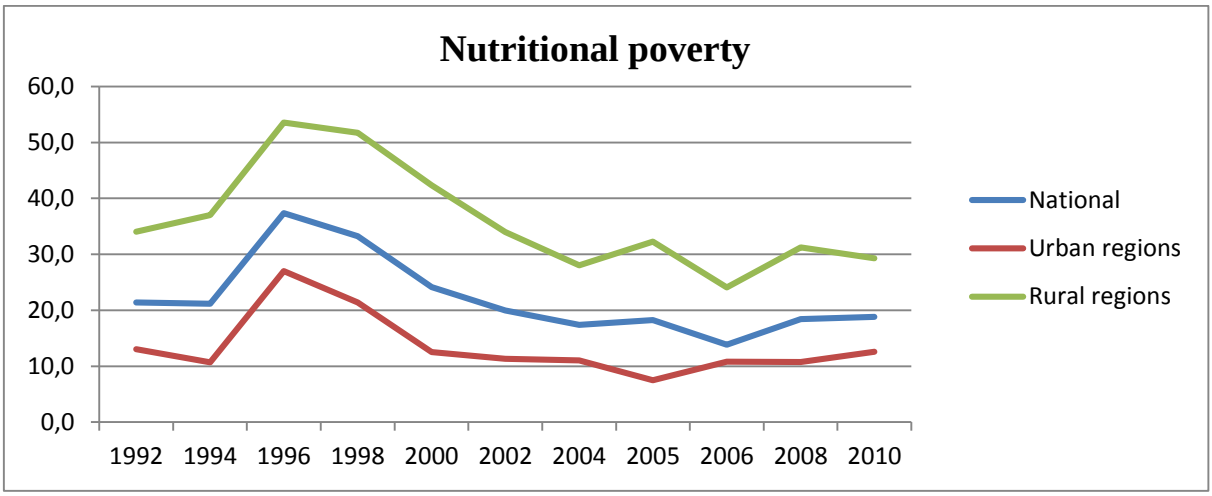


Figure 12: Development of nutritional poverty by national income from 1992 to 2010.
Source: Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL, 2012).

Figure 12 presents an increase of nutritional poverty especially in rural areas from 28% to 32.3% in the period 2004 – 2005, whereas in the same period the nutritional poverty within urban regions shrunk from 11% to 7.5%. The next two years show a contrary effect. Whereas urban nutritional poverty increased from 7.5% to 10.8%, rural nutritional poverty presents a reduction from 32.2% to 24.1%. Since 2006, national nutritional poverty rate increased from 13.8% to 18.8% in 2010.

The analysis shows that the data of the PPP at national poverty line from *the World Bank* in figure 10 matches with the patrimonial poverty line in figure 11. The other two lines, which plot the PPP at 1.25 and 2 US-$ per day, present lower poverty rates than the lines of capability and patrimonial poverty in figure 11. This probably indicates that the two income limits, which are determined as indicators for capability and patrimonial poverty, are below 1.25 and 2 US-$ per day.

In Mexico, people who live in rural areas generally spend a higher proportion of their total income on food than the urban citizens do. However, people living in urban areas generally depend on the purchasing of food and thus are fully exposed to food prices, whereas the rural population often can cover parts of their consumption by subsistence production of basic food items (UNCTAD, 2013, p. 92).

4.2.2.2 Poverty Structure in Rural Areas

An examination of the poverty rates in rural areas shows that there was a severe increase in the period from 1992 to 2000, followed by a considerable diminution from 2000 to 2004, and an inconsistent reduction until 2006. In 2008, rural poverty in Mexico increased again significantly and does not show a considerable reversion until today (Torres Salcido, n.y., p. 51) (CONEVAL, 2012). The poverty rate in urban areas also indicates an increase, but three times less than in rural regions.

Table 8: Poverty rates and changes within rural areas, in %.

Type of Poverty	Poverty Incidence (% of households)					Change in Poverty Rate by Periods				
	1992	2000	2004	2006	2008	1992 – 2000	2000 – 2004	2004 – 2006	2006 – 2008	1992 – 2008
Nutritional	28	34.1	22.9	19.5	26.3	6.1	-11.2	-3.4	6.8	-1.7
Capability	36.6	41.3	29.9	26.5	32.7	4.7	-11.4	-3.4	6.2	-3.9
Patrimonial	58.2	60.7	49.3	47.2	53.6	2.5	-11.4	-2.1	6.4	-4.6

Source: Torres Salcido, n.y. p. 52.

Table 8 presents numbers which indicate higher poverty rates than the data from the CONEVAL in figure 11. However, the poverty rates in Mexico have been increasing in the last decades and still show especially high rates in the rural areas. According to the ENIGH, the national nutritional poverty rate increased from 13.4% in 2006 to 18.2% in 2008 (Torres Salcido, n.y., p. 48) (data from the CONEVAL shows an increase from 13.8% to 18.4%, in the same period, (see figure 14), and to 18.8% in 2010 (CONEVAL, 2012). The increase during the last two years indicates a shift of an additional 19 million Mexicans into nutritional poverty, 12 million (62.5%) of whom live in rural areas. Therefore, nutritional poverty in rural regions has intensified about 30% in the last sixteen years (Torres Salcido, n.y., p. 48).

As shows table 8, little success in poverty alleviation in rural areas could be achieved in the period from 1992 to 2008. Nutritional poverty decreased about 1.7%, capability poverty about 3.9% and patrimonial poverty about 4.6%. A comparison of the different periods shows that the tendencies in poverty development in rural areas simultaneously indicated positive or negative trends within all three different types of poverty. However, they presented differences in the intensity of poverty development. In the period from 1992 to 2000, e.g., the nutritional poverty in rural areas increased about 6.1%, in spite of the establishment of the anti-poverty program *Oportunidades* in 1997. In the same period, the patrimonial poverty increased only about 2.5%.

However, there are considerable differences in the poverty alleviation among rural and urban areas. From 1992 to 2008, e.g., the patrimonial poverty in rural areas diminished about 4.6%, whereas the same type of poverty in urban areas increased considerably about 16.7% (Torres Salcido, n.y., p. 52). One reason for this unequal development could be the intensified emigration of people from rural to urban areas in the last decades, but a detailed analysis of the reasons is beyond the scope of this paper.

The high rates in rural poverty are based in structural inequalities within the distribution of land. They are related to the remoteness of many rural localities and intensified by social exclusion, ethnic and gender conflicts (Torres Salcido, n.y., p. 48). Most of the poor people live in areas which are far away from highways, public transport or communication networks. They are located in mountainous regions, in semi-arid areas or close to the jungle without access to social installations. Furthermore, many of these population groups are indigenous people, which speak native languages and are mainly dedicated to subsistence agriculture. This includes the production of maize and of other basic food items such as pumpkin or other vegetables. These kinds of people depend on their seasonal agriculture, lack in education and access to health services among others and thus are highly vulnerable to climate disasters. They do not have technology, hybrid seeds, irrigation systems or other input factors in order to intensify their production (Torres Salcido, n.y., p. 50). Therefore, in order to counteract rural poverty, it is essential to establish strategies aiming at rural development and to strengthen and extend respective

infrastructure, organize institutions and build on associations at the local level (Torres Salcido, n.y., p. 48).

Poverty in rural areas is still a challenge for governmental policies, and the little reduction in nutritional poverty in the period from 1992 to 2008 shows that there is still a lack of efficient anti-hunger and anti-poverty policies. Furthermore, as previously explained, the nutritional poverty line and the three levels of food insecurity only address groups of the population with too little incorporation of food due to low incomes which cannot afford the food items of the basic basket of food. Therefore, the next chapter provides an overview of the current conditions of overweight individuals and obesity within the Mexican population in the perspective of diet. Additionally, it briefly examines the conditions of organic agriculture and water access in the country.

This paper aims primarily at examining the country's situation of food insecurity. Therefore, the following paragraphs focus on this issue in a more detailed way.

4.2.2.3 Conditions of Food Insecurity

CONEVAL additionally measures the people's grade of food insecurity. The results are presented in the following table:

Table 9: Access to food in 2008 and 2010 in Mexico.

Access to Food						
	2008		**2010**		**Difference**	
	%	**Persons (mill.)**	**%**	**Persons (mill.)**	**(mill. persons)**	**(%)**
Food security	53.9	59.1	55.7	62.7	**+ 3.6**	**+ 1.8**
Low food insecurity	24.4	26.7	19.5	21.9	**- 4.8**	**- 4.9**
Moderate food insecurity	12.8	14.1	14.0	15.8	**+ 1.7**	**+ 1.2**
Severe food insecurity	8.9	9.8	10.8	12.2	**+ 2.4**	**+ 1.9**

Source: Cuéllar, 2011, p. 12.

Table 9 indicates that from 2008 to 2010 the number of people living in food security increased from 59.1 to 62.7 million people which amounts to 55.7% of the population. By contrast, the percentage of the population which presents moderate and severe food insecurity increased by about 1.2% and 1.9% and amounts to 24.8% of the population. Altogether, 44.3% of the Mexican suffer some grade of food insecurity.

The measurement of the four described grades of food (in)security does not use the same method as the indicators regarding the previously explained nutritional poverty. Here, the data is generated by *the National Household Income and Expense Survey* (ENIGH), which uses 12 indicators to measure the people's variety and deviation in consumption (Cuéllar, 2011, p. 7).

However, it is essential to point out that *each* of the 12 indicators, which consist in respective questions to the Mexican households, solely relate food insecurity to difficulties in the people's access to food, due to insufficient financial or other resources (Cuéllar, 2011, p. 53). Therefore, the percentages of people, which are supposed to suffer food insecurity as shown in table 9, completely *exclude* overweight or obese people, which is contradictory to the definition of food insecurity presented in chapter 2.1.3. On the one hand, the indicators measure the people's lack of access to food, a situation, which normally is different from overweight or obese people. On the other hand, the table indicates that in 2010 62.7% of the Mexican population lived in a condition of food security. This is a rash statement considering the

high amounts of overweight and obese people, which – especially in poorer regions – increased in the period from 1988 to 2009 from 33% to 60% (Dusseldorp & Sauter, 2011, p. 37). This development shows – as in the case of Brazil – that overweight individuals and obesity often are the reality in Mexico.

Nonetheless, the table shows that in 2010 44.3% of the Mexican population still suffered some grade of food insecurity. The number of people living in conditions of poverty did not decrease in the last two decades as shown in figure 11. According to The *Centro de Estudios e Investigación en Desarrollo y Asistencia Social* (CEIDAS), in the period from 2001 to 2010, the Mexican lack of efficient anti-poverty politics caused the death of 85,343 people due to undernourishment. In comparison, in the same period, 49,804 people died because of organized crime (Olson, 2012).

In order to get a comprehensive insight into national poverty rates it is recommended to compare different data sources. According to FAO, e.g., the number of undernourished people in Mexico is less than 5% (FAO, 2011), which is completely different from the previously presented data. This is because FAO, in order to estimate the food insecurity of a country, considers the production level, the global exports and the importation capacities (Construyendo Socialdemocracia, 2008, p. 7). That means that FAO calculates the number of available calories per capita and uses indicators such as food consumption and income to estimate inequalities in the access to food. By this method, FAO measures the percentage of people with insufficient food consumption in order to define under- or malnourished people.

> However, this measurement procedure used by FAO is not seen as sufficiently precise, as it is based on data on total calorie availability produced by estimating agricultural losses in agroindustrial processing and transportation. According to FAO itself, the method tends to underestimate the actual number of malnourished people in a country and lends itself more for comparisons between countries and for assessing the potential capacity of agriculture in each country to feed its population (Takagi, 2011, p. 168).

This is why the method used by FAO seems adequate for measuring the amount of food, but does not generate adequate data regarding the access perspective.

The different levels of food insecurity show that there are different groups of Mexicans with different grades of vulnerability. As it was shown in the Brazilian example, the higher the percentage of income spent on food, the higher the grade of vulnerability to increases in food prices, because the poorer a person is, the less capacity he has to compensate price changes.

4.2.3 Perspective of Diet

4.2.3.1 Consumption Patterns and Malnutrition

As mentioned before, Mexico – as well as Brazil – shows high rates in unhealthy alimentation, i.e. an increase in the consumption of high-calorie food, rich in fat, sugar and carbohydrates but often with low levels of vitamins, minerals or other nutrients. Furthermore, in recent decades, the change in job patterns from exhausting physical labor to mainly sedentary activities, an extended emigration from rural to urban regions and improved public transports caused a decrease in the calorie expenditure of the Mexican population.

Therefore, Mexico is one of the countries in the world with the highest rates of overweight and obese people. The rates of overweight individuals and obesity are alarming within all classes and ages. Studies show that the average life expectancy of Mexico's youngest generation could be lower than that of their parents and grandparents due to the combination of a lack in physical activities and inadequate nutrition (CONEVAL, 2010a, p. 56). This severe condition of health of the Mexican population demands for a change in the definition of food security policies, which until now were focused on an increase in the caloric intake. Examples for an inadequate development in the Mexican definition and realization of

food security policies are first, the existence of soft drinks in the basic food basket, second, the food security indicators, which solely consider under- but not malnourished people, i.e. exclude obesity and overweight from food insecurity. Third, a lack in food and nutritional education within the country as well as a lack of adequate infrastructure and water filters, which e.g. support the high consumption of Coca-Cola in remote regions (see chapter 4.2.1.2).

In recent years, more than 65% of the Mexican population were overweight or obese: 71.9% of the women and 66.7% of the men. Generally, in urban areas, these types of malnutrition are more frequent than in rural regions (CONEVAL, 2010a, pp. 56 – 57). It is crucial to point out that the percentage of overweight or obese people increased simultaneously with the people's age. Women in the fertile age for example show an increase in weight which is almost proportional to their age, i.e. the older they are the more vulnerable are they to becoming overweight. Girls aged 12 and 19 years show the lowest rates, while the highest rates predominate among women aged 40 to 49 (CONEVAL, 2010a, p. 60).

The lowest rates of being obesity and overweight prevail among children below 5 years and are less than 6%. In school-aged children, the percentage of being overweight or obese among children has increased significantly in recent years in all Mexican regions and in 2006 averagely amounted to 25.9% of the boys and to 26.8% of the girls. Generally, each Mexican state shows a rate in overweight individuals and obesity of schoolchildren between 15% and 40%, while the percentages in urban regions principally are higher than in rural areas (CONEVAL, 2010a, p. 56). Approximately one third of the Mexican adolescents are already overweight or obese, 32.5% of the women and 31.2% of the men.

Although comprehensive data exists about the alarming rates of obesity and those overweight in Mexico, there are still no state approaches or programs to counteract and to reduce them. Furthermore, although being overweight or obese causes numerous different types of chronic diseases, no strategies exist for the prevention and control of being overweight and obesity (CONEVAL, 2010a, p. 104).

Nonetheless, the Mexican government is starting educational programs and establishing laws regarding the nutrition of schoolchildren. Furthermore, the high rates of obesity and overweight individuals within all regions of the country and an increase in related diseases in recent years favored an "overall trend of healthier eating" and "organic foods are perceived by many Mexican consumers to be healthier than conventional foods" (GAIN, 2011, p. 1). The next chapter gives a brief overview of the Mexican recent development in organic agriculture.

4.2.3.2 Organic Agriculture

In Mexico, organic agriculture represents less than 1% of the overall production of food, but with 300 million US-$ per year contributes to about 10% of the GDP in the agricultural sector. Organic products are harvested from 1.3 million acres[43] of land, which makes Mexico one of the top 20 producers of organic food on the global level. The country is the leader in organic coffee production and the largest exporter of this product worldwide. In the production of organic honey, Mexico is the third-largest worldwide. Furthermore, the country produces other organic food items such as corn, cacao, avocados, sesame seeds, cactus paddles, vanilla beans, milk and other dairy products. As mentioned before, the Mexican demand for organic products is growing, which attracts private and state sectors to invest and to support organic farming. Small Mexican farmers provide organic food items in traditional, innumerous small in- and outdoor markets, which historically are called *tianguis*[44]and still exist in most of the cities and villages all over the country. Other distribution channels are specialty stores, internet

[43] One acre is about 40% of a hectare. Therefore, 1.3 million acres are approximately 520,000 hectares.
[44] The term *tianguis* is from the *nahuatl* language and refers to open-air markets where Mexican farmers and families sell fruits, vegetables, cooked meals, small electronic articles, clothes and household goods among others (Mexico Guru, 2013).

platforms, ranges of goods in selected supermarkets and via the *Organic Markets Network* (REDAC), which is coordinated by the *Center for Economics, Social & Technological Research for the Agro industry and World Agriculture* (CIESTAAM) of the *University of Chapingo* (GAIN, 2011, p. 2).

Hence, the organic production in Mexico principally is realized within small and medium-sized farms. Specialized distributors are in charge of negotiating with retailers in order to assure fair prices for the organic farmers. This supports a rural sustainable development and protects the local environment and ecosystems. Furthermore, the paying out of fair incomes to the farmers enables them to realize traditional agriculture by production methods which are passed from one generation to another (GAIN, 2011, p. 2), being an essential aspect within the described concept of food sovereignty in chapter 2.1.4.

The support of organic production in rural areas could be a valuable step in order to integrate small and medium-sized farmers into local and national markets and to promote organic agriculture, which maintains local traditions and protects the environment. The growing market and demand for organic products in Mexico should be preferably supplied by Mexican farmers and be protected from imports, because it is also becoming attractive for exporters from the United States (GAIN, 2011, p. 1).

4.2.3.3 Water Access

As shown before, high inequalities regarding the population's access to food, education, health institutions, and infrastructure still prevail in Mexico. Many Mexicans lack access to water, which is a central part of food security, and thus are highly vulnerable to environmental diseases due to the consumption of polluted water. Of course, this mostly affects the poorest parts of society. Therefore, in order to assure the consumption of sterilized water, it is common to buy bottled drinking water for the daily demand. Furthermore, the lack in the access to water favors the consumption of soft drinks because often they are more accessible than water.

Mexico still is lacking an efficient water management system. Southern regions with a high availability of water lack adequate infrastructure and institutions in order to guarantee a sustainable storage, use and distribution of water. Contrary to this, northern parts of Mexico are highly involved in agricultural production and thus have a high water demand, but show low precipitation rates. This unequal distribution and wasting of water also results in less water available for the poor, who often do not have any access to water-related infrastructure.

> This means that in the regions endowed with more natural resources, water included, poverty is more acute due to an unfortunate combination of lack of appropriate policies and institutions, which, among other issues, have affected negatively the quality of life of the local populations and the environment they live in (UNDP, 2006, p. 2).

In recent decades, the concentration of people living in urban areas has significantly increased. Urban poverty is frequent and many people there live below the poverty line and in extreme conditions, which causes high levels of pollution, affecting the city's water resources and putting additional stress on the available infrastructure (UNDP, 2006, p. 2). However, about 30 million Mexicans still live in communities and rural regions with less than 2,500 inhabitants, which are relatively marginalized and often show a low level of economic productivity as well as high unemployment and emigration rates. Furthermore, especially in these small and often remote areas, the access of people to education and health installations is poor and they often lack clean water, sanitation and sewage systems. Additionally, these areas present the highest rates of malnutrition, mortality rates and generally show a lower life expectancy (UNDP, 2006, p. 3).

In 2005, 89.8% of the Mexican population had access to potable water and 77.6% to sewerage systems. Nevertheless, there are still high amounts of people without access to water-related services: 10 million

people lack of a drinking water supply and more than 22 million Mexicans are not covered by an adequate sanitation service (UNDP, 2006, p. 3).

4.2.4 Reasons for Poverty

In Mexico, poverty mainly refers to three main aspects. There are, first, the high concentrations in income and land, which marginalize large groups of society and exclude them from local and national markets. Large- and middle-scale farmers principally realize the production for export, which concentrates high amounts of the income from trade liberalization to a couple of big enterprises. In contrast, small farmers often practice subsistence agriculture and lack the input tools and land required for commercial production. Two different types of vulnerability can be defined. The first type refers to small and middle-scale farmers, who practice subsistence farming or possess small businesses, and sell small amounts of production surpluses within the small traditional markets. In case of a decrease in general food prices, they would lose their competitiveness and often would need to emigrate and disband their businesses. The second type includes farmers who do not produce sufficient crops for their daily consumption and depend on the additional purchase of food products. This group of people is highly vulnerable to increases in food prices. Therefore, a second reason is, like in Brazil, the confrontation of Mexicans with price fluctuations and high food prices, which from the past until today cause significant increases in the national poverty rates and food insecurity. The third reason considered essential in the present paper is social exclusion, as millions of Mexicans lack access to educational and health institutions or labor markets, and live in rural areas as well as in cities in extreme poverty conditions.

4.2.4.1 First Reason for Poverty: Income & Land Concentration

Mexico is a country with high concentrations in the distribution of land amongst its population. As mentioned before, only 6% of the Mexican corn farmers possess land plots above 20 hectares. Most of the farmers produce corn on a small scale, in land plots with a size less than 5 hectares per family. This unequal development has its roots in Mexican history and has become an important reason for high poverty rates in current days. The next paragraphs present a brief overview of the development of Mexican land until today.

Mexico declared independence in 1820. At this time, 97% of the Mexican land was the property of a few privileged farmers, whereas 2% belonged to small-scale farmers and only 1% to indigenous people and communities. This high inequality in land distribution played a key role in the Mexican revolution, which took place in 1910 under the slogan "land and liberty" and aimed for a redistribution of land. With success: In 1917, the first redistribution was realized and land was distributed and separated into three different categories: land of public property, land that was categorized as *ejidos*[45] and communal areas, and private property (UNCTAD, 2013, p. 123).

In the period from 1917 until today, the redistribution process of land was complex and long lasting. Different institutions were in charge of implementing the reform's legislation, the regulations regarding the land distribution and the enforcement of the agrarian law, among others. Over the course of time, many modifications and adaptations of the reform's regulatory framework and its laws took place, which provoked a loss in transparency and the flourishing of conflicts regarding both past historical inequalities and the current implementation process of land distribution (Appendini, 2002, p. 36).

[45] An *ejido* is an expression for communal land, i.e. a small land plot which was redistributed from large properties (haciendas) to individuals or communities for agricultural purposes (author's note).

From 1917 until the *Agrarian Reform* in 1992, 51.4% of the Mexican arable land was redistributed to small farmers (Appendini, 2002, p. 36). The *ejidos* were of great importance in the Mexican agricultural development. These plots of land were given to small farmers or communities in order to practice agriculture without owning them, with the character of social land. However, the land, which was distributed partially contained large land plots with approximately 90 hectare per farmer, but was comprised of land with low fertile soils and thus little capacity to produce. In 1982, the distribution of land stopped due to limited fertile land and a continuously growing population (Sander, 1999).

The individual *ejido*s and the communal land for many decades could not be transferred to private property. However, the *Agrarian Reform* in 1992 legalized the privatization of *ejido* land. "As a consequence, ejido land has lost its characteristics of strict social property. The possibility to privatize ejido land was accompanied by the end of the state's constitutional obligation to redistribute land to peasants" (UNCTAD, 2013, p. 123). Furthermore, until the *Agrarian Reform*, private property was not allowed to be larger than 300 hectares, but "today's legal system would theoretically allow farmers to acquire larger land possessions" (UNCTAD, 2013, p. 123).

The unequal distribution of land and "the limited size of production units was mentioned several times as one of the most restricting factors for traditional farmers to become more productive and participate in the commercial market" (UNCTAD, 2013, p. 123). The lack of land is therefore an important and central barrier for the small farmers to enter into commercial production.

Still today, Mexican farmers are limited in production because of a lack in size or fertility of the land they possess and thus in many cases they do not have the opportunity to participate in commercial markets. This development is intensified by the high amounts of imports of subsidized agricultural products from the United States, which makes it difficult for Mexican farmers to be competitive. This limitation in productivity is one reason for the high inequalities in income within the country.

Mexico, as well as Brazil, is among the most unequal countries of the world, ranked 25th worldwide (CIA, 2013). Around 2004, 42% of Mexico's total income were controlled by 10% of the richest part of the population, whereas the 40% poorest people approximately received 11%. The Gini index increased from 46.9% in 1989 to 48.1% in 2000 (Henriques & Patel, 2004, p. 2). There is no evidence of a significant change in income inequalities today. From 2008 to 2010, the Gini index decreased from 48.1 to 46% points (INEGI, 2011, p. 29), but the reduction is caused by a decrease in the overall country's income and not by an improvement in the income of the poor. The richest part of the society lost about 13.9% of its income in the period from 2008 to 2010. The two lowest-income groups lost 3.9% and 0.7% of their share in 2010 compared to 2008 (INEGI, 2011, p. 23).

Although historically agriculture has played an important role in Mexico, in the last decade agricultural development was not supported adequately. Hence, the agricultural production of food declined about 28% in the period from 1993 to 2010, as well as the average agricultural wages, whereas other sectors show increases in income. Therefore, the establishment of strategies in order to promote and accelerate rural development shows a high potential in order to protect farmers and to strengthen rural development and national food production. Structural and specific strategies to counteract land and income concentration in Mexico are considered to significantly support "agricultural development [which] is regarded as an opportunity within the Mexican economy to be exploited to create jobs, reduce poverty and enhance food security" (UNCTAD, 2013, p. xv).

Furthermore, an investment into agricultural production of small Mexican farmers would increase the amount of available food and thus decrease the country's and the people's vulnerability to climate change. In recent years, Mexico already was exposed various times to increasing extreme climate events

such as drought periods, extensive rain falls, floods, mudslides and hurricanes, and "if climate change is not addressed, the Mexican economy is expected to decline by between 3.5% and 4% and suffer significant costs up to 6.2% of GDP" (The World Bank, 2013a).

Although the overall loss in the income of the country's richest part of society had a balancing effect regarding social inequalities, in Mexico the differences in income still are significantly high. This situation was worsened in recent decades by the considerable price fluctuations of central food items caused by trade liberalization, which is considered to be a second central reason for poverty, and will be presented in the next chapter.

4.2.4.2 Second Reason for Poverty: High Prices and Food Price Fluctuations

In Mexico, the currently prevailing poverty conditions were intensified through significant steps towards trade liberalization. In 1987, Mexico became member of the *General Agreement on Tariffs and Trade* (GATT) and entered in 1994 the *Organization for Economic Cooperation and Development* (OECD). In the same year, the country joined the *North American Free Trade Agreement* (NAFTA). The opening of the Mexican market had distinctive severe negative impacts on the Mexican agricultural sector, especially on the historically and traditionally typical corn production (Henriques & Patel, 2004, p. 1). The Mexican government signed NAFTA with the argument that "trade liberalization would let the stiff winds of competition blow through a stagnant agricultural sector" (Henriques & Patel, 2004, p. 1). Although generated data and studies point out that "free trade agreements in general, and NAFTA in particular, have exacerbated the problems facing the rural poor in Mexico" (Henriques & Patel, 2004, p. 1), the Mexican government continues to emphasize trade liberalization as a "panacea for poverty and underdevelopment" (Henriques & Patel, 2004, p. 1).

Mexico has an abundance of labor (Carnegie Endowment, 2004, p. 14) and a varying climate range from desert in the north to tropical conditions in the southeast, allowing a diversified production of agricultural goods. Instead of using these valuable input factors for national production, the Mexican government confronted small farmers with the highly subsidized agriculture of the United States, which almost exclusively uses the highly controversial genetic modified organisms (GMOs) within monocultures to guarantee intensive production. The proportion of genetically modified corn in the total corn production of the United States increased from 1997 to 2009 from 9.5% to 85%, and there is neither a labeling nor a separation between natural seeds and GMOs. This indicates that the proportion of imported genetically modified corn from the United States to Mexico has increased significantly in recent years (Bultmann, 2010, p. 22).

Furthermore, Mexican rural development lacks adjustment processes to price changes and many farmers do not have any access to essential input factors to production such as financial credit and loans, improved irrigation systems, technology or harvest insurances (Henriques & Patel, 2004, p. 1). In recent decades, governmental efforts in the establishment of strategies to support the national rural production and use of the agricultural capacities were rather poor and the economic value of the Mexican factor markets was not efficiently used for poverty alleviation, the national purchasing power was not strengthened and there was no acceleration of a sustainable, environment friendly development. By contrast, in the last decades, Mexican government has increasingly prioritized specific, small groups of population (Henriques & Patel, 2004, p. 1).

The impacts of trade liberalization in the last decades had significant negative effects on Mexican farmers, and, additionally, exposed the vulnerable poor to high fluctuations of international prices, especially regarding the Mexican staple food, which is corn.

The first economic crisis after joining NAFTA took place from 1994 to 1996, when national nutritional poverty increased significantly from 21.2% to 37.4%, and 15.7 million people were aggregated to the group of society which did not have sufficient income in order to buy the products of the basic food basket (Cuéllar, 2011, p. 11). In this period, the Mexican market for the first time was confronted by a considerable increase in the imports of cheap corn from the United States, which caused a sharp decrease in the corn price (- 64%) and resulted in the emigration of approximately 2.3 million farmers to urban regions as well as the partial resolution of their enterprises (Carlsen, 2008). The Mexican farmers could not compete with these cheap prices from the United States, which is one of the industrial countries supporting its national agriculture by two different kinds of subventions. The first type includes direct financial support to farmers, the second type are subventions paid in order to support the item's export. *The World Bank* calculated that without these subventions the world prices for wheat, rice and sugar would increase between 20% and 40% (Dusseldorp & Sauter, 2011, p. 45).

These *artificially* lowered food prices create unequal conditions in the global market competition and particularly affect developing countries, which under these preconditions cannot make full use of their existing comparative advantages, which are – like in the case of Mexico – cheap labor and naturally favorable conditions of production. This is also why those countries – like Mexico – become dependent on food imports from industrial countries (Dusseldorp & Sauter, 2011, p. 41). This food dependency can be determined considering the available total amount of food within a country as well as the population's consumption, and then calculating the percentage of imported items within the national total food consumption (Cuéllar, 2011, p. 10).

A second significant event can be observed in the period from 2006 to 2010, when national nutritional poverty increased from 13.8% to 18.8%. Especially in the years 2007 and 2008, the Mexican economy was affected negatively by the increasing prices of food internationally (Cuéllar, 2011, p. 11). Here, a considerable growth in global demand for bioethanol presented rising corn prices at the international level (Bultmann, 2010, p. 15). In Mexico, this sudden increase in the corn price (+ 279%) caused the so-called tortilla crisis, putting at risk the daily food supply for the Mexican population, especially in rural areas. In 2008, 5.5 million additional people were not able to buy the items of the national basic basket of food anymore. Furthermore, the financial crisis in 2008 – 2009 shifted 1 million more people to nutritional poverty (Cuéllar, 2011, p. 11).

As in the Brazilian case study, the next paragraphs examine the effects of trade liberalization in a detailed way by answering Winters' ten questions:

1. Will the effects of changed border prices be passed through to the rest of the economy?

As described in chapter 4.2.2.1, in the last two decades two clear examples of significant changes in border prices and respective socio-economic effects took place in Mexico. These price changes concerned the Mexican staple food maize, which is one of the reasons for the comparatively severe effects to the Mexican economy and social conditions. The first change in price could be observed during the years 1994 to 1996, when the corn price fell constantly and considerably and caused a significant increase in poverty rates. The second one refers to the Tortilla crisis in 2007, when the worldwide demand of corn rose because of an increase in global production of bioethanol and the corn price was buoyed up to almost 300%. The Mexican government did not establish significant mechanisms in order to cushion price changes. In contrast, trade policies were responsible for the impoverishment of millions of Mexicans.

2. Is reform likely to destroy effective markets or create them?

In Mexico, trade liberalization led to the destruction of available and effective markets. Due to the opening of markets in 1994, 30% of the jobs, which were created in assembly plants for export in the 1990s, have completely disappeared. Asian countries such as China offered the same operations for lower wages than Mexico. Since 1992, the number of agricultural workers has decreased about 10% and the rural wages present 30% less income than other sectors, such as construction, e.g. (Henriques & Patel, 2004, p. 2). Additionally, Mexican corn production with natural seeds cannot compete with the subsidized agriculture in the United States. As mentioned above, Mexico joining NAFTA provoked a severe crisis, a sharp falling of the corn price, the emigration of several millions of farmers and eventually a high increase in poverty rates. "The rural poor have borne the brunt of adjustment to *NAFTA* and have been forced to adapt without adequate government support" (Carnegie Endowment, 2004, p. 12). No significant policies were established by the government in order to cushion the negative impacts on the rural development or the significant increase of poverty rates.

3. Is reform likely to affect different household members differently?

During the research for this paper, no evidence for a different treatment of different household members was found.

4. Will its spillovers be concentrated on areas/activities of relevance to the poor?

The negative effects from trade liberalization are highly concentrated in areas where many poor people live – especially in rural regions. Activities of low-skilled workers were affected by depressing and undermining the Mexican agricultural sector, causing unemployment and significant economic and social changes for the most vulnerable groups of society (Carnegie Endowment, 2004, p. 12). Additionally, the real wages in Mexico have significantly shrunken in comparison with the period before *NAFTA*, a condition which partially was caused by the Peso crisis in the years 1994 – 1995. Furthermore, although a general growth in international competition resulted in a higher productivity, this tendency was neither accompanied by an increase in jobs nor by higher wages. Mexican wages still differ considerably from wages in the United States (Carnegie Endowment, 2004, p. 12).

5. What factors are used intensively in the most affected sectors and what is their elasticity of supply?

The most affected sectors mainly contain low-skilled workers in rural areas. In the case of severe decreases in crop prices, their salaries fall because their products are not able to compete with cheap food imports from the United States. In recent decades, this development caused high quotas of unemployment, because small farmers principally are not able to react by offering their products for cheaper prices or by changing their employment. This caused high emigration rates to cities and to the United States.

6. Will the reform actually affect government revenue strongly?

NAFTA was accompanied by considerable reduction in tariffs, but a detailed examination of the affects to government revenue is above the scope of this paper.

7. Will reform expose the poor to greater risk?

There is the widespread opinion in Mexico, which is also a part of trade theory, that trade liberalization generally causes winners and losers. Studies show that especially in the short- and medium-term the opening of markets generally results in more losers than winners. In Canada, trade caused transitional

unemployment within the manufacturing sector and more than one decade was needed to recuperate (Carnegie Endowment, 2004, p. 13). In the United States, effects of trade liberalization on employments and wage have been minuscule and the "best models to date suggest *NAFTA* has caused either no net change in employment or a very small net gain of jobs" (Carnegie Endowment, 2004, p. 12). Given this result of two decades of *NAFTA* within Canada and the United States, it is not surprising that Mexico, as a net import country, is part of the losers, and that Mexican "farmers are still struggling to adapt to *NAFTA*-induced changes" (Carnegie Endowment, 2004, p. 13). The losses in jobs, the dissolution of thousands of Mexican enterprises and the nearly 300% increase in the price for the most fundamental Mexican food items caused a significant increase in poverty rates and the people's vulnerability and personal risk of impoverishment and food insecurity. In the end, especially those groups of society which are at least able to cope with economic changes, such as small farmers and poor people, are exposed to greater risk and confronted with the need to adjust. In Mexico, they did not get help to adjust to changes but are extremely vulnerable due to low-skills, a lack of financial possibilities and a limited mobility (Carnegie Endowment, 2004, p. 13).

8. Does the reform depend upon or affect the ability of poor people to take risks?

The reform did not give opportunities to the poor to take risks or to participate within job-gaining activities.

9. Will the reform stimulate growth? Will the growth be particularly unequalizing?

As shown in figure 10, trade liberalization in Mexico in the last two decades was accompanied by a strongly varying growth, with a considerable negative result of about 11% in national income in the year 1995, one year after joining NAFTA. Furthermore, "income inequality has been on the rise in Mexico since NAFTA took effect, reversing a brief decline in the early 1990s" (Carnegie Endowment, 2004, p. 13). NAFTA negatively influenced national income distribution, increasing the share of the 10% richest people on the total income, whereas 90% of the population was confronted with income losses or no changes. Furthermore, NAFTA contributed to intensifying regional inequality and eliminated consequently, a further long-term equalizing development in regional incomes (Carnegie Endowment, 2004, p. 13).

10. Will transitional unemployment be concentrated on the poor? Will it be deep or long-lived?

In Mexico, NAFTA barely created additional jobs. Some employment within the manufacturing sector for exports was created through trade liberalization, but these numbers were completely blotted out by considerably high job losses within the agricultural sector. Also, a decline in jobs was expressed within the domestic manufacturers, especially because of an international competitive disadvantage within the Mexican economic system (Carnegie Endowment, 2004, p. 12). In particular, the Mexican agricultural sector records significantly high losses of jobs caused by increased imports of food items. In the case of Mexico, unemployment caused by NAFTA was not transitional but considerable, and was highly concentrated on the poor with long-lasting impacts on the Mexican poverty development. This was mainly caused by a considerable failure in trade politics as well as a lack of governmental support within the national borders.

As the Mexican analysis shows, trade liberalization can have severe impacts on the poor, especially if trade policies are not accompanied by rural development or other mechanisms to strengthen vulnerable economic sectors of a country. In the end, a

> recent World Bank paper found that greater openness to trade is negatively correlated with income growth amongst the poorest 40% of the population. Inequality threatens the economic gains made in other sectors of

> society. Sustained economic growth cannot be achieved without equality – and the more unequal a society is, the more likely is it to suffer from political and social unrest (Henriques & Patel, 2004, p. 2).

The high inequality in income and land distribution and also the intensification of extreme poverty within particular groups of society, specifically Mexican farmers and people living in rural areas due to trade liberalization, causes high amounts of socially excluded people.

4.2.4.3 Third Reason for Poverty: Social Exclusion

The high poverty rates in Mexico, especially in rural areas, indicate that there are large groups of society, which are socially excluded. They suffer from inequalities in their income and lack access to social institutions, which causes severe imbalances in the educational status and in the health conditions of the Mexican population. Of course, there are different levels of social exclusion. The groups of population with inadequate access to food are considered to present the highest levels, because a hungry person lacks access to basic goods and thus generally will spend most of his or her daily capacities confronted with the challenge of how to get additional food (Torres Salcido, n.y., p. 49).

The next chapter of the present paper examines the Mexican anti-hunger and anti-poverty program *Oportunidades* and shows, how its policies counteract the three presented main reasons of poverty.

4.2.5 Oportunidades – Objectives and Basic Foundations of Social Assistance

Cash transfer programs such as *Oportunidades* in recent decades were the subject of controversial opinions and discussions among governments, NGOs and international institutions. There are a couple of aspects, which are essential within the question of whether or not a cash transfer program will be effective as an anti-poverty policy. Some of these will be presented in the following paragraph.

The amount of a cash transfer and the duration of program participation are two important aspects related to anti-poverty policies because they are two influencing factors to the question of whether or not a social program will be effective. Of course, the amount of a cash transfer depends on the program's objective and on the underlying national socio-economic conditions (Niño Zurazúa, 2010, p. 14). Additionally, the transfers should be calculated considering its real value, i.e. they should include inflationary developments within a country in order to protect people from external pressures regarding their purchasing power (Niño Zurazúa, 2010, p. 15). Regarding length of participation, no policy guideline exists which determines the optimal period of social assistance. More likely, this question depends highly on the socio-economic context and the national social, political and economic structures. Another thing to consider is the grade of poverty the family suffers before entering a social program. Families living in extreme poverty already are significantly limited in their productive capacity, e.g. due to health problems, undernourishment, no adequate education. They tend to need more time on social assistance in order to build up basic life conditions.

The Mexican anti-poverty program *Oportunidades* focuses on the people's capacity building and the integration of children in particular. It is a conditional cash transfer program, which aims at providing financial support from the early stages of human development until graduation from high school. In return, the beneficiary families must fulfill certain conditions, i.e. send their children to school and attend regular health checks, among others. The timing of the established policy plays a key role here, because "nutritional and health interventions in early life are significant determinants for improving the productive capacity of people in adulthood" (Niño Zurazúa, 2010, p. 14).

4.2.5.1 Background

In 1994, three years before the implementation of the anti-hunger program *Oportunidades*, Mexico suffered a political and economic crisis, which is considered to be one of the most severe within more than five decades (Niño-Zarazúa, 2010, p. 4). In the same years, the *Zapatista Army for National Liberation* initiated a political revolution, and especially the southern state of Chiapas was the subject of a series of extreme events, which reached their peak in the assassination of the Presidential candidate of the ruling *Institutional Revolutionary Party* (PRI) two months later. This great political intervention caused a high level of internal uncertainty within the country's current living conditions and thus contributed to the Peso crisis, taking place in December 1994. In the following year, the real GDP of Mexico lost 7% and directly impacted on household welfare, and the poverty level increased from 21.2% in 1993 to 37.4% in 1996 (Niño-Zarazúa, 2010, p. 4).

Another important event in the same period and with a considerably high effect to the Mexican poverty conditions was Mexico's joining the *North American Free Trade Agreement* (NAFTA) in the same years as the Pesos crisis. In 1994, NAFTA established a free trade zone between the United States, Canada and Mexico and thus created the foundation for a significant national dependency on food imports and vulnerability to international price fluctuations in the following decades. The years that followed showed limited capacities to establish anti-poverty policies, because of two main reasons. The first was a stagnating GDP[46] that confronted the incoming Zedillo administration (1994 – 2000) with significant restrictions in social expenses and thus little financial capacities to address the poor.

The second reason was that the structures of past social policy interventions were highly lacking in efficiency and in transparency, which is why these policies were assumed to be insufficient. Although almost 60% of the poor population groups lived in rural areas, more than 75% of the financial budget for food routed subsidies to targeted urban areas, without differentiating poor and non-poor people. Thus, the policies did not primarily address the poor but allocated high percentages of food and in-kind subsidies to the non-poor (Niño-Zarazúa, 2010, p. 5). Another social program was highly criticized due to its lack of transparency: the *National Solidarity Program* (Pronasol), established by President Slinas de Gortari. It aimed at reducing the people's vulnerability to rapid market liberalization mechanisms and respective changes in national economic structures in the 1980s. This program was considered to be strongly manipulated during the Presidential election of 1994 by the ruling *PRI* (Niño-Zarazúa, 2010, p. 5). Therefore, one of the most important challenges in Mexico was the establishment of clear guidelines of transparency and accountability regarding social spending.

This challenge was taken up by President Ernesto Zedillo Ponce de León, who, due to high political competition and simultaneous democratization processes within the country, initiated a decentralization process of social spending regarding public infrastructure such as schools, hospitals, and roads in rural areas, shifting responsibilities and decision making from state to municipal levels. In 1997, this structural change was realized within the first carrying out of the program *Oportunidades* under its original name *Progresa*[47]. In order to improve the effectiveness of food and in-kind subsidies, another significant change in the structure of social policy was realized within this program, by shifting the focus from whole communities to selected households (Niño-Zarazúa, 2010, p. 5). The next chapters describe in detail the relevant institutions of *Oportunidades*, its financing, objectives as well as the related programs.

[46] Gross Domestic Product.

[47] In order to improve the paper's clarity, the program *Progresa* and *Oportunidades* will be determined as the program *Oportunidades*.

4.2.5.2 Institutions

One central mechanism in order to improve the transparency and accountability was the promotion of a direct relationship between the federal government and the beneficiated households, limiting the intervention of local governments and of civil organizations. "This had the objective of preventing the reproduction of corporatist, authoritarian and clientelistic practices that peasants' cooperative, rural workers' unions and community association have shown in the past" (Niño-Zarazúa, 2010, p. 6). Therefore, the program *Oportunidades* was established excluding civil participation in the form of rural cooperatives, unions and association as well as of local governments in order to prevent the preferential selection of certain groups of society, as has been the experience in the past. On the one hand, civil participation from some private cooperatives in the beginning of the program's establishment were completely excluded from 2002 onwards and the program shifted totally under the control and management of a federal coordinating agency. On the other hand, the lack of economic incentives, the covering of fees or administrator expenses additionally prevented social organizations from asking for participation possibilities (Niño-Zarazúa, 2010, p. 6).

The activities of *Oportunidades* are carried out by three different governmental secretaries, the *Secretariat of Social Development* (SEDESOL), the *Secretariat of Public Education* (SEP) and the *Secretariat of Health* (SSA). The policies are operated as responsibilities of the *Secretariat of Finance and Public Credit* (SHCP) and the *Mexican Institute of Social Security* (SEDESOL, 2010a). The National Coordination of the Program *Oportunidades* is a body of the SEDESOL and is in charge for coordinating the three institutions SEDESOL, SEP and SSA. The operations are supported by a *Technic Committee*, which is formed by sub-secretaries of the participating institutions. These *Technic Committees* also exist on the state level in order to support the program's operation.

Therefore, the realization of *Oportunidades* is a project of intersectoral and interinstitutional coordination and considered innovative within the Mexican Administration (SEDESOL, 2010a).

4.2.5.3 Costs & Financing

In 2010, the *Chamber of Deputies* authorized 63 billion Mexican Pesos[48]. In 2011, the program amounted to a total invested budget of 4.8 billion US-$ (Yanes, 2011, p. 51). According to the *World Bank*, the total costs for *Oportunidades* amount to 9.9 billion US-$. 8.65 billion US-$ of the total sum is financed by the Mexican government, the rest, 1.25 billion US-$ is loaned by the *World Bank*. Approximately 5 cents of every invested Peso is considered to be an operation cost (Sedesol, 2010, p. 21). *Oportunidades*, in the period from 1997 until today, has developed significantly in its coverage and scale. The number of beneficiary families grew from 0.3 million in 1997 to 5.8 million households in 2010, and currently is present in over 100,000 villages and towns, from which 99% are rural and semi urban areas (Sedesol, 2010).

4.2.5.4 Oportunidades: Framework and Objectives

The Mexican program *Oportunidades* embraces a multidimensional approach to poverty and focuses on simultaneous interventions in health, education and nutrition. The program is considered to be a *Targeted and Conditional Cash Transfer Program* (TCCTP), i.e. a policy which includes income transfers and supports access to health or education services by obliging the people to fulfill certain conditions. It has two main objectives, to fight against extreme poverty and additionally to increase

[48] 63 billion Mexican Pesos = 5,098,531,000 US-$, date 03/24/2013 (Währungsrechner, 2013).

human capital. That is why these two policies work by transferring co-responsibilities to parents, e.g. to send their children to school and to draw on periodical consultations in health installations. Thus, it offers income transfers to parents in order to support expenditures on schooling, health and nutrition and by that requires parents to send their children to school and attend periodical health checkups (Niño-Zarazúa, 2010, pp. 6 – 7).

The first objective of *Oportunidades* is based on the assumption that the most important aspect of social policies is to address the poorest parts of population, in order to counteract the highest levels of vulnerability and hunger and thus to consider the principle of social justice. That is because the economics of welfare point out that one dollar given to people living in extreme conditions of poverty is more valuable than one dollar given to people living in wealth. Thus, *Oportunidades* has a strong focus on the poor and follows a complex and statistically-based system of identification and selection of beneficiaries at the household level, in order to assure that the public resources reach households in extreme poverty. Furthermore, *Oportunidades* includes an independent protocol of evaluation in order to improve the programs' effectiveness over time and helps to reach a better national and international legitimacy (Niño-Zarazúa, 2010, pp. 8, 3, 4).

The second program objective aims at improving human capital, i.e. to invest into better educational, health and nutritional conditions of the poor. Generally, the complementary improvements in nutrition, health and education as well as the spillover effects and positive externalities emerging in labor and credit markets, are the key aspects to justify the expansion of social assistance in overall Latin America, in terms of scale and global coverage. All those are based on a human development focus (Niño-Zarazúa, 2010, p. 8).

Empirical studies show that investments in human capital, in combination with financial incentives improve the food security of families regarding the quality and the quantity of food. Additionally, the children get the possibility to go to school, which significantly improves their future perspectives, their economic development as well as their social integration (Niño-Zarazúa, 2010, p. 8).

It is assumed that the three aspects – education, health and nutrition – mainly influence human capacities to be productive and that, therefore, an improvement in human capital facilitates their integration into society. That is because hunger and undernourishment, a lack of medical assistance and education keep down their opportunities for individual development as human beings and thus provoke social exclusion. Therefore, the provided incentives for nutrition, health and education services aim at stabilizing the people's structural and social fundament in order to become able to shift from extreme poverty to better living conditions, to go forward and to develop their personality and specific labor forces.

As previously mentioned, *Oportunidades'* first challenge was to identify and to select the people most in need on the household level. Thus, a first step included a census-based marginality index in order to enable a geographic selection of poor areas. Furthermore, surveys were realized in order to clarify the local socio-economic conditions and the census data as well as proxy-means tests to select beneficiary families of the program.

Due to governmental budget restrictions, the program solely developed in small steps and increased constantly in the period from 1997 to 2010. As the program's approach relates incentives to investments into human capital, in its first year of implementation, *Oportunidades* was only applied in some poor rural areas, which provided the respective basic public services to guarantee the obligatory access to schools and to health services. In the beginning, the program's focus was limited to rural areas while totally excluding urban regions. Therefore, the first support was granted to 300,000 households within 6,344 rural communities. Many rural areas with high poverty rates were excluded because they could

not provide the necessary infrastructure for the fulfillment of the conditions. Another excluded group of society living in rural and urban areas were families without children.

To avoid these exclusions of vulnerable people living in extreme poverty, a major challenge of the administration of President Vicente Fox (2000 – 2006) was *Oportunidades'* extension to urban areas in 2003 (Niño-Zarazúa, 2010, p. 8). In recent years, additional components were added. In 2005, the focus from families with children was extended by including elderly people. Two years later, in 2007, a support for energy costs have become an additional service of *Oportunidades*. Another extension was realized in 2010, when the transfer *Apoyo Infantil Vivir Mejor* was added, a program targeting children under 9 years. With this program, *Oportunidades* for the first time addressed children, which still were not in the school age. The incentive includes a monthly transfer of the small amount of 8 US-$ per child, with a ceiling of three transfers per family (Yanes, 2011, p. 52). The next subchapters aim at explaining the programs in more detail. The policies – as in the Brazilian case study of chapter 4.1 – are presented as counteracting strategies to one of the three reasons of poverty.

4.2.5.5 Counteracting Income and Land Concentration

As shown in chapter 4.2.1.3, agriculture in Mexico has a long tradition, involves 3.4 million farmers in small-scale agriculture and is "among the world's leading agrifoods producer" (UNCTAD, 2013, p. 46).

However, "the withdrawal of government support programs, and the private sector's inability to or lack of interests in filling these roles, has left small agricultural producers out in the cold. […] Access to agricultural credit has decreased at an alarming rate". In Mexico, there is a lack of programs targeting rural development. In the end, *Oportunidades* is a cash transfer program and does not include policies to improve rural infrastructure nor to intensify production, nor does it provide micro-credits or access to input factors to production.

By contrast, recent decades show developments that were increasing poverty rates in rural areas and worsening the rural economy, as show the production in Mexican agricultural reduction and the high emigration rates. National market liberalization by NAFTA had significant negative effects on rural development.

> The terms of trade for [..] [Mexican] farmers, had declined. The influx of below-cost consumer goods and import key agrifood – for which Mexico has comparative advantages in producing them, interacted with other factors affecting Mexican agricultural production and contributed to squeezing farmers out of farming and into poverty or excluded them from high value markets (UNCTAD, 2013, p. 46).

The Mexican development in the last decades did not support the rural poor in order to integrate them into local economic markets. On the contrary, the high vulnerability and the limited opportunities for development within rural areas drove millions of farmers to sell off their lands and to emigrate from Mexico to the United States, searching for work and better living conditions.

Trade liberalization also offered economic opportunities for Mexican agriculture. A broad offer of products and increased export markets can be central aspects in a strategy aiming at increasing jobs and poverty reduction. Nevertheless, although an investment in small-scale farmers by providing input factors for production, access to credits or harvest insurances are "generally considered as the most cost-efficient instrument for reducing poverty, in reality though, both public policies and private actions have not fully exploited this potential" (UNCTAD, 2013, p. 46).

Therefore, the Mexican anti-hunger and anti-poverty strategies still lack central actions such as those improving infrastructure, providing farmers access to microcredits and technologies, input factors and harvest insurances, among others.

4.2.5.6 Counteracting High Food Prices and Food Price Fluctuations

Oportunidades does not provide direct protection from high food prices or food price fluctuations, such as the provision of food stocks, price guarantees or programs supporting rural development or decreasing the people's vulnerability. However, it includes some policies to improve the poor people's access to food, as the *Financial Aid for Food Acquisition*, which provides a bi-monthly cash transfer to beneficiary families. It has the objective to ensure adequate nutrition and grades the amount of a cash transfer regarding different aspects such as the gender, the age and the grade of the schoolchildren. An additional program is *Apoyo Alimentario Vivir Mejor* with the objective of improving the families' economic conditions considering the increasing prices of essential food items.

Box I. *Oportunidades*: Counteracting High Food Prices and Food Price Fluctuations

Specific Policies

Financial Aid for Food Acquisition

The program includes bi-monthly financial aid to the families' mothers in order to buy high quality and sufficient food in order to ensure the adequate nutrition of the beneficiary family's members (Sedesol, 2010, p. 15). On average, households receive a monthly cash aid of 69 US-$ or 827 US-$ per year. The exact amount a family receives depends on the grade of the school and the gender of their children, because *Oportunidades* grants higher financial transfers to female scholarship holders in order to particularly counteract female exclusion. In the end, the highest amount is given to children in the age of high school. The ceiling of a cash transfer by *Oportunidades* is 203 US-$ (Yanes, 2011, p. 51). Children in the age of 6 to 23 months, undernourished children from 2 to 5 years, pregnant and breastfeeding woman get complementary food. These food products are chosen from institutions of health without a caloric base in order to prevent obesity (Sedesol, 2010, p. 15). Elderly people above 70 years get extra financial aid, if they are not covered by the program "Programa 70 y más" of Sedesol and if they are family members of *Oportunidades* beneficiaries.

Apoyo Alimentario Vivir Mejor

The program *Apoyo Alimentario Vivir Mejor* is an additional program for beneficiaries from *Oportunidades*, a financial aid to acquire food in order to protect the families' economic situation from suffering due to the considerable increase of international food prices (Sedesol, 2010, p. 16). This policy includes the financial support for the maximum of three children until the age of nine in order to improve their nutrition and development.

4.2.5.7 Counteracting Social Exclusion

As mentioned before, social exclusion is related to different aspects which can prevent a person from being integrated into social systems and installations. *Oportunidades* aims at improving the people's educational status in order to support their integration into society and respective economic markets. To achieve that, the program grants scholarships to children and young people from primary class to high school. It provides financial support for the purchasing of school materials and gives incentives to keep beneficiaries attending school. In 2009, *Oportunidades* was extended by an additional policy with a focus on urban areas. This is comprised of an improved access to special health services, topping ups to scholarships, considering the higher costs in urban areas and more flexibility regarding the performance of the program's conditions (because of inflexible timetables and longer distances, e.g). Here, beneficiaries can get their cash amount transferred to a bank account, which is considered a further step to social integration.

Box II. *Oportunidades*: Counteracting Social Exclusion

Structural policies

Scholarships

Oportunidades has a multidimensional approach and includes strategies to overcome different dimensions of poverty. One essential element is the provision of scholarships for children and for young people from the primary class up to high school. Additionally, young people get a financial incentive in the case they conclude their education before the age of 22 within the policy "Jóvenes con Oportunidades". In the beginning of the school, the children get a package with necessary basic materials. In further years the program provides an annual financial aid for the material's purchasing. Furthermore, scholarship holders get an initial package with basic health products as well as family members which are at least 15 years old.

Oportunidades supports beneficiaries of scholarships within the inscription to schools, monitors the regular assistance of the children and offers financial supports for school materials. The amount of financial support increases considering the grade of the participated courses and grants more financial transfers to female scholarship holders than to boys (Sedesol, 2010, p. XX). This policy has the objective to prevent gender inequalities by providing young girls incentives to keep on their studies, especially at secondary school and high education (Niño Zurazúa, 2010, p. 14). The experiences of the program showed, that especially young woman tend to drop out of school in early ages (Sedesol, 2010, p. XX).

Another support was added to the program in 2007 and is a cost component for energy costs. The transfer is granted per household in order to compensate spending on used energy sources (power, coal, wood, fuel or candles) (Yanes, 2011, p. 52).

Oportunidades Urbano

In 2009, *Oportunidades* started a pilot project with a focus to urban areas. Puebla, Ecatepec, Juárez, Reynosa, Matamoros, Nuevo Laredo y Tijuana were some of the cities where the program first was established, in 2010 it was extended to all cities on national level. The program grants various benefits to the selected families. It provides a broad access to health services adapted to the needs and diseases of urban citizens. Beneficiaries of educative scholarships get a topping-up considering the higher costs existing in urban areas. Families with scholarships holders in primary class get instead of the original support a compensatory financial aid because of their universal coverage for children in the age of primary class. Children with especially good results get some financial incentives. Due to the timetables, activities and the larger distances in urban areas, *Oportunidades Urbano* grants a major flexibility within the performance of the conditions related to the program. Additionally, beneficiaries get the opportunity to receive their financial support within a bank account, a mechanism which improves the transparency of the granted aids and also is a further step of social integration.

4.2.5.8 A Brief Presentation of Oportunidades' Results

As previously explained, *Oportunidades* experienced a significant development from its establishment in 1997 to 2010. The following figure shows the program's expansion in coverage:

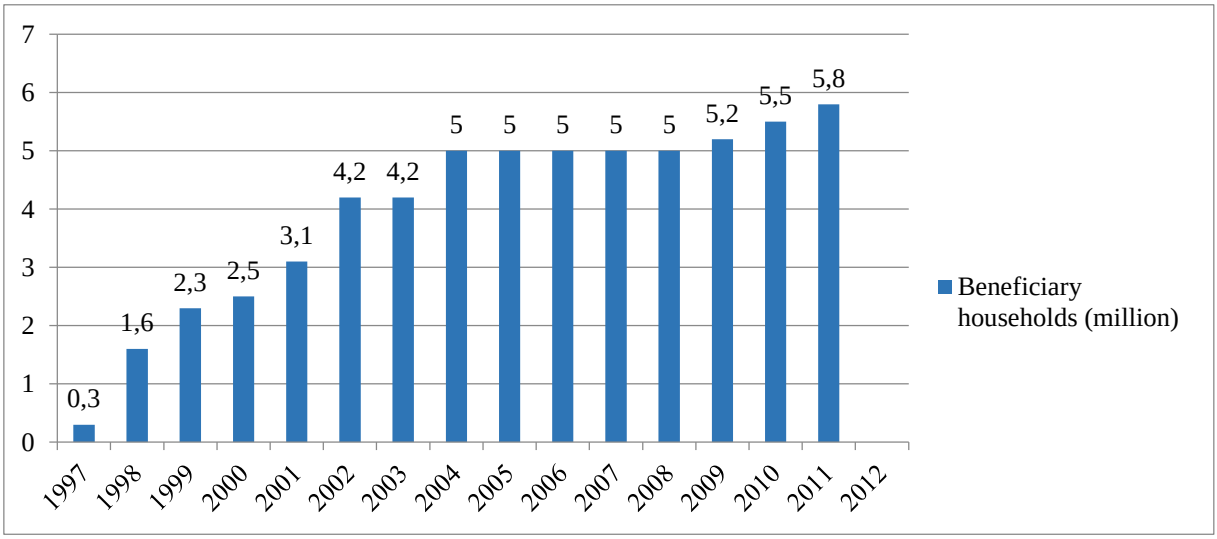


Figure 13: Evolution of *Oportunidades* in scale and coverage from 1997 to 2012.
Source: Niño-Zarazúa, 2010, p. 10, Sedesol, 2012, p. 3, Sedesol 2010, p.19.

The program extended from 1997 to 2010 its coverage and scale from 357 to 2,445 municipalities, from 6,344 to 103,612 localities, and from 300,700 beneficiary households to 5,827,318 in 2011 and now provides financial support to every third Mexican. In 2010, in order to enable them a future integration into society, the program granted 5,000,000 scholarships to children and young people of beneficiary families (Sedesol, 2010, p.11).

Oportunidades is evaluated by various external institutions and experts in order to maintain the program's fundament of impartiality, independence and transparency and gives the *National Council for the Evaluation of Social Development Policy* (CONEVAL) the task of normalizing the respective data of evaluation. The most important evaluating institutions are the *International Food Policy Research Institute* (IFPRI), the public health component of the *National Institutes of Health in Mexico* (INSP), the *Center for Investigation and Study of Social Anthropology* (CIESAS), the *College of Mexico* (Colmex), the *Center for Research and Teaching in Economics* (CIDE), the *Ibero-American University* (UIA), the *College of Sonora*, the *National School of Anthropology and History of Chihuahua* (Sede Chihuahua), the *Berkeley University of California*, the *University College London* and the *Pennsylvania University* among others. The next paragraphs describe the most significant results of external evaluation after a ten-year-period from 1997 to 2007 of *Oportunidades* in rural areas (Sedesol, 2010, pp.22 – 23). The next paragraphs present an overview about the most important results of *Oportunidades'* poverty intervention.

Infantile Development

There has been observed improvements in the linguistic development of children under three years of age.

Education

The school grade for woman has reached 0.85 and for man 0.65. In the period from 1998 to 2003, 10% more of the schoolgirls and –boys selected mathematics as their core area. 26.6% of the indigenous boys, which are supported by *Oportunidades*, follow their studies as their main occupation, in comparison to 12.1% of the boys without a scholarship in the age of 15 to 25. 28% of the girls in the same age dedicate most of their time to their studies, and only 7.4% of the not beneficiary indigenous woman. At the same time, 32.7% of the female mestizos compared to 10.7% non-scholarship holders spend most of their time for school activities.

Health

Families who get financial support by *Oportunidades* are obliged to draw on periodical health checks and to participate in specific health workshops in order to learn about methods for self-protection. Results show, that there were developed some practices of self-recovery and also mechanisms to identify health risks and special attention within beneficiary families for gastrointestinal and respiratory diseases. The policies under *Oportunidades* also help participating families to get access to other programs, such as the *Seguro Popular*. From 1999 to 2007, the number of children with anemia in the age of less than two years decreased from 61% to 35.8%. Additionally, the number of undernourished people has diminished from 35% to 23.9%.

Regarding obesity, the evaluated states showed a lower level of people who are overweight than the national average which is 70%, e.g. 40.4% in Guerrero to 61.1% in Querétaro. Children in the age up to two years show with 35.5% a lower rate of mortality considering common diseases as cough, fever and diarrhea which is 4.4% less than those which are not participators of the program. Another positive result was shown within the values of blood sugar, which averagely decreased of 80% of all the patients

in each of the medical centers which attended to families supported by *Oportunidades* (Sedesol, 2010, pp. 25 – 26).

Reproductive Health

Oportunidades also provides support within sexual and reproductive health, and especially scholarship holders attending the higher middle school classes get specific education regarding sexually relevant topics as family planning, contraception and the relevance of the Papanicolaou test[49], among others. Young people and children who participated in the program for a longer time period show in later years lower rates of pregnancies and sexual diseases, start their sexual experiences later and use contraception more frequently. The women more frequently draw on prenatal services and chose to give birth to their children under medical attention (Sedesol, 2010, p. 27).

Risk Comportment

The evaluation also uncovered a relationship between the general risk comportment and the person's length of participation in *Oportunidades*. Families which for years are beneficiaries consume generally fewer addictive substances as alcohol and tobacco and show a higher consciousness for unhealthy food products (Sedesol, 2010, p. 28).

Income and Expenses

As previously explained, one of the program's objectives is an inversion into the human capital in order to facilitate social inclusion and to improve the personal capacity to work. Therefore, the program provides policies supporting the person's health and education, which has a positive effect on the people's probability of finding a job and increasing their wages.

The evaluation shows that young beneficiaries which participated in at least six years of the program could increase their salaries by 12% to 14%, compared with other young people not participating in the program. The gas and electricity consumption in rural areas has increased since 2007, a positive effect considering that 80% of the rural families used to cook with firewood, a method which has specific negative consequences for the environment and the families' health (Sedesol, 2010, p. 29).

Gender and Ethnic Conflicts

One important part of *Oportunidades*' work is the fight against gender conflicts and injustice. Within the educational institutions, the gender conflicts have almost disappeared in the period of the program's establishment. The female indigenous beneficiaries have almost one year more education than the non-indigenous woman. Within the non-beneficiaries the conditions are reversed and the female mestizos present one and a half year more of education than the indigenous woman. The female children and young beneficiaries show better results within Spanish and mathematics in primary and secondary class. Generally, in primary school, the women living in urban areas presented 15.88 points more, the young girls living in rural areas 17.47 more (Sedesol, 2010, p. 30).

In sum, the results show that the program *Oportunidades* could improve the life conditions of its beneficiaries significantly by giving better future perspectives through (higher) education, health services and an adequate nutrition (Sedesol, 2010, p. 36). Furthermore, the provision of regular income transfers can enable beneficiaries to get access to bank loans. Additionally, the establishment of *Oportunidades* played a key role in the improvement in the nutrition of children below 5 years and

[49] The Papanicolaou (Pap) test is a method in order to detect cervical cancer in early, still curable stages (The Free Dictionary, 2013).

breastfeeding mothers and shows success in the provision of education or access to health installations to the poor.

However, within 13 years of operation, the program did not succeed in poverty reduction (Torres Salcido, n.y., p. 48), neither in general nor in rural areas, where poverty rates are considerably high. This is one reason why poverty alleviation still is a central challenge of Mexican policies (Torres Salcido, n.y., p. 48).

Especially within nutritional poverty the results of the program are rather poor. The opinion prevails that *Oportunidades* probably reached better results in reducing capability poverty than nutritional poverty. While taking into consideration the capability poverty line, rural areas show a higher reduction in poverty than urban regions. The best results can be observed in the alleviation of patrimonial poverty, which shows a reduction of about 4.8% between 1992 and 2008 in rural areas, whereas in cities this type of poverty shows an increase of about 16.7% in the same period (Torres Salcido, n.y., p. 51).

Mexico still lacks a program for supporting rural development and additional policies for the creation of jobs. This fact in particular shows the development of the national unemployment rate, which considerably increased in recent years from 2.5 in 2000 to 5.2 in 2011 (Index Mundi, 2013b). The next chapter presents the evaluation and the comparison of both countries Mexico and Brazil and of both programs *Oportunidades* and *Fome Zero/Pnsan*.

5 Conclusions and Outlook

This part of the paper presents an evaluation of both programs *Oportunidades* and *Fome Zero/Pnsan* from Mexico and Brazil and is based on the examined facts about the countries' and the strategies' structures in the previous chapter 4. This chapter has the objective to compare the efficiency of both programs and then to derive the most essential steps for the planning of respective anti-hunger and anti-poverty strategies. Table 10 presents a first overview about the most important differences and similarities. A "X" in the table signifies that the respective step, mechanism or aspect was effectively fulfilled in the country of investigation. An "O" means that the respective country lacks an adequate mechanism or strategy in order to achieve effective results. A "–" signifies that a respective examination was beyond of the scope of this paper. The evaluation is realized on basis of the conclusions made within chapter 4 and will be explained in detail in the following paragraphs.

Table 10: Evaluation of Brazil's and Mexico's efforts in poverty alleviation.

	Brazil	**Mexico**
First Step: Identification and Coverage of the Poor		
Identification		
Poverty map (location, number and type of poverty)	X	X
Coverage		
Horizontal equity	X	O
Vertical equity	X	X
Step Two: Country-Specific Analysis of the Internal and the External Influencing Factors to Poverty		
Analysis examining the external influencing factors to poverty	O	O
Protection from transmitted changes in border prices	X	O
Support of effective markets	X	O
Consideration of different family members	O	O
Focus of spillover effects to the poor	O	O
Use of available labor, support during change in employment	O	O
Effects from change in government revenues	–	–
Protection from risks	O	O
Support to take risks	X	O
Equalizing growth	O	O
Support within transitional unemployment, creation of new labor markets	O	O
Analysis examining the internal influencing factors to poverty	X	O
Step Three: Definition of Strategies for Cash Transfers and Social Assistance		

	X	X
Step Four: Definition of Strategies of Emergency		
	X	X
Step Five: Definition of Structural Strategies		
	X	O
Step Six: Definition of Exit Strategies		
	X	O
Step Seven: Evaluation of Efficiency and Sustainability		
Efficiency	X	O
Sustainability	O	O
Step Eight: Establishment of an Efficient Change Management		
	X	O

Source: Own illustration.

5.1 Step One: Identification and Coverage of the Poor

Identification

Poverty map (location, number and type of poverty)

At the end of the 20th century, Brazil put forth efforts in order to identify the poor, their food security conditions and nutritional status. Comprehensive data sets were available as the basis for *Fome Zero's* establishment, generating anthropometric and survey data as well as measurements considering people's per capita income. The collected data provided a broad poverty map showing different levels of poverty and food insecurity within the country. It also offered specific data regarding the amount of poor people in different Brazilian regions in order to identify concentrations of poverty. Estimated numbers of people who were already part of food programs were added to data that provided information about the number of people living under the poverty line. High amounts of people living in low, moderate and high food security were identified (see chapter 4.1.2.1). In addition to that, data was generated regarding extreme poverty and obese people "but there are still high amounts of very poor people who live outside the areas where we collected data and who still have to be found and integrated into our programs" (see appendix II).

Although Brazil presents actualized data regarding current poverty rates in periodical time intervals, parts of the society remain without registered economic situations. The northeast of the country was identified as the region with the highest poverty and food insecurity rates (see chapter 4.1.2.1). Obviously, the identification of the poor is a constant challenge, because people who live in poverty or food insecurity are part of a society with continuously changing economic conditions. Therefore, engaged social workers started an active search (busca activa) of people living in extreme poverty in order to reduce inequality and to enable the latter to draw on their right to sufficient food (CAISAN, 2011, p. 34).

The program *Oportunidades* is the first anti-poverty program in Mexico with a specific focus on the poor. Previous national programs reached quite insufficient results, because they ventured on generalized food subsidies, among other interventions, "which were regarded as being highly regressive, and had high leakages to the non-poor" (Niño Zurazúa, 2010, p. 3). The food subsidies were distributed within all parts of the society and large parts of the invested transfers improved the economic conditions of higher society classes. Anti-poverty strategies like those are supposed to be extremely inefficient and to cause high costs although showing low results (Niño Zurazúa, 2010, p. 6).

For *Oportunidades*, Mexico generated statistical data in order to identify and select the program's beneficiaries at the household level, also in order to improve the strategy's outreach and to prevent "opportunistic political behavior and clientelism, as occurred with previous anti-poverty policies" (Niño Zurazúa, 2010, p. 4). In the past, anti-poverty mechanisms often were subject to political manipulation regarding the mechanisms, the decision-making and the distribution, so that the transfers' focus became blurred. *Oportunidades* was, for the first time, directed to the most vulnerable groups of society (see chapter 4.2.5.4).

Coverage

Horizontal Equity

Brazil established a broad series of anti-hunger and anti-poverty strategies addressing different types of poverty in rural as well as in urban areas. It considered poverty as a multidimensional condition within different groups of the population, which only can be fought by combining structural and emergency policies. Brazil fulfilled the idea of horizontal equity by establishing the *Human Right to Adequate Food* (DHAA) (see chapter 4.1.5.1) for all people of society and by initiating the structural and emergency policies within all regions and types of poverty at once. An example is the provision of incentives to farmers and the social assistance *Bolsa Familia*, two programs which are simultaneously addressing rural and urban citizens (see chapter 4.1.5.3).

In Mexico, governmental budget restrictions limited the program's development so that the coverage of the poor people was extended constantly from 1997 to 2010. In the beginning, *Oportunidades* completely excluded the urban poor as well as rural areas with a lack in infrastructure to fulfill the obliged conditions such as school attendance and regular health checks. Another excluded group were childless people and families, as well as elderly people. Therefore, the program did not achieve horizontal equity from its beginning on because it did not provide coverage to all persons living in the same poverty conditions. Furthermore, eventual spillover effects by the simultaneous establishment of anti-poverty mechanisms within different regions and groups of society were not supported, which probably resulted in a less effectiveness of the program (see chapter 4.2.5.4).

Vertical Equity

Vertical equity is given in both countries. There was no evidence that a beneficiary person or family exited in worse conditions than before.

In the end, both countries are positively evaluated regarding the identification of the poor, because Mexico as well as Brazil provided detailed poverty maps in order to identify the poor. Brazil, by its active search, is looking constantly for additional beneficiaries of the established programs. By contrast Mexico's gradual and too slow extension of *Oportunidades* prevents an immediate inclusion of the most vulnerable and poor. This is the reason why Mexico is negatively evaluated in the category horizontal equity.

Although both countries collected considerable data and localized the poor, Mexico did not achieve horizontal equity from the start. Therefore, as the Brazilian example shows, while establishing an anti-hunger strategy, it is essential not only to identify, to categorize and to localize all the poor and vulnerable people, but to develop an efficient schedule which allows to immediately include all the affected individuals into established programs. Furthermore, the identification and the coverage of the poor should be of continuous efforts in order to reduce continuously the number of unreported cases and by that to include socially excluded people living in remote areas.

5.2 Step Two: Country-specific Analysis of the Internal and the External Influencing Factors to Poverty

External Influencing Factors to Poverty

1. Protection from Transmitted Changes in Border Prices

Brazil established some mechanisms in order to protect their society from changes in border prices in order to maintain the demand at specific prices in case of international price increases. One of many examples is the minimum price guarantee for Brazilian farmers and food stocks. Furthermore, the last decades were accompanied by investments in family agriculture. Policies such as the *Food Acquisition Program* (PAA) improved the commercialization of the products of family farmers and supported a fair distribution of resources for production. Thus, it protected family farmers and indigenous people from the transmission of significant price shocks. These policies were accompanied by various additional food security and anti-poverty mechanisms stimulating local production and demand. In this manner, they prevented an increase in national poverty rates during changes in international food prices.

By contrast, in the last two decades, the Mexican society was, at various times, exposed to changes in border prices for essential food items, as the examples regarding corn during the years 1994 to 1996 and 2007 to 2008 show (see chapter 4.2.4.2). The Mexican poor, especially the small farmers, are highly vulnerable to increases or decreases in the corn price because, on the one hand, corn that is too cheap undermines the local markets. On the other hand, corn that is too expensive affects their ability to purchase it for self-consumption. Significant protecting mechanisms in order to cushion changes in food prices do not exist. The described situation represents the reason for the fact that trade liberalization caused the impoverishment and the emigration of millions of small and medium-scale farmers (see chapter 4.2.1.3).

2. Support of Effective Markets

In Brazil, the opening of markets caused an increase in the import of manufactured goods, which undermined the national manufacturing production. However, an increase in the export of agricultural goods supported the already existing agricultural sector with positive effects for national economies. Although trade liberalization in Brazil had contrary effects on the Brazilian markets and poverty rates, it is partially *destroying* or slowing down existing manufacturing industries and *creating* or supporting the export of agricultural goods. In the end, Brazil is considered to enjoy an advantage of trade liberalization for its national markets (see chapter 4.1.4.2). For that reason, the country was positively evaluated in this category.

In Mexico, trade liberalization severely undermined effective markets. The assembly sector has lost 30% of its jobs since 1994 and about 10% of the agricultural workers have emigrated in search of better living conditions. Furthermore, rural wages have decreased significantly in the last decades. The Mexican agricultural sector did not receive any support in order to stay competitive with the cheap genetically

modified corn from the United States. It also is totally exposed to international price fluctuations (see chapter 4.2.4.2).

3. Consideration of Different Family Members

In neither Mexico nor Brazil was any evidence found for the existence of strategies regarding the distinguished involvement of different family members considering trade liberalization.

4. Focus of Spillover-effects to the Poor

Profits made from trade liberalization in Brazil did not have any equalizing effects and thus did not contribute to poverty alleviation. In contrast, studies show that especially Brazilian states, which were confronted with more tariff cuts, showed a slowdown in poverty reduction and income distribution instead of those with prevailing economic sectors which were less affected. The impacts of trade liberalization affected urban and rural areas differently and did not have direct effects on poverty reduction. By contrast, trade liberalization increased the unemployment rate especially within the manufacturing sector.

In Mexico, trade liberalization had mainly negative spillover effects to the poor, especially during the two considerable price shocks during the years 1994 to 1996 and 2007 to 2009 (see chapter 4.2.4.2) while having severe impacts on rural areas by undermining the agricultural sector. Furthermore, trade liberalization caused a decrease in the real wages of the whole country.

5. Use of Available Labor and Support during Transitional Unemployment

Trade liberalization in Brazil did not have any equaling effects on national wages. Industries such as the manufacturing sector showed an intensive scale in skilled labor and were highly affected by reductions in trade tariffs. Here, the opening of markets favored informal work and unemployment instead of supporting available labor forces, because of a low competitiveness with European and Asian countries. Workers which lost their jobs due to changes in the local economy structure were not integrated into newly created labor markets for years, if at all. Regarding the agricultural sector, trade liberalization in Brazil positively affected the labor market but did not aim at integrating the poor or the high amounts of Brazilian low-skilled workers (see chapter 4.1.4.2).

Mexico, although it has a high abundance in low-skilled work, especially in rural areas, neither put any effort to integrate them into available markets nor used its own labor forces to create new markets within competitive economies such as the agricultural sector. By contrast, people living in rural areas were highly affected by a lack of input factors for production and thus lost their competitiveness in comparison with the subsidized agriculture from the United States. Therefore, millions of Mexican farmers and workers of small- and middle-scale enterprises lost their jobs and emigrated in large amounts to the cities or the United States, in the hope of finding better living conditions. Mexican unemployment rate decreased from 2.5% in 2000 to 5.2% in 2010 (see chapter 4.2.4.2).

Both countries lack of an efficient integration of their workers, especially in the low-skilled sector, into opened economic markets and world trade. Furthermore, in neither Mexico nor Brazil any evidence has been found for the existence of strategies supporting workers during a switch from transitional unemployment to high qualified or high-wage jobs.

6. Effects from Change in Government Revenues

A detailed analysis of the development of governmental revenues would go beyond of the scope of this paper. However, especially in Mexico the program *Oportunidades* was not realized in a broad extension

from its beginning, due to restrictions in government spending, but developed over a period of several years.

7. Protection from Risks

In Brazil, trade liberalization exposed especially skilled-workers from the manufacturing industries to increased risks. A lack of protecting strategies caused an increase in informal work and unemployment rates. There were no strategies established regarding how to integrate low-skilled farmers to the export market (see chapter 4.1.4.2). If there were strategies, an efficient risk management strategy for a change in production, e.g., would have been an essential part of an effective governmental support.

As mentioned before, in Mexico, no strategies have been established in order to cushion risks from trade liberalization. By contrast, especially the low-skilled farmers, which are part of the most vulnerable groups of society and thus are the least capable of coping with economic changes, were highly confronted with price shocks and changes in the national economic system. In this case, a strategy of comprehensive support and subsidies from the government would have been essential in order to strengthen the farmers' competitiveness, before confronting them with the subsidized agricultural products from the United States (see chapter 4.2.4.2).

8. Support to Take Risks

In Brazil, the agricultural production for exports is mainly realized within monocultures occupying large areas of production. Family farmers generally are not integrated into export production. Strategies to support them to take risks in order to participate within international markets did not exist. Furthermore, the lack of assistance within the change of work caused a higher vulnerability of many high-skilled workers in manufacturing industries (see chapter 4.1.1.3 and 4.1.4.2).

However, family farmers have become the subjects of anti-hunger and anti-poverty strategies under *Fome Zero* and *Pnsan*, which included various policies in order to support their access to financial credits and to input factors to production, among others. Additionally, they received assistance in the building of cooperation with supermarket chains, retailers and support with logistics and marketing. Therefore, Brazilian farmers received effective assistance in their integration into local markets. A special policy supporting them is the harvest insurance. It helps them taking risks, while entering new high-risk economic markets, especially in case of a credit intake (see chapter 4.1.4.1).

In Mexico, there is no evidence for the support of groups of society in order to take risks. Especially the vulnerable Mexican farmers did not receive any support for a change in economic activities or for the integration into local or international markets (see chapter 4.2.4.2).

9. Equalizing Growth

Trade liberalization in Brazil stimulated the internal agricultural sector but did not favor a decrease in inequality. By contrast, at state level, which presented sharper reductions in tariffs, fewer results can be observed of the equalizing of income than in areas less affected by tariff reductions (see chapter 4.1.4.2).

Mexico, in the last two decades, presented high variations in growth, but with a strong decline in 1995, one year after its entry to NAFTA (see chapter 4.2.2.1). Furthermore, in the last two decades, trade liberalization had severe negative effects on the national income distribution, intensified regional inequality and reversed previous achievements in equalizing regional incomes in the overall country.

10. Support within transitional unemployment, creation of new labor markets

In Brazil, the resulting unemployment from trade liberalization was not transitional but an unintended side effect. The increase in export positively influenced existing markets within monoculture production of certain groups of society, but did not create new labor markets integrating low-skilled workers in rural areas or skilled workers within urban areas (see chapter 4.1.4.2).
Mexico's entry to NAFTA created some additional jobs within the manufacturing sector for exports, which were, considering the effects on national employment, completely blotted out by high amounts of lost jobs within the agricultural sector. These circumstances caused high amounts of emigration rates and an increase in socially excluded people (see chapter 4.2.4.2).

In Brazil as well as in Mexico, trade liberalization destroyed more labor markets than it has created, except for the positive development of the Brazilian export market of agricultural goods. This is the reason why both countries – Mexico as well as Brazil – were evaluated negatively in table 10, even though Brazil at least established protecting mechanism in order to cushion price shocks from trade liberalization.

The analysis showed that trade liberalization as one of the external influencing factors can have severe consequences on a country's economy and therefore also on its poverty profile. If a country is planning to engage in free trade and thus expecting to progress in poverty alleviation, it is essential to balance the possible outcomes and design respective protective strategies so that the positive effects of free trade to certain markets do not have a major negative influence on other parts of the economy.

Internal Influencing Factors to Poverty

As main important internal influencing factors to poverty the present paper examined in particular income and land concentration as well as social exclusion in Mexico and Brazil. Generally, step two should include a comprehensive analysis of all the relevant internal influencing factors, i.e. also take into consideration lacks of infrastructure, low access to financial credits and loans as well as vulnerability to climate change, among others (see chapter 2.3).

The analysis shows that Brazil put greater efforts in its fight against income and land concentration as well as against social exclusion than Mexico. Strategies such as the *Agrarian Reform*, the *Incentives to Family Farmers* or land legalizing processes supported the generation of income as well as the distribution of land and thus had positive impacts on rural development. Furthermore, a broad and guaranteed inclusion of beneficiaries to social assistance and other provided strategies by *Fome Zero* and *Pnsan* (see chapter 4.1.5.3 – 4.1.5.6) achieved good results in counteracting internal influencing factors to poverty.
Mexico's program *Oportunidades*, however, solely targets social inclusion and the strengthening of human capital while letting income- and land concentrations on the cold. A comparison of the result shows that it is crucial for a country to design both emergency and structural strategies at once in order to counteract poverty in a successful and effective way.

In sum, the establishment of an anti-hunger and anti-poverty strategy should include a comprehensive analysis regarding the internal and the external influencing factors to poverty and hunger, in order to

design and to establish respective strategies. The more detailed the analysis of the reasons and the consequences of poverty is, the more concrete and targeted can be the design of the anti-hunger and anti-poverty strategy. At the end, the more reasons and consequences of poverty are counteracted at the same time, the more rapid and effective the alleviation of poverty can be.

5.3 Step Three: Definition of Strategies for Cash Transfers and Social Assistances

Targeted and Conditional Cash Transfer Program (TCCTP)

In Mexico, as shown in chapter 4.2.5, the fight against poverty mainly consists of the *Targeted and Conditional Cash Transfer Program* (TCCTP) *Oportunidades*, whereas effective structural strategies such as land or income distribution are rather weak. It is notable that in recent years, Latin American countries established cash transfer programs that covered a total of 25 million beneficiary families (approximately 113 million people, i.e. 19% of the overall population), whose costs averagely amounts to social expenditures which represents only 0.40% of the nation's GDP (Yanes, 2011, p. 50). The Mexican *Oportunidades*, indeed, spends the small proportion of about 1.68% of the total federal budget (Yanes, 2011, p. 50). Thus, in the past, Latin American countries implied that "with relatively little public intervention and a small shift in resources there could be important reductions in poverty" (Yanes, 2011, p. 50). In case of these established programs obtaining significant results in poverty alleviation, this would mean that fighting poverty and hunger could be easily reached by the use of modest amounts of public resources (Yanes, 2011, p. 50).

Surely, there are large differences among conditional cash transfer programs, but also many similarities. Most of the programs include certain conditions to adhere to, they target especially families with school-aged children, direct the transfers to households and not to individuals. Furthermore, they usually are not planned and designed as rights, among others (Yanes, 2011, p. 50).

However, the situation of food and nutritional security in Latin America worsened in recent years and "downward trends in child undernutrition were not confirmed" (Da Silva et.al, 2011, p. 351). Rural areas in particular still show high poverty rates. "These elements lead to the need to consider the food security policies adopted until now" (Da Silva et.al, 2011, p. 351).

Some main reasons may exist as to why the results of food security policies have been considerably weak in recent years. First, the establishment of cash transfer programs – even those which are possible to realize with limited economic resources – cannot be either sufficient or efficient in poverty alleviation, because they fight against the consequences of poverty, but not against the reasons for it. To support this logic, one essential, and rhetorical question should be considered: Given the case that a country covered all its citizens with cash transfers in an adequate amount, does this mean that the respective country would successfully eliminate poverty? On the contrary, the sole provision of cash transfers is a constant covering up of roots which still provoke poverty and thus is, in the long-term, a very cost intensive and ineffective strategy. Cash transfers improve the people's living conditions without affecting fundamental structural changes. Furthermore, they are not long-term oriented because in many cases the transfers cannot be stopped without shifting people back into poverty.

Second, cash transfers normally are related to certain conditions and have the objective to invest into human capital, as it is the case in Brazil and Mexico and in most Latin American countries. Therefore, a need for national system arises that is able to integrate the people into economic and social structures. Furthermore, exit strategies must support the people's transfer out of poverty. These measurements are

essential for two reasons. First, people must be enabled to follow their personal development by attending educational and health installations and by having access to jobs. Second, the psychological aspect plays a big role. People should be able to trust their country's economic and social structures. In this manner they can put efforts into their own development and thus believe in the existence of further future perspectives.

Freedom of Decision-Making

More reasons exist why TCCTPs in general are highly criticized. Beneficiaries may, of course, benefit from better living conditions because they get cash transfers, which improve their access to food, give them the opportunity to send their children to school and to check their health status periodically. Thus they probably prevent severe diseases. Nevertheless, conditional cash transfers "deny any autonomy to the poor and the scheme is based on a system of rewards and punishment which assumes that the poor do not know what they want" (Yanes, 2011, p. 49). This situation is like in the previous hypothetical case of people getting cash transfer to improve their overall welfare. The beneficiaries would not be poor anymore, but were strongly dependent on outside help and thus not free in their daily decision-making. These limitations in individual liberty increase by the strength of the related conditions, which are "strong in Mexico and more flexible in Brazil" (Yanes, 2011, p; 50). The conditions are justified by the assumption that poor people do not always have the behavior "exactly as could be expected from rational agents with perfect information" (Yanes, 2011, p. 50). This fact means that the families' efforts regarding improvement into their own capital (health, labor) could be too low, which is why the government`s "logic [..] binds together aid and control" (Yanes, 2011, p. 51).

However,

> despite the importance of conditions, their effectiveness has not been studied separately from the programmes that include them, and it tends simply to be assumed that they work. In fact, there is almost no evidence that conditions make any major difference (Yanes, 2011, p. 51).

Although almost all the Latin American countries relate cash transfers to conditions, no studies are available that confirm their need and utility.

Mexico is a good example showing insufficient results in poverty alleviation, although having established a conditional cash transfer program; data show that "its record in reducing income poverty has […] been limited" (Yanes, 2011, p. 49) (see also chapter 4.2.2.1).

Of course, *Oportunidades* improves the living conditions of beneficiaries and shows relevant data regarding positive developments in health and educational aspects. In addition, it is true that an extension of the program's coverage, the inclusion of more families, elderly people and very young children show a considerable development of the program.

> It is not about denying that the programme […] does not have positive effects on the income of families […] and that it does not help in improving some social indicators. Because of its continuity, coverage and the outlay of resources, it would be impossible for this not to be the case (Yanes, 2011, p. 51).

Nevertheless, as previously mentioned, the improvement of the people's living conditions cannot be equated with poverty alleviation. Again, it is a fight against the consequences of poverty without eliminating the root cause. There are three main reasons why *Oportunidades* has not reached satisfying results within poverty alleviation. The first one is, as explained in detail in chapter 2.2, that cash transfer programs must be accompanied by strategies that aim at mending structural lacks and additionally provide a well-defined exit strategy. Moreover, the structural causes of poverty and hunger principally lie in growing income concentrations (Da Silva et.al, 2011, p. 354). However, in Mexico "the subject of

income distribution stopped being mentioned and social policy was reduced to a single objective, the so-called 'fight against poverty'" (Yanes, 2011, p. 50). In the end, without implementing strategies, improving development and distribution patterns regarding income and land, "the root of the problem will not be fixed (Da Silva et.al, 2011, p. 354).

The second reason is that the Mexican cash transfer program is related to strong conditions in order to control the invested resources into human capital. However, the country still lacks essential improvements within economic and social structures, such as the support of local development, improved food production, an equal distribution of food items, better health and educational systems, among others. A food security policy is "a cross-cutting policy (and not merely a sectoral one […]) and [..] a key element in the planning of any government" (Da Silva et.al, 2011, p. 352). Therefore, if *Oportunidades* provides exit strategies by at least improving the people's health status and providing basic education, the system does not have the capacity in order to integrate them, and thus limits the programs positive long-term effects and efficiency.

Furthermore, in industrialized countries cash transfer programs have the objective to include relatively small groups of socially excluded people, such as disabled or elderly people. Cash transfer programs do not have the capacity to fight against poverty within large parts of society. The reason is that the fight against poverty should not solely focus socially excluded groups of society, but high-income classes where inequalities arise and are caused. This aspect shifts the focus from the poor to the rich, from less developed areas to higher developed regions, where the root of poverty grows and where the high concentrations of income and properties are accumulated.

Therefore, if strategies, as the ones implemented in Mexico, solely focus on the poor and social systems such as higher education and labor markets remain incapable to integrate them, the investments in poverty reduction has not the desired results. Poor people remain poor.

Third, as shown in step two within the external influencing factors of poverty, Mexico is highly vulnerable to price shocks caused by trade liberalization, which caused growing poverty rates during the recent years. Although Mexico – like Brazil – possesses high amounts of natural resources and shows high rates of rural poverty, very few efforts to support rural development and thus to integrate low-skilled workers into local markets have been made so far. Instead of investing into a sustainable and effective production of corn, Mexico imports cheap genetically modified corn from the United States and thus supports the national dependence on international food price fluctuations.

If Mexico, in contrast, would venture into a more productive and sustainable corn production, not only the national GDP would be affected extremely positively, it could also support the nation's substantial identity factors. In result, the measurements described above could be a fundamental aspect for an improved national food sovereignty. The reason is that "food security involves aspects related to food production, distribution and consumption and to health, education and, mainly, development" (Da Silva et.al, 2011, p. 352).

The fight against hunger must take a multidimensional approach, which includes various aspects within the supply and the demand side, and has a basis on national development. The development aspect is central, because, as Winters stresses, every product imported is a loss in national growth. In addition, "only development can bring about appropriate conditions for eradicating hunger from a country once and for all" (Da Silva et.al, 2011, p. 352). Mexico, in contrast to Brazil, did not show national growth in recent years.

In Brazil, the conditional cash transfer program *Bolsa Familia* is part of a national cross-sectorial and comprehensive approach in order to improve food security. Consequently, a strategy for the

improvement of food security should include many more aspects than simply to improve production and to guarantee access to food. Aspects such as food quality, sustainability within production, the possibility to maintain traditional consumption patterns, food education and nutritional information are central within food security strategies. The reasons for these facts are that people with an improved access to food tend to change their consumption abilities towards industrialized food and high amounts of sugar containing refreshments. It is crucial to prevent strategies aiming at food security from merely shifting people to another type of food insecurity, for example leading from undernourishment to obesity.

1. Enforcement of the right to adequate food

In Brazil, in 2010 the right to adequate food was anchored in the Brazilian constitution (see chapter 4.1.5.1). The program *Bolsa Familia* plays a key role in guaranteeing this right to the Brazilian population and in fighting against social inequalities. During the *busca activa* (active search) in 2011, 407 million families living in extreme poverty were located, from which 325 million families were identified as existing beneficiaries of the program *Bolsa Familia*. The latter already fulfilled 50% of the program's objective to find 800 million extremely poor families before 2013. The identified families were included in the *Unique Register of Social Programs* (Brasil.gob.br, 2011b). Therefore, Brazil established active strategies in order to include people living in extreme poverty into the existing social system. This situation gradually assures the people's right to adequate food.

In Mexico, like in Brazil, the declared social right to access to adequate food also exists, which is anchored in the *Politic Constitution of the Mexican United States*, in the *General Law of Social Development* and in the *General Law of Health*. Furthermore, as Mexico is part of the *United Nations Organization* (UNO), the country is obliged to meet the *International Pact of Economic, Social and Cultural Right*. Through this right, every individual is entitled to an adequate life for himself and his family, which includes nutrition, clothing and housing aspects as well as the continuous improving of the conditions of existence (CONEVAL, 2010a, p. 8).

As shown in chapter 4.2.5.8, the amount of beneficiary families of *Oportunidades* is currently 5.8 million families and is continuously growing, but there was no evidence found for an active inclusion of extremely poor families. The remaining number of people living in food insecurity and extreme poverty still is alarming high, which is why Mexico it is considered to not fulfill the enforcement for the right to adequate food.

In sum, a conditional cash transfer program can be adequate in order to reach social welfare within certain excluded groups of society. Furthermore, it can be essential for immediately addressing extreme poverty as an emergency strategy. However, it is considered to be insufficient as a unique strategy in the fight against hunger and poverty. The reasons for the insufficiency are the structural roots of poverty that still exist and provoke a further, continuous growth of poverty. Furthermore, social welfare also includes that people can decide for themselves, that they have an opportunity to exit poverty, to integrate into social and economic systems and to invest in their proper personal development.

The next paragraphs briefly discuss some essential aspects within the establishment of cash transfer programs. However, a detailed examination of all the relevant issues is beyond of the scope of this paper.

1. How much should be transferred?

The amount of a cash transfer can vary considerably among different countries and depends on the program's objective. In Mexico, the TCCTP *Oportunidades* aims at fighting hunger and poverty. Indicators show that the established mechanisms within the program reached some good results

regarding the children's health conditions and their educational status, which can be an indicator in order to show the cash transfer's sufficiency. No data was found about the percentage spend for food by *Oportunidades'* beneficiaries.

In Brazil, generated data indicate that an average of 87% of the cash transfer is spent for food, which fulfills Brazil's main objective to assure the established right to adequate food by *Bolsa Familia*. In other regions, studies indicated that *Bolsa Familia* is not sufficient to guarantee food security. This shows that the sole establishment of a cash transfer program is not sufficient as comprehensive and efficient strategy to reach sustainable and wide-raging food security.

2. What form should the transfer take (e.g., cash, food, medical services, housing, etc.)?

Mexico as well as Brazil linked their cash transfers with control. The beneficiaries are obliged to control their health status and to attend school. However, as mentioned above, TCCTPs are highly criticized because they limit a person in his or her freedom of decision-making and imply that poor people probably do not know how to behave in order to protect themselves and in order to integrate into social and economic systems. In Mexico, e.g., the conditions are considerably hard because children are obliged to improve at school. The latter also highly depends on the education's quality, and, children are obliged to "receive and consume nutritional supplements delivered at the healthcare unit for children and pregnant women" (Yanes, 2011, p. 52).

Furthermore, the condition's administrative costs are significantly high and amount to millions of expended dollars within Latin America (Yanes, 2011, p. 51). Additionally, in Mexico "it has been noted that punitive conditions penalize those who most need the transfers, as those in the most desperate situations are those who cannot meet the conditions, and thus lose out on the transfers" (Yanes, 2011, p. 51). In some cases, especially those who urgently need cash transfers are not able to fulfill the conditions, e.g. because they do not have children or because they live far away from relevant infrastructure.

In the end, conditional transfers have at least one relevant advantage: They favor the public support of the overall society for social assistance and so are more easily accepted methods of governmental spending by taxes (Niño-Zarazúa, 2010, p. 8).

3. To whom should the transfers be made, and in what amount?

Mexico as well as Brazil based their programs on previously generated poverty profiles in order to identify the most vulnerable groups of society. In both cases, the transfers are realized per household and not per person, which, on the one hand, lowers the relevant administration costs. On the other hand, the distribution of the cash transfer within the household cannot be controlled. Consequently, especially vulnerable family members such as women and children could lose, despite the overall increase in income. Therefore, in order to prevent expenditures for alcohol, cigarettes and drugs, e.g., in Mexico as well as in Brazil almost 100% of the cash transfers are transmitted to women, who generally show a much higher responsibility regarding the protection of their children and of the whole family. Furthermore, the woman traditionally is engaged in food preparation and thus responsible for the family's healthy nutrition. Furthermore, the official transmission of the responsibility of governmental cash transfers to woman is a strategy in order to strengthen the women's empowerment in their family and the whole society.

4. From whom should the transfers be made, and in what amounts?

In both countries Mexico and Brazil, the programs *Oportunidades* and *Bolsa Familia* are partially financed by the governments themselves, i.e. by tax revenues, in a combination with loans from *the World Bank* and *the International Bank of Reconstruction and Development* (IBRD). In Brazil, the

loaned part amounts to almost 2% of the total costs for the second phase, whereas in Mexico almost 13% of the total costs are borrowed.

5. How are answers to the above question influenced by

a) the effects of the program on the recipients?

In Brazil, an average of 87% of the cash transfers are spent on food, which indicates that most of the transfers reach their objective, to assure food security to the Brazilian population. In other parts of the society studies show that the sole assistance by *Bolsa Familia* is not enough to achieve this aim. In Mexico, *Oportunidades* presented good results in the improvement of the beneficiaries' education and health status for example.

However, no studies looked at the status of families, when they exit *Bolsa Familia* or *Oportunidades*, and integrate independently into social and economic systems. Therefore, it is essential to generate data regarding the people's possibilities to exit the program or to find work after the help of a cash transfer program during the educational development. Furthermore, the opinion exist that beneficiaries of cash transfer programs often do not see the need to exit a program. They get the cash transfer and do not have to work for it, which enables a comfortable living condition. If large parts of society, especially within rural and poor communities, receive cash transfers and do lose their willingness to apply for work or finally quit their subsistence farming, this may provoke severe conflicts between the community members and favor the consumption of alcohol and drugs. Additionally, extra transfers for new born children can result in a baby boom especially within poor communities, which causes an increase in poverty rates in the long term and thus can have an opposite effect to poverty alleviation (see appendix I).

b) the efficiency of administering the program?

During the research for this paper no evidence was found either for a lack in the efficiency of the administration of the program or for an especially effective administration. However, a detailed analysis of the administration's efficiency is beyond the scope of this paper.

In conclusion, a cash transfer program should have the objective to target poor parts of the population which need immediately help because they are confronted daily with diseases and death due to hunger and extreme poor living conditions. These groups of population are not addressed quickly enough by structural strategies, which – on the long term – aim at integrating low-income families into local markets and social installations such as education or health services. Cash transfers can be an essential tool to immediately assist the poor and to include socially marginalized groups such as elderly people, young or disabled people. However, cash transfer programs should neither be a central strategy for poverty alleviation of large parts of the population nor replace essential structural policies. As the Mexican example shows, it is crucial to establish cash transfer programs along with policies addressing structural deficiencies. If they are established as unique strategy for the fight against poverty, cash transfers may show results in the improvement of the educational or health status of individuals but remain weak in overall poverty alleviation because they do not counteract existing reasons of poverty.

5.4 Step Four: Definition of Emergency Strategies

In Brazil, it is still a challenge to link people, which live in moderate or severe food insecurity or suffer extreme poverty effectively to the available anti-hunger programs. Consequently, these people often are socially and economically excluded or live in remote areas. According to *Pnad* data, 11.2 million people are suffering severe food security who need help immediately. Certain groups of the Brazilian

population are especially affected: such as those living in the north or in the northeast of the country, black and mulatto people, households of single mothers as well as indigenous people and communities. Of those groups, indigenous people are still the most vulnerable (see chapter 4.1.2.1).

Thus, the plan of *Brazil without Misery*, which was established in 2011, has the objective to support the generation of income, to accelerate rural and urban production as well as to provide access to public services. Furthermore, engaged social workers started an active search (busca activa) of people living in extreme poverty in order to reduce inequality and to enable the latter to draw on their right to sufficient food. Furthermore, the established programs have to be continued and constantly improved in order to provide access to food for the most vulnerable ones (CAISAN, 2011, p. 34). The sharp reduction in Brazilian poverty rates in last decades indicate that the established combination of emergent anti-hunger and anti-poverty policies, such as the *Food Stamp Program*, *Bolsa Familia*, the *Donation of Emergency Food Baskets*, the *Food Banks* and so forth achieved good results in immediately addressing the poor (see chapter 4.1.5.3).

In Mexico, *Oportunidades* is considered to be an emergency strategy, because cash transfers have a direct and quick positive effect on the people's access to adequate food. However, the program was gradually rolled out and thus did not provide immediate help to the extreme poor, which may have undermined respective spillover effects. Furthermore, large parts of the most vulnerable groups of the population were not addressed for many years and still, millions of Mexicans are living in extreme conditions of food insecurity and poverty. Additionally, the lack of food and nutritional education as well as the lack of access to drinking water, especially in remote areas, cause in many cases a switch from undernourishment to overweight individuals and obesity. It makes people extremely vulnerable to respective non-contagious diseases.

All in all, the definition of emergency strategies should be based on a further identification of the poor (see step one) as well as on an analysis of the respective internal and external influencing factors to poverty (see step two) and contain strategies which immediately cover the most vulnerable and the poorest. An integration of the respective population should be realized in a rapid and an effective way in order to prevent related disease. A cash transfer program can be an effective part of emergency strategies, but – as mentioned in step three – should not be solely established in order to counteract poverty among large parts of society. Furthermore, cash transfers should be accompanied by additional emergency strategies in order to prevent the increase in poverty rates after extreme climate events or extreme price shocks, for example, by the provision of credits, a harvest insurance or the distribution of food stamps, among others.

5.5 Step Five: Definition of Structural Strategies

Brazil shows good results in its fight against hunger and poverty. Strategies such as *Incentives to Family Farming*, the *Intensification of the Agrarian Reform*, the *Harvest Insurance* and the *Food Acquisition Program* counteracted structural lacks and successfully integrated high amounts of poor people into social and economic systems. However, poverty rates are still high. Millions of undernourished, overweight individuals and obese people exist who still need assistance in order to achieve a life in food security. Brazil, in recent decades, due to their strengthened purchasing power, has reached considerable economic growth. Millions of people, especially the beneficiaries of *Bolsa Familia*, but also of other groups of population, received access to school and now are prepared to integrate into the Brazilian labor markets. Therefore, it is now essential for Brazil to invest into infrastructure such as public transport as well as education, high schools, public universities, hospitals and other health installations, in order to be able to cope with the affected people that recently got a perspective for a better life.

If the economy and welfare grow faster than infrastructure, then this could cause high inequalities within its use, because there is no sufficient access for everybody. This fact could also be one of the reasons for the current protests all over Brazil. For the high amounts of young people, who are demanding social justice and an accessible and effective public transport (BBC, 2013).

In Mexico, the current structures still must be improved and effective structural strategies must be established. Rural development, the generation of jobs, access to infrastructure such as drinking water, sewage treatment plants, health installations, schools and streets is a significant deficiency, though these are central steps towards poverty reduction. Especially poor people are not able to integrate into economic and social markets, because there is no effective admission for a growing middle class. As shown in chapter 4.2.4.1, inequality in Mexico has not decreased in recent decades, and a deep rift between the rich and the poor still prevents personal development and future perspectives especially for low-income classes of the society. Here, it needs high efforts in income and land distribution and a boost of the national economy in order to achieve effective results in poverty reduction.

The analysis showed that Brazil did achieve exemplary good results in poverty reduction because it established fundamental structural strategies. Still, efforts have to be made regarding the establishment of improved access to higher education and the provision of an adequate health service and public transport, among others. Mexico did not achieve significant result in poverty reduction because it lacks crucial infrastructure for a rural and urban development. Large parts of society are still socially excluded and thus need to be integrated into the social and economic system. This development indicates that, in sum, the design of emergency strategies should be combined by structural strategies and be based – as it is the case with the emergency strategies – on a previous examination of a country's most important structural lacks. These can be defined through a previous analysis of the most relevant external and influencing factors to poverty and hunger (see step two). High concentrations of poor people – for example in rural areas – can indicate specific reasons of poverty (see step one).

5.6 Step Six: Definition of Exit Strategies

As mentioned in chapter 4.1.4.3, the main objective of *Bolsa Familia* is guaranteeing the Brazilians their right to adequate and sufficient food. It also provides access to schooling. However, the integration of families into a social program should always provide an opportunity to exit the program after a certain time, by enabling the families to achieve economic stable living conditions on their own.

In theory, these young people that leave school should have an opportunity to select an individual way of higher education at university in order to build up personal skills and to train high-qualified expertise to become integrated into the Brazilian labor market. In practice, the exit of the program towards stable living conditions still is poorly feasible. The Brazilian education system is confronted with a high competition among young people who want to apply for further studies. However, available public universities have not enough capacities, which limits the access of the *Bolsa Familia* beneficiaries to higher education and thus restricts the successful training of high-qualified workforces (see Appendix II). This is explained by the following numbers: on the one hand, Brazil contributes 2.7% to the world research providing a significantly high number of research centers and 12,000 PhDs and 41,000 master's students which finish their studies every year. On the other hand, Brazil has a considerably small number of people obtaining a doctorate title, 1.4 per 1,000 habitants between the ages of 25 and 64, compared to 23 in Switzerland, 15.4 in Germany, 8.4 in the United States and 6.5 in Canada.

The lack of high-qualified work forces and expertise, such as engineers, is becoming a problem in Brazil, especially in the recent times of economic growth. The system presents two significant deficiencies.

First, the quality of education varies widely between the different states and regions, and causes high inequalities in the local social and economic development. Second, insufficient capacities of the national public universities cause a high competition among students which additionally limits the possibilities to increase the amount of trained staff and expertise.

The educational system should provide young people with public access to a broad range of studies and thus offer a better future perspective, also including the students who complete school supported by *Bolsa Familia* (Knobel, 2011). Therefore, the provision of sufficient university places and the availability of a high quality educational system would have a triple positive effect. The economic system would provide trained staff, facilitate the exit of millions of people from poverty and decrease the high social and economic inequalities.

In the end, the Brazilian anti-hunger strategies include both emergency and structural policies. However, they lack effective exit strategies and efforts to provide a ready market and functional access to social services.

In Mexico, the population's access to educational and social systems is a significant weakness. Therefore, exit from poverty is still a personal challenge that only in a few cases can be achieved. The still considerably high poverty rates and the small success in poverty reduction in the last decades indicate this fact. No evidence for the existence of strategies supporting young people's ability to integrate into labor markets was found. In recent years the discussion arose

> "on whether this flagship program of social policy in Mexico should remain faithful to its original mandate and further its objectives by granting its youth "graduates" funds to continue into university-level studies or by connecting them to career-type employment opportunities; or whether it should expand its design into a broader system of social protection through its cash-based component (Arnold & de la Fuente, 2010, p. 2).

If structural changes are not achieved in a contemporary way to absorb the additionally buildup of human capital within low-skilled workers, the efforts of the program *Oportunidades* will remain highly ineffective because of investing in something which, in the end, does not have any utility.

Nonetheless, it is important to point out that the cash transfers granted by *Oportunidades* provide a regular income for millions of families, which is in many cases sufficient in order to reduce the people's vulnerability, to provide a stable income flow for the payment of debts and to facilitate the access to credits (Arnold & de la Fuente, 2010, p. 2). In the end, if the cash transfers are taken with responsibility, they can provide a stable base for more welfare, enable a higher consumption of goods and services and thus boost local demand.

In the end, Brazil is evaluated positively because it provides people the opportunity to exit poverty by supporting them during an integration into local markets. However, access to universities and higher education in general, by that the provision of high-qualified labor forces and the people's integration into available labor markets remains an actual national challenge. Mexico is negatively evaluated because no evidence was found for an effective integration of low-income families into existent labor markets or local economies. Furthermore, neither Mexico nor Brazil integrated into their policies an active research and development in order to provide with their programs functional exit strategies shifting beneficiaries out of poverty.

The analysis shows that emergency and structural strategies should provide possibilities for beneficiary families to exit poverty. Respective programs should include institutions for the research, design and realization of exit strategies in order to facilitate beneficiaries to shift out of poverty and to provide the necessary infrastructure and social system. Low-income families should be able to enter national and international labor markets in order to become independent from anti-poverty strategies and thus to

become economically stable in the long term. In case effective exit strategies are provided and thus prior beneficiaries can shift from poverty into labor markets, the previously realized investments into human capital, social assistance and the strengthening of local economies can develop their whole benefit. The newly developed labor forces can be used within the national economy and thus support the national development and economic growth. So, poverty reduction on the same time can be a tool for a sustainable development of a country.

5.7 Step Seven: Evaluation of Efficiency and Sustainability

Efficiency

Each anti-hunger and anti-poverty program should include a facility for continuously monitoring the strategies' efficiency regarding the results in poverty alleviation.

Various factors exist by which the efficiency of an anti-hunger or anti-poverty strategy can be measured. Of course, both countries – Mexico and Brazil – have improved in recent decades the living conditions of large parts of their population. *Oportunidades* has enabled 5.8 million families the access to food and to education for their children and has invested in their health status. The program succeeded in the sense that the beneficiary families could develop their personalities, be more active and participate within social systems. For millions of people *Oportunidades* is of considerable significance because it enabled them to break with inter-generational vicious cycles of poverty: the illiterate parents are not able to teach and educate their children in an adequate manner and are worried every day about the only question of how to access food and how to prevent serious diseases. Millions of children do not go to school but stay at home caring for their brothers and sisters, because they live in extreme poverty conditions. Here, *Oportunidades* showed significant results in the past.

However, the overall poverty rate in Mexico has not decreased yet and a high significance of adaptations and extensions exist within the country's efforts to fight against hunger and poverty. Mexico did not establish an independent council such as the Brazilian CONSEA for consulting and development of proposals to constantly improve the existing strategies. Mexico urgently needs a plan for how to support the beneficiaries to exit poverty. It has to develop a solution for how to mend structural holes and how to counteract the main reasons of poverty. Doing so, the investments into the population's human capital would have the capacity to boost the economy, to educate high-skilled labor forces and to strengthen Mexico's position within world trade. Mexico was evaluated by international institutions, but respective studies only showed results regarding the result in education and health improvements of the beneficiary children and families, but did not consider adequately the weak results in overall poverty alleviation. In the end, Mexico shows an initial attempt in poverty reduction by the establishment of *Oportunidades*, but still highly lacks efficiency, which should be identified by respective monitoring and evaluating institutions.

Brazil is supported by CONSEA in its efforts to improve and to extend respective anti-hunger and anti-poverty strategies, an institution which continuously provides proposals for essential adaptations. Furthermore, the regular conferences provide a broad platform in order to collect ideas and information on the municipal level and to propose them on national level for the strategies' improvements and the realization of respective adaptations (see chapter 4.1.5.1).

The efficiency of the Brazilian's anti-hunger and anti-poverty strategies is represented by the country's success in poverty reduction in recent years. However, and as shown by the recent protests of millions of Brazilians in over 100 cities in all over the country, the provision of adequate social installations such as a good health system, an accessible educational system or an effective public transport remains a

challenge. Therefore, especially young groups of people protest currently against the extreme social inequalities, corruption and the high rates of violence, which still prevail in all over the country (BBC, 2013).

In conclusion, the establishment of anti-hunger and anti-poverty strategies should be accompanied by an institution which continuously provides proposals for improvements and which evaluates the efficiency of the implemented programs.

Sustainability

The evaluation of the sustainability of anti-hunger and anti-poverty programs can contain different aspects. First, the programs should be evaluated and controlled regarding their effectiveness in the long term, i.e. if families are able to exit poverty in a sustainable way.

Second, anti-hunger and anti-poverty strategies should include the evaluation of their sustainability regarding environmental issues. This part is essential because environmental sustainability is essential to assure a long-term adequate development within a country. Furthermore, environmental degradation and the loss of ecosystems and biodiversity can be a central internal or also external influencing factor to poverty and significantly worsen the local living conditions of whole communities.

In Mexico, as shows figure 14, the *Ecological Footprint* exceeded the available natural resources in the mid of the 1970s. This is – as well as in Brazil – due to varying ecosystem management, diverse and intensive agricultural practices, soil degradation, extreme weather events and population growth.

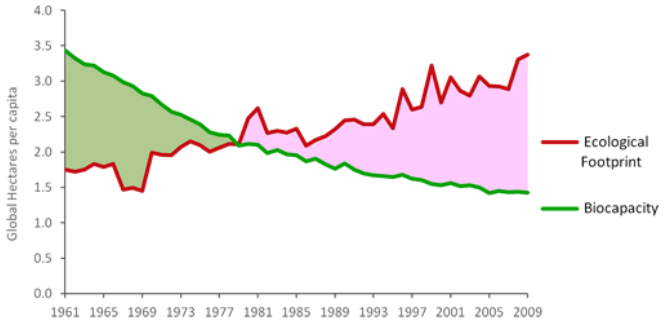


Figure 14: The Ecological Footprint of Mexico[50] (from 1962 to 2009).
Source: Global Footprint Network, 2012b.

Therefore, a sustainable use of its natural resources, an ecological treatment of its soils and environmental protection are the central parts of anti-hunger and anti-poverty strategies, because both hunger and poverty can only be avoided in the long-term, when a sufficient supply of food is available for everybody in the future. However, a detailed examination of the impacts of *Oportunidades* on the natural resources of the country is beyond the scope of this paper.

However, in Brazil the economic and environmental development during the recent years is alarming. The reduction of poverty among millions of people is accompanied by a strongly growing demand, which puts an enormous additional pressure on the natural resources of the country. Figure 15 shows that Brazilian's biocapacity has been shrinking significantly in the last decades and will soon reach its limits. This situation is extremely alarming considering that Brazil is one of the world's countries with

[50] Relation between demand and biocapacity in Mexico. The *Ecological Footprint* depends on the area of biologically productive land and water resources. It is influenced by the activities for production, the used technology and the prevailing management of the natural resources (Global Footprint Network, 2012b).

the highest rate of biodiversity presenting about 20% of all available species of the planet (Brasil.gov.br, 2010).

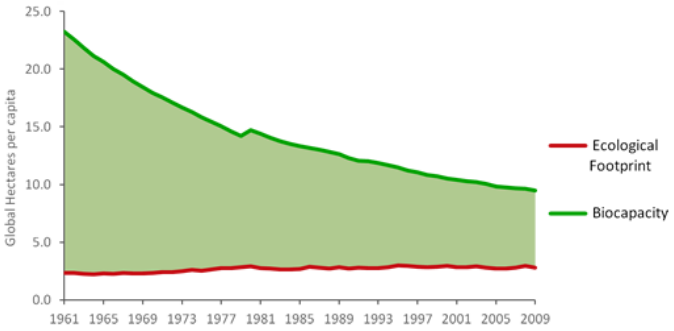


Figure 15: The Ecological Footprint of Brazil (from 1962 to 2009).
Source: Global Footprint Network, 2012b.

Therefore, it is one of Brazil's most important challenges to reach a sustainable development. An example, the study by *Roland Berger Strategy Consulting* indicates this fact showing that Brazil's market for automobiles will double until 2020 up to 6.6 million new vehicles per year, and will be the third biggest automobile market after China and the United States by 2015 (Roland Berger Strategy Consulting, 2011). Here, if economies grow faster than the available infrastructure, cities can become crowded with cars contaminating the air and causing stressful traffic, and even installations such as public transport are not able to cope with those high amounts of people who recently moved up to a higher economic level. Furthermore, Brazil still puts little efforts in ecological agriculture and uses high amounts of pesticides and other toxic substances for intensive agriculture. Currently, the *Agricultural Aviation* has 1,500 airplanes in operation for the extensive application of pesticides, solids and liquids among other activities (EAB, 2011).

Neither Mexico nor Brazil adequately established installations for an improvement of the programs ecological sustainability. This is why both countries are evaluated negatively in table 10.

In conclusion, the sole boosting of local economies is not a sustainable way of poverty reduction. The reason is that an increase in income causes a strengthening of the people's purchasing power. This situation boosts local economies and puts enormous pressure on the natural resources. Therefore, a central aspect in sustainable poverty reduction solely can be achieved by income distribution instead of a sole generation of income. As long as the richest parts of society do not contribute their share to poverty reduction, i.e. redistribute considerable amounts of their income to the poor, protect natural resources and renounce the wasting of products among others, no sustainable poverty reduction will be achieved.

The analysis shows that a sustainable poverty reduction must include a step preparing the aspects efficiency and sustainability within the establishment of anti-hunger and anti-poverty strategies. If a country's effort solely targets economic growth within low-income classes of society, this development in the long-term will worsen the planet's development instead of showing improvements in poverty reduction. A more equal distribution of consumer goods among people, a redistribution of income, land and materials from the rich to the poor is the only adequate way to achieve a global sustainable development on global level in the long term.

5.8 Step Eight: Establishment of an Efficient Change Management

In Brazil, CONSEA and the regular conferences on food security provide the development for improvements in the national food and nutrition security. An examination of the respective realization

of the proposals is beyond of the scope of the paper, but some examples showed that both institutions democratically influenced the program's development (see chapter 4.1.5.1).

In Mexico no evidence was found regarding a respective installation which would continuously provide proposals for improvements and a respective realization, this is why it is negatively evaluated in table 10. In conclusion, anti-hunger and anti-poverty strategies should contain an efficient change management in order to regularly provide methods for an effective realization of proposed improvements.

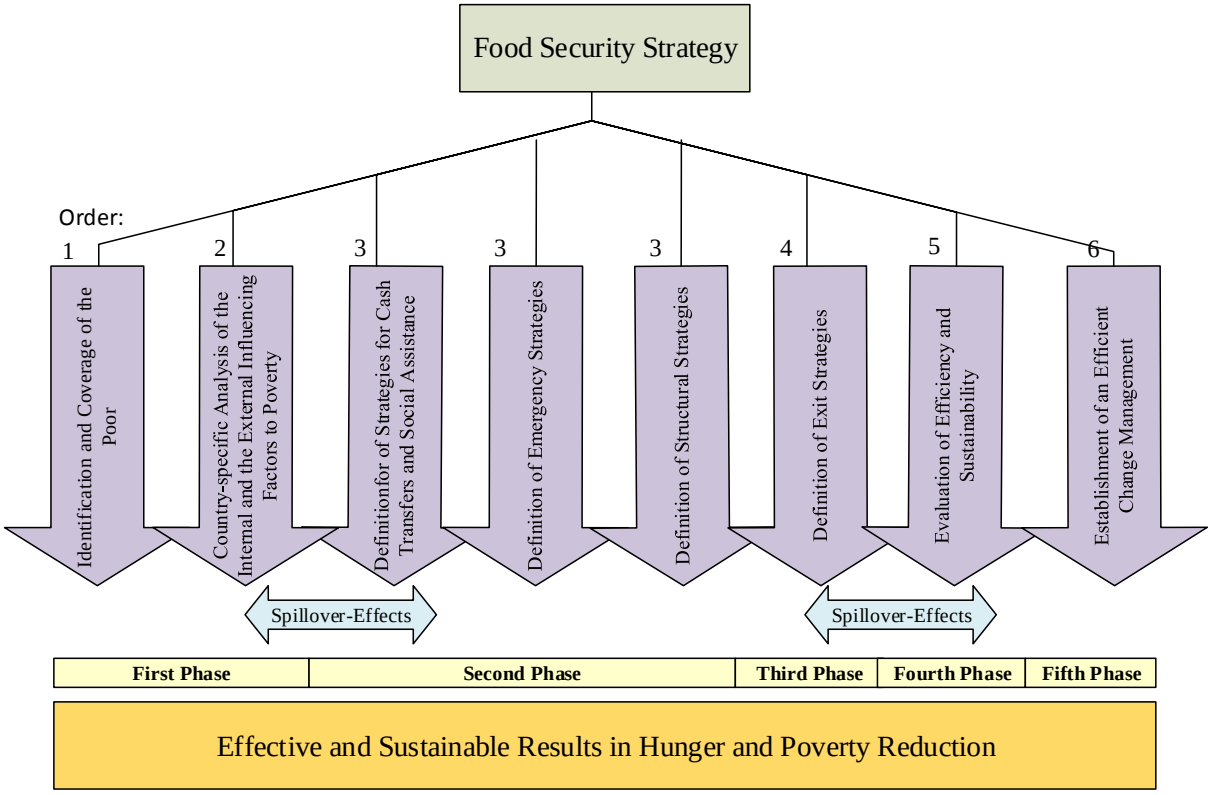


Figure 16: Eight Steps for the development of effective and sustainable food security strategies.
Source: Own illustration.

The present work compared two countries with different economic, social, political and environmental structures. However, the analysis of Mexico and of Brazil indicates that both countries of investigation show various structural differences but also essential similarities which help to bring respective efforts for hunger and poverty reduction into a comparable base.

It is right that the establishment of anti-hunger and anti-poverty strategies is country-specific and requires broad country-specific analysis regarding the poverty-related structures as well as a detailed examination of the internal and external influencing factors to poverty and hunger. However, the analysis of Mexico and Brazil indicates that there are essential aspects which have to be included in the establishment of strategies to improve food security in order to get effective and sustainable results (see figure 16). A country which implements a food security policies should consider and integrate each of the presented eight steps. The establishment of emergency strategies only, for example, is insufficient – like the Mexican example shows. The implementation of structural strategies only would support a too slow improvement of extreme poverty conditions. Furthermore, a lack of exit strategies results in high amounts of people which remain beneficiaries and do not have the opportunity to shift out of poverty and thus become economically independent. Facilities for monitoring and evaluation should control the

efficiency and sustainability of respective programs and thus ensure positive long-term effects and an effective protection of the planet's natural resources. An adequate change management can help to learn throughout the strategies' implementation and to remain flexible in the realization of improvements. In this way, investments into human capital or rural development are guaranteed to be appropriate and effective. A first implementation phase should include step one and step two, to provide a sound basis for the following design of a cash transfer program, social assistance, emergency and structural strategies (step three, four and five), which should be defined and developed in a second phase. A third phase should provide exit strategies and refer to the programs established in step three to five. Phase four should include the establishment of facilities to control, monitor and evaluate the efficiency and the sustainability of the programs. An effective change management should be implemented considering step one to step seven and be realized during a fifth phase.

In the end, the design and the establishment of strategies to improve food security may need a certain time and may be related to high costs. However, if they are realized in a comprehensive, effective and sustainable way, they can have fundamental positive results for a country's development in the long term. They may result in high amounts of skilled human capital as well as give a chance to creative personalities to make sustainable development reality, reduce social inequalities and injustice as well as give millions of people a future perspective and hope.

6 References

A Bhutta, Zulfiqar; Ahmed, Tahmeed; E Black, Robert; Cousens, Simon; Dewey, Kathryn; Giugliani, Elsa et al. (2008): *What works? Interventions for maternal and child undernutrition and survival*. Maternal and Child Undernutrition 3. World Health Organization. Available online at http://www.who.int/nutrition/topics/Lancetseries_Undernutrition3.pdf., last accessed on 6/11/2013.

Appendini, K. (2002): *Land regularization and conflict resolution: the case of Mexico*. In FAO (Ed.): Land Reform. Land Settlement and Cooperatives. 2002/2. Rome, Italy, pp. 36–52.

Arnold, Margaret; de la Fuente, Alejandro (2010): *Conditional cash transfer programs in Mexico.* Progresa - Oportunidades. Global Assessment Report on Disaster Risk Reduction. Available online at http://www.preventionweb.net/english/hyogo/gar/2011/en/bgdocs/Arnold_&_de_la_Fuente_2010%20TS%20pdf.pdf, last accessed on 7/3/2013.

Bawden, Lee D. (1972): *Welfare Analysis of Poverty Programs*. In *American Journal of Agricultural Economics* Agricultural & Applied Economics, pp. 809–814.

BBC (2013): *Brazil unrest: 'Million' join protests in 100 cities*. BBC News. Available online at http://www.bbc.co.uk/news/world-latin-america-22992410, last accessed on 7/5/2013.

Behera, Navnita Ch; Brauch, Hans G.; Chourou, Béchir; Grin, John; Kameri-Mbote, Patricia; Krummenacher, Heinz et al. (Eds.) (2008): *Facing Global Environmental Change.* Environmental, Human, Energy, Food, Health and Water Security Concepts. 1. Ed. Berlin: Springer Berlin (Hexagon Series on Human and Environmental Security and Peace, 4).

Bhagwati, Jagdish (1994): *Free Trade: Old and new Challenges*. In *The Economic Journal* (104 (March)), pp. 231–246.

Blackwell Publishers Ltd (Ed.) (2002): *Trade Liberalisation and Poverty: What are the Links?* Oxford.

Brasil.gov.br (2011a): *Alimentação Adequada e Saudável: Direito de Todos.* 4a Conferência Nacional de Segurança Alimentar e Nutricional. Relatório Final - Declarações e Proposições. Salvador.

Brasil.gov.br (2011b): *Plan Brasil sin Miseria supera metas en seis meses*. Brasilia. Available online at http://www.brasil.gov.br/noticias-1/historia/2011/12/19/plan-brasil-sin-miseria-supera-metas-en-seis-meses/print, last accessed on 7/2/2013.

Brasil.gov.br (2010): *Brazil, a megadiverse country*. Available online at http://www.brasil.gov.br/cop10-english/overview/biodiversity-in-brazil/brazil-a-megadiverse-country/br_model1?set_language=en, last accessed on 7/5/2013.

Bultmann, Julia (2010): *Wie die Gentechnik den Maisanbau in Mexiko bedroht. Eine Studie über die rechtlichen, biologischen und sozio-ökonomischen Folgen*. ISBN-10: 3955494713.

CAISAN (2011): *Plano Nacional de Segurança Alimentar e Nutricional - 2012/2015*. Brasilia, DF.

Carlsen, Laura (2008): *die Hintergründe der Lateinamerikanischen Lebensmittelkrise*. Edited by Quetzal - Politik und Kultur in Lateinamerika - Das Online Magazin. Available online at http://www.quetzal-leipzig.de/lateinamerika/haiti/die-hintergrunde-der-lateinamerikanischen-nahrungsmittel-krise-19093.html, last accessed on 6/28/2013.

Carnegie Endowment (Ed.) (2004): *NAFTA's Promise and Reality.* Lessons from Mexico for the Hemisphere. Carnegie Endowment for International Peace. Available online at http://carnegieendowment.org/files/nafta1.pdf, last accessed on 6/11/2013.

Castilho, Marta; Menéndez, Marta; Sztulman, Aude (2009): *Trade liberalization, inequality and poverty in Brazilian states*. Edited by Paris-Jourdan Sciences Economiques Laboratoire D'Economie Appliquée - INRA. Paris. Available online at http://halshs.archives-ouvertes.fr/docs/00/57/49/96/PDF/wp200933.pdf, last accessed on 5/26/2013.

Chmielewska, Danuta; Souza, Darana (2011): *The Food Security Policy Context in Brazil.* Country Study. Brasilia (number 22). Available online at http://www.ipc-undp.org/pub/IPCCountryStudy22.pdf, last accessed on 5/14/2013.

CIA - Central Intelligence Agency (2013): *The World Factbook.* Gini index. Country comparison, distribution of family income, gini index. Available online at https://www.cia.gov/library/publications/the-world-factbook/rankorder/2172rank.html, last accessed on 5/24/2013.

CONEVAL (2009a): *Aplicación de la Metodología para la Medición de la Pobreza por Ingresos y Pruebas de Hipótesis 2008.* Consejo Nacional de Evaluación de la Política de Desarrollo Social. México, D.F. Available online at http://www.coneval.gob.mx/rw/resource/coneval/med_pobreza/3495.pdf, last accessed on 6/11/2013.

CONEVAL (2009b): *Metodología para la medición multidimensional de la pobreza en México*. México, D.F., last accessed on 6/11/2013.

CONEVAL (2010a): *Dimensiones de la seguridad alimentaria: Evaluación Estratégica de Nutrición y Abasto*. México, D.F., last accessed on 6/11/2013.

CONEVAL (2011a): *Carencia por Acceso a la Alimentación.* Medición de Pobreza 2010. Consejo Nacional de Evaluación de la Política de Desarrollo Social. México, D.F. Available online at http://www.coneval.gob.mx/Informes/COMUNICADOS_DE_PRENSA/NOTA_DIA_MUNDIAL_ALIMENTACION_2010.pdf, last accessed on 11/6/2013.

CONEVAL (2011b): *Medición de la pobreza y carencia en el acceso a la alimentación*. Consejo Nacional de Evaluación de la Política de Desarrollo Social. México, D.F. Available online at http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&ved=0CFQQFjAE&url=http%3A%2F%2Fwww.dif.gob.mx%2Fdgadc%2Fmedia%2FMedicionPobrezaCONEVAL.ppt&ei=f_y2UY2yFcWn4gTEmYCoDg&usg=AFQjCNHvPMBK9Hs3WnzY_c1_BunhHLASfg&bvm=bv.47534661,d.bGE.

CONEVAL (2012): *Evolución de las dimensiones de la pobreza en México 1990-2010*. Consejo Nacional de Evaluación de la Política de Desarrollo Social. Available online at http://www.coneval.gob.mx/Medicion/Paginas/Evolucion-de-las-dimensiones-de-la-pobreza-1990-2010-.aspx, last accessed on 6/21/2013.

CONEVAL (2013): *Medición de Pobreza en México*. Consejo Nacional de Evaluación de la Política de Desarrollo Social. Available online at http://www.coneval.gob.mx/Informes/Med_Pobreza/Como_se_mide_la_pobreza_en%20Mexico.pdf, last accessed on 6/21/2013.

CONSEA (2010): *Food and Nutritional Security and the Human Right to Adequate Food in Brazil.* Indicators and Monitoring - From 1988 Constitution to the Present Day. Conselho Nacional de Segurança Alimentar e Nutricional. Brasilia. Available online at http://www2.planalto.gov.br/consea/internacional/pdf/food-and-nutritional-security-and-the-human-right-to-adequate-food-in-brazil, last accessed on 6/12/2013.

Construyendo Socialdemocracía (2008): *Seguridad Alimentaria*. Boletín de la Fundación por la Socialdemocracia de las Ámericas A.C. Available online at http://www.itescam.edu.mx/principal/sylabus/fpdb/recursos/r79154.PDF, last accessed on 6/21/2013.

Cuéllar, José Alberto (2011): *Programas de Seguridad Alimentaria: Experiencias en México y otros Países*. Edited by Naciones Unidas. CEPAL. México D.F. Available online at http://www.eclac.org/publicaciones/xml/3/44723/2011-050_Programa_seguridad_alimentaria-L.1035-web.pdf, last accessed on 6/11/2013.

Da Silva, José Graziano; Del Grossi, Mauro Eduardo; de França Caio Galvão (Eds.) (2011): *The Fome Zero (Zero Hunger) Program - The Brazilian Experience*. With assistance of The Food and Agriculture Organization of the United Nations. Ministry of Agrarian Development. Brasilia:

nead especial. Available online at http://www.grazianodasilva.org/wp-content/uploads/2011/06/Zero-Hunger-Book-ENGLISH_full.pdf, last accessed on 6/11/2013.

Da Silva, Luiz Inácio Lula (2011): *1. The Zero Hunger Project: A Proposal for a Food Security Policy for Brazil*. In Da Silva, José Graziano, Del Grossi, Mauro Eduardo, de França Caio Galvão (Eds.): The Fome Zero (Zero Hunger) Program - The Brazilian Experience. With assistance of The Food and Agriculture Organization of the United Nations. Brasilia: nead especial, pp. 11–41. Available online at http://www.grazianodasilva.org/wp-content/uploads/2011/06/Zero-Hunger-Book-ENGLISH_full.pdf, last accessed on 6/11/2013.

Del Grossi, Mauro Eduardo (2011): *13. Poverty Reduction: From 44 Million to 29.6 Million People*. In Da Silva, José Graziano, Del Grossi, Mauro Eduardo, de França Caio Galvão (Eds.): The Fome Zero (Zero Hunger) Program - The Brazilian Experience. With assistance of The Food and Agriculture Organization of the United Nations. Brasilia: nead especial, pp. 303–319. Available online at http://www.grazianodasilva.org/wp-content/uploads/2011/06/Zero-Hunger-Book-ENGLISH_full.pdf, last accessed on 6/11/2013.

Der Spiegel (1965): *Coca-Cola.* An der Wasserfront (34/1965), pp. 40–46.

Dictionary Central (2013): *Definition of Skill Premium*. Available online at http://www.dictionarycentral.com/definition/skill-premium.html, last accessed on 6/10/2013.

Dusseldorp, Marc; Sauter, Arnold (2011): *Forschung zur Lösung des Welternährungsproblems - Ansatzpunkte, Strategien, Umsetzung*. Edited by TAB Büro für Technikfolgen-Abschätzung beim deutschen Bundestag. Berlin (Arbeitsbericht Nr. 142). Available online at http://www.tab-beim-bundestag.de/de/pdf/publikationen/berichte/TAB-Arbeitsbericht-ab142.pdf, last accessed on 6/11/2013.

EAB (2011): *Agricultural Aviation*. Edited by Departamento de Ciência e Tecnologia Aerospacial. Expo Aero Brasil. São Paulo. Available online at http://www.expoaerobrasil.com.br/eab/agriculture/?lang=en.

Economic Glossary (2008): *Economic Definition of Factor Market*. Available online at http://glossary.econguru.com/economic-term/factor+market, last accessed on 6/12/2013.

FAO (2013a): *FAOSTAT*. Food Balance Sheet. Food and Agriculture Organization of the United Nations. Available online at http://faostat.fao.org/site/368/DesktopDefault.aspx?PageID=368#ancor, last accessed on 6/9/2013.

FAO (2013b): *Hunger Portal*. Food and Agriculture Organization of the United Nations. Rome, Italy. Available online at http://www.fao.org/hunger/en/, last accessed on 6/11/2013.

FAO (Ed.) (2002): *Land Reform.* Land Settlement and Cooperatives. FAO Corporate Document Repository. 2002/2. Rome, Italy.

FAO (2008): *An Introduction to the Basic Concepts of Food Security.* The Four Dimensions of Food Security. Food and Agriculture Organization of the United Nations. Available online at http://www.fao.org/docrep/013/al936e/al936e00.pdf, last accessed on 7/10/2013.

FAO (2011): *The State of Food Insecurity in the World.* How does international price volatility affect domestic economies and food security? Edited by The Food and Agriculture Organization of the United Nations. Rome, Italy. Available online at http://www.fao.org/docrep/014/i2330e/i2381e00.pdf, last accessed on 5/26/2013.

Fernald, Lia C. H.; Gertler, Paul J.; Neufeld, Lynette M. (2008): *Role of cash in conditional cash transfer programmes for child health, growth, and development: an analysis of Mexico' Oportunidades*. World Health Organization. California. Available online at http://www.who.int/management/country/mex/RoleofCashConditionalCashTransferMexicosOportunidades.pdf, last accessed on 6/11/2013.

References

Food Safety Network (2005): *What is Cassava?* Fact Sheet. University of Guelph. Guelph. Available online at http://www.foodsafety.ksu.edu/articles/533/cassava_factsheet.pdf, last accessed on 6/9/2013.

Gabler Wirtschaftslexikon: *Stabilisierungspolitik.* Definition. Edited by Springer Gabler. Available online at http://wirtschaftslexikon.gabler.de/Definition/stabilisierungspolitik.html?referenceKeywordName=makro%C3%B6konomische+Stabilit%C3%A4tspolitik, last accessed on 7/8/2013.

GAIN (2011): *Organic Foods Find Growing Niche in Mexico*. GAIN - Global Agricultural Information Network (Report Number: MX0322). Available online at http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Organic%20Foods%20Find%20Growing%20Niche%20in%20Mexico_Mexico%20ATO_Mexico_2-11-2011.pdf, last accessed on 6/24/2013.

Global Footprint Network (2012a): *Country Trends.* Brazil. Global Footprint Network - Advancing the Science of Sustainability. Available online at http://www.footprintnetwork.org/en/index.php/GFN/page/trends/brazil/, last accessed on 7/5/2013.

Global Footprint Network (2012b): *Country Trends.* Mexico. Global Footprint Network - Advancing the Science of Sustainability. Available online at http://www.footprintnetwork.org/en/index.php/GFN/page/trends/mexico/, last accessed on 7/5/2013.

Henriques, Gisele; Patel, Raj (2004): *NAFTA, Corn, and Mexico's Agricultural Trade Liberalization*. Americas Program Special Report. Interhemispheric Resource Center. Silver City. Available online at http://dspace.cigilibrary.org/jspui/bitstream/123456789/113/1/NAFTA%20Corn%20and%20Mexicos%20Agricultural%20Trade%20Liberalization.pdf?1, last accessed on 6/11/2013.

História Brasileira (2009): *Quilombo*. Available online at http://www.historiabrasileira.com/brasil-colonia/quilombo/, last accessed on 5/25/2013.

iBase (2008): *Repercussões do Programa Bolsa Familia na Segurança Alimentar e Nutricional das Famílias Beneficiadas*. Instituto Brasileiro de Análises Sociais e Econômicas. Rio de Janeiro. Available online at http://www.ibase.br/userimages/ibase_bf_sintese_site.pdf, last accessed on 6/11/2013.

IBGE (2012): *SIS 2012: entrance of black and brown young people at university has tripled in ten years*. Edited by IBGE - Instituto Brasileiro de Geografía e Estadística. Sala de Imprensa. Available online at http://saladeimprensa.ibge.gov.br/en/noticias?view=noticia&id=1&busca=1&idnoticia=2268, last accessed on 5/24/2013.

INEGI (2011): *Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH 2010.* Principales resultados. INEGI - Instituto Nacional de Estadística y Geografía. Available online at http://www.inegi.org.mx/est/contenidos/Proyectos/Encuestas/Hogares/regulares/Enigh/Enigh2010/tradicional/, last accessed on 6/25/2013.

Index Mundi (2013a): Unemployment Rate (%). Historical Data Graphs per years. Available online at http://www.indexmundi.com/g/g.aspx?c=br&v=74, last accessed on 7/12/2013.

Index Mundi (2013b): Unemployment Rate (%). Historical Data Graphs per years. Available online at http://www.indexmundi.com/g/g.aspx?v=74&c=mx&l=en, last accessed on 7/12/2013.

Instituto Lula (2012): *The Citizenship Institute launched the basis of Lula Institute*. Instituto Lula. São Paulo. Available online at http://www.institutolula.org/eng/?p=38#.UUcgQTfovFw, last accessed on 6/11/2013.

References

Investopedia (2013): *Definition of Exit Strategy.* Dictionary. Day Trading, Entrepreneur, IPO, Private Equity, Risk Management, Venture Capital. Available online at http://www.investopedia.com/terms/e/exitstrategy.asp, last accessed on 6/10/2013.

Investopedia (2013): *Definition of Lorenz Curve.* Dictionary. Financial Theory, Microeconomics, Recession. Available online at http://www.investopedia.com/terms/l/lorenz-curve.asp.

Investopedia (2013): *Income Inequality.* Dictionary. Economy Terminology, International Markets, Standard of Living. Available online at http://www.investopedia.com/terms/i/income-inequality.asp.

Knobel, Marcelo (2011): *Brazil: What is holding higher education back?* University World News - the Global Window on Higher Education. Available online at http://www.universityworldnews.com/article.php?story=20110813084431228, last accessed on 7/3/2013.

Levy, Frank (2008): *Distribution of Income.* The Concise Encyclopedia of Economics. Library Economics Liberty. Available online at http://www.econlib.org/library/Enc/DistributionofIncome.html, last accessed on 5/24/2013.

Lustig, Nora; Gray-Molina, George; Higgins, Sean; Jaramillo, Miguel; Jiménez, Wilson; Paz, Veronica et al. (2012): *The Impact of Taxes and Social Spending on Inequality and Poverty in Argentina, Bolivia, Brazil, Mexico, and Peru: A Synthesis of Results*. Edited by Center for Global Development. Washington (Working Paper 311). Available online at http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?lng=en&id=156962, last accessed on 6/11/2013.

Maluf, Renato S. (2011): *11. Consea's Participation in Building the National Food and Nutrition Security System and Policy*. In Da Silva, José Graziano, Del Grossi, Mauro Eduardo, de França Caio Galvão (Eds.): The Fome Zero (Zero Hunger) Program - The Brazilian Experience. With assistance of The Food and Agriculture Organization of the United Nations. Brasilia: nead especial, pp. 267–291. Available online at http://www.grazianodasilva.org/wp-content/uploads/2011/06/Zero-Hunger-Book-ENGLISH_full.pdf, last accessed on 6/11/2013.

MDA.gov.br (2008): Presidência da República. Casa Civil. Subchefia para Assuntos Jurídicos. Available online at http://portal.mda.gov.br/portal/saf/arquivos/view/alimenta-o-escolar/LEI11947.pdf, last accessed on 7/14/2013.

Mexico Guru (2013): *Spanish: Tianguis - vocabulary*. Available online at http://www.mexicoguru.com/mexican-slang-meaning.php?date=110512, last accessed on 6/24/2013.

Milenio (2011): *Historia de un refresco*. Available online at http://www.milenio.com/cdb/doc/impreso/7102267, last accessed on 6/20/2013.

MX360° (2013): *Coca Cola en la Canasta Básica*. MX360° - Pensemos Juntos. Available online at http://mx360.tv/blog/gobierno/coca-cola-canasta-basica, last accessed on 6/20/2013.

Niño-Zarazúa, Miguel (2010): *Mexico's Progresa-Oportunidades and the emergence of social assistance in Latin America*. Manchester, UK (BWPI Working Paper 142), last accessed on 6/11/2013.

Observatorio (2013): *Indicadores de Alimentación.* Canasta alimentaria en México para el cálculo de la pobreza alimentaria de CONEVAL y líneas de pobreza de capacidades y patrimonial. Edited by Observatorio de política social y derechos humanos. Available online at http://www.observatoriopoliticasocial.org/index.php?option=com_content&view=article&id=59&Itemid=225, last accessed on 6/20/2013.

Olson, Georgina (2012): *Hambre mata más que narco; hay 12 millones sin canasta básica*. Edited by Excelsior Especiales. Available online at http://www.excelsior.com.mx/node/811635, last accessed on 6/21/2013.

Oswald Spring, Úrsula (2008): *Food as New Human and Livelihood Security Challenge*. In Navnita Ch Behera, Hans G. Brauch, Béchir Chourou, John Grin, Patricia Kameri-Mbote, Heinz Krummenacher et al. (Eds.): Facing Global Environmental Change. Environmental, Human, Energy, Food, Health and Water Security Concepts, vol. 4. 1. Ed. Berlin: Springer Berlin (Hexagon Series on Human and Environmental Security and Peace, 4), pp. 1–30.

Portal Brasil (2013): *Productos da cesta básica serão desonerados*. Edited by Brasil.gov.br. Brazil. Available online at http://www.brasil.gov.br/noticias/arquivos/2013/03/11/produtos-da-cesta-basica-serao-desonerados, last accessed on 6/9/2013.

Portal Brasil (2013): *Salário Mínimo*. Brasilia. Available online at http://www.portalbrasil.net/salariominimo.htm#sileiro, last accessed on 5/24/2013.

Roland Berger Strategy Consulting (2011): *Der brasilianische Markt wächst rasant und bietet herrvoragende Chancen für internationale Automobilhersteller und Zulieferer.* München. Available online at http://www.rolandberger.de/medien/pressemitteilungen/511-press_archive2011_sc_content/Brasilien_bietet_Chancen_fuer_Automobilhersteller.html, updated on 7/5/2013.

Sander, Hans Jörg (1999): *Agrarreformen am Beispiel Mexikos.* Agrarwirtschaftliche und ländliche Räume, Handbuch des Geographieunterrichts. In Wolfgang Taubmann (Ed.): Agrarwirtschaftliche und ländliche Räume. Handbuch des Geographieunterrichts, vol. 5: Aulis Verlag Deubner & Co Kg (5), pp. 228–235.

Sauer, Sérgio; Pereira Leite, Sergio (2011): *Agrarian structure, foreign land ownership, and land value in Brazil*. Land Deal Politics Initiative (LDPI). Available online at http://www.iss.nl/fileadmin/ASSETS/iss/Documents/Conference_papers/LDPI/14_Sergio_Sauer_and_Sergio_Pereira_Leite_-_ENGLISH.pdf, last accessed on 7/12/2013.

SEDESOL (2010a): *Funciones de Oportunidades*. Secretaría de Desarrollo Social. Available online at http://www.oportunidades.gob.mx/Portal/wb/Web/funciones_de_oportunidades, last accessed on 6/29/2013.

SEDESOL (2010): *Oportunidades, un programa de resultados*. Secretaría de Desarrollo Social. México, D.F. Available online at http://www.Oportunidades.gob.mx/Portal/work/sites/Web/resources/ArchivoContent/622/Oportunidades,%20un%20programa%20de%20resultados%202010.pdf, last accessed on 6/11/2013.

SEDESOL (2013): *Evaluación de Consistencia y Resultados (ECR) 2011 – 2012*. Secretaría de Desarrollo Social. México, D.F. Available online at http://www.oportunidades.gob.mx/EVALUACION/es/ecr/ecr11_12.php, last accessed on 6/11/2013.

SEKN (2008): *Understanding and Tackling Social Exclusion.* Final Report to the WHO Commission on Social Determinants of Health from the Social Exclusion Knowledge Network. Edited by Jennie Popay, Sarah Escorel, Mario Hernández, Heidi Johnston, Jane Mathieson, Laetitia Rispel. Lancaster. Available online at http://www.who.int/social_determinants/knowledge_networks/final_reports/sekn_final%20report_042008.pdf, last accessed on 6/11/2013.

SEMARNAT (2008): *Chapter 1. People and Environment.* Socioeconomic description of Mexico's population. Poverty. SEMARNAT - Secretaría de Medio Ambiente y Recursos Naturales. México, D.F. Available online at http://app1.semarnat.gob.mx/dgeia/informe_2008_ing/01_poblacion/cap1_2.html, last accessed on 6/21/2013.

Sette, Christina; Ekboir, Javier (2013): *An Overview of Rural Extension in Brazil: The current situation*. Institutional Learning & Change Initiative. Rome, Italy (ILAC Working Paper 14). Available online at http://www.cgiar-

ilac.org/files/publications/working_papers/ilac_workingpaper_no14_rural_extension.pdf, last accessed on 5/25/2013.

TAB (2013): *About TAB.* TAB Büro für Technikfolgen-Abschätzung beim deutschen Bundestag. Berlin. Available online at http://www.tab-beim-bundestag.de/en/about-tab/index.html, last accessed on 7/9/2013.

Takagi, M.; Del Grossi, M.; Graziano da Silva, J. (2005): *The Zero Hunger Programme two years later.* Oficina Regional de la FAO para América Latina y el Caribe. Available online at http://www.rlc.fao.org/es/prioridades/seguridad/ingreso/pdf/zero-eng.pdf, last accessed on 4/30/2013.

Takagi, Maya (2011): *7. Food and Nutrition Security and Cash Transfer Programs.* In Da Silva, José Graziano, Del Grossi, Mauro Eduardo, de França Caio Galvão (Eds.): The Fome Zero (Zero Hunger) Program - The Brazilian Experience. With assistance of The Food and Agriculture Organization of the United Nations. Brasilia: nead especial, pp. 161–249. Available online at http://www.grazianodasilva.org/wp-content/uploads/2011/06/Zero-Hunger-Book-ENGLISH_full.pdf, last accessed on 4/30/2013.

Taubmann, Wolfgang (Ed.) (1999): *Agrarwirtschaftliche und ländliche Räume.* Handbuch des Geographieunterrichts: Aulis Verlag Deubner & Co Kg (5).

The Free Dictionary (2013): *Medical Dictionary.* Cervical Cancer. Available online at http://medical-dictionary.thefreedictionary.com/cervical+cancer, last accessed on 4/30/2013.

The World Bank: *Gini index.* Data. The World Bank - Working For a World Free of Poverty. Available online at Working for a World Free of Poverty, last accessed on 5/24/2013.

The World Bank (2010a): *Additional Financing for the Support to Oportunidades*. The World Bank - Working For a World Free of Poverty. Available online at http://www.worldbank.org/projects/P122349/additional-financing-support-oportunidades?lang=en, last accessed on 7/2/2013.

The World Bank (2010b): *Project Appraisal Document On A Proposed Loan In The Amount Of Us $200 Million to the Federative Republic of Brazil for a Bolsa Familia Project in Support of the Second Phase of the Bolsa Familia Program*. The World Bank - Working For a World Free of Poverty (Report No: 51185-BR). Available online at http://siteresources.worldbank.org/INTLACREGTOPLABSOCPRO/Resources/BRBolsaFamilia2.pdf.

The World Bank (2013a): *Mexico Seeks to Adapt Climate Change and Mitigate its Effects*. The World Bank - Working For a World Free of Poverty. Available online at http://www.worldbank.org/en/results/2013/04/17/mexico-seeks-to-adapt-to-climate-change-and-mitigate-its-effects, last accessed on 6/25/2013.

The World Bank (2013b): *Poverty Headcount Ratio*. The World Bank - Working For a World Free of Poverty. Available online at http://data.worldbank.org/indicator/SI.POV.DDAY, last accessed on 6/20/2013.

The World Bank (2005): *Mexico.* Income Generation and Social Protection for the Poor. Edited by The World Bank - Working For a World Free of Poverty. Document of the World Bank (Report No. 32867-MX, Volume IV: A Study of Rural Poverty in Mexico). Available online at http://siteresources.worldbank.org/INTMEXICOINSPANISH/Resources/social-protection.pdf, last accessed on 6/11/2013.

Torres Salcido, Gerardo (n.y.): *Intensidad de la pobreza alimentaria en las zonas rurales. Localización y nuevas perspectivas para el desarrollo rural*. In *Estudios Agrarios* (44), pp. 47–61. Available online at http://www.pa.gob.mx/publica/rev_44/analisis/03%20intensidad%20de%20la%20pobreza.pdf, last accessed on 6/11/2013.

UNCTAD (2013): *Mexico's Agriculture Development: Perspectives and outlook*. United Nations Conference on trade and development. New York and Geneva. Available online at http://unctad.org/en/PublicationsLibrary/ditctncd2012d2_en.pdf, last accessed on 6/11/2013.

uni-protokolle: *Top-down und Bottom-up*. Mainz. Available online at http://www.uni-protokolle.de/Lexikon/Top-down_und_Bottom-up.html, last accessed on 7/9/2013.

WHO (2006): *Country Cooperation Strategy*. Health and Development. World Health Organization. Available online at http://www.who.int/countryfocus/cooperation_strategy/ccsbrief_mex_en.pdf, last accessed on 6/20/2013.

WHO (2013): *Noncommunicable diseases*. World Health Organization. Available online at http://www.who.int/mediacentre/factsheets/fs355/en/, last accessed on 6/20/2013.

Winters, L. Alan (2002): *Trade Liberalisation and Poverty: What are the Links?* In Blackwell Publishers Ltd (Ed.): Trade Liberalisation and Poverty: What are the Links? Oxford, pp. 1339–1367.

WTO (2013a): *Brazil*. Country Profiles. World Trade Organization. Available online at http://stat.wto.org/CountryProfiles/BR_e.htm, last accessed on 6/9/2013.

WTO (2013b): *Mexico*. Country Profiles. World Trade Organization. Available online at http://stat.wto.org/CountryProfile/WSDBCountryPFView.aspx?Language=E&Country=MX, last accessed on 6/20/2013.

Yahoo Finance: *Währungsrechner*. Available online at http://de.finance.yahoo.com/waehrungen/waehrungsrechner/#from=MXN;to=USD;amt=1, last accessed on 3/24/2013.

Yale Department of Economics: *Elasticity of Demand and Total Revenue*. Available online at http://www.econ.yale.edu/~gjh9/econ115b/slides3_5_4perpage.pdf, last accessed on 7/4/2013.

Yanes, Pab (2011): *Mexico's Targeted and Conditional Transfers: Between Oportunidades and Rights*. Perspectives on Cash Transfers. In *Economic & Political Weekly* (Vol. XLVI No. 21), pp. 49–54. Available online at http://environmentportal.in/files/Mexicos%20targeted.pdf, last accessed on 4/30/2013.

7 Appendix

Appendix I:
Conversation:

Date: 02/25/2013
Name: Jorgdieter Anhalt
Position: Financial Director, Institute for Sustainable Development and Renewable Energies (IDER)

Content:

The Brazilian *Targeted and Conditional Cash Transfer Program* (TCCTP) *Bolsa Familia* has some fundamental lacks, which are related to its *efficiency, sufficiency, consequences* and its *sustainability*.

According to its *efficiency*, the food aid program *Bolsa Familia* has been criticized for some aspects. First, the program does not include a detailed analysis of how the people are spending the money received from the cash transfers. The question is if the people get money from the government to shift out of poverty – is that merely a strategy to give them access to food or does this mechanism also ensure the acquirement of food? What, in reality, do people buy from the achieved financial aid? A second weak point of the program is the included paying out of 1000 R$ for each newborn child which aims at giving the families the opportunity to satisfy the basic needs of their babies. The result of that social policy is that some families plan to born children in a 9-month-cycle: one baby for the financing of a new television, another one for buying a new refrigerator and so forth. Therefore, this extra financial aid, as part from *Bolsa Familia*, results in a baby boom especially within the poor population. The local women giving birth to children, which later grow up in areas where the families receive money from the state, so they do not need to find work. Therefore, in a couple of years, many young people will live in poverty conditions. Among them, nobody knows: What are they going to do with their future? Do they have an adequate future perspective? Especially the education of young people who do not have the need to work is going to result in a significant increase in local social conflicts.

Furthermore, *Bolsa Familia* is not *sufficient*, because it does not include an improvement of necessary infrastructure such as sanitary facilities, access to drinking water or sewage disposal, among others. Therefore, the program does not include mechanisms to protect the people against the most important kinds of environmental diseases, and thus this kind of structural progress remains a task of the local municipals. Therefore, the program has not the capacity to change the basis of the social structures in which the poor people live. Another weakness of *Bolsa Familia* is the lack of control, which part of the family finally receives and uses the money. Do the woman and the children have any benefits from it, or does the man use it to buy alcohol and cigarettes? Who is administrating the money? Is it distributed in a fair way and used in an efficient and adequate manner?

The previously described insufficiencies have *consequences*. First, the people lose the necessity to practice subsistence agriculture or to sell their agricultural products, which causes retired or not efficiently used land plots. Additionally, they do not have to go to work in order to earn money, which contributes to a more or less idle class of society. The social cleft within Brazil has grown significantly in the last five to seven years. The local shops receive most of the programs' benefit by selling their products such as cellular phones, portable computers, cosmetics, clothes and other products. In the end, the program neither provides any help so that the people could help themselves, nor does it change the basic structures.

Regarding the consequences and the sustainability, *Bolsa Familia* is considered not an effective program. One reason is that if the people would lose the financial aid from *Bolsa Familia*, they would lapse back into poverty. Their education is limited to the practice of agriculture, as they have learned it from their forebears, so that it is very difficult to teach local farmers in how to change their natural irrigation methods into an improved and more efficient irrigation system. This situation prevails because, first, it is difficult for them to change their used methods that they have learned from preceding generations. Second, as they receive money without being linked to agricultural practices, they often prefer spending their time in local internet cafes, than on improving their agricultural methods.

Appendix II:
Conversation:

Date: 03/13/2013
Name: Ricardo Kaminski
Position: Student of Sociology in the Federal University of Ceará (Universidades Federal do Ceará), CONSEA member

Bolsa Familia (PBF) aims at guarantee Brazilians their rights to adequate food and, by attending the most vulnerable parts of society, to balance out the wide social inequalities within the society. The program assures regular cash transfers to families with children and which live in extreme poverty conditions. The objective is to support the integration of poor peoples into the Brazilian society. In 2009, 12.4 million families received *Bolsa Familia*, and in recent years, the Gini index presented a decrease of 12% in social inequalities. This success has been achieved because the program was extended intensively in coverage since 2003, while having a strong focus on the poor in the most need, and on pwople who live in the most vulnerable areas of Brazil. Studies of 2008 indicate that the beneficiary families by PBF on average spent 87% of their income for food, up to 91% in the northeast of the country. The high percentage spent for food by the families indicates that the program fulfills its main goal, to assure food security for the vulnerable parts of society. *The Reference Center for Social Assistance* (CRAS) is a decentralized public governmental institution and agency in charge for the poor people's entrance to the *Unique System of Social Assistance* (SUAS).

The institution is responsible for identifying and organizing the integration of especially vulnerable groups of society into the *Basic Social Protection System* (Proteção Social Básica). In order to apply for social assistance, the families in need have to fill in an application form within a databank. After that, the social workers in charge from CRAS visit the families in order to prove their socio-economic conditions and – in need of assistance – they attend them to integrate into the program *Bolsa Familia*.

The main objective of *Bolsa Familia* is to guarantee food security for the Brazilians. However, the integration into a social program should as well always provide the possibility to exit the program after a certain period to be, able to maintain the persons' economically stable living conditions. Children and young people of beneficiary families are also obliged to fulfill specific conditions such as attending school and follwong regular medical health checks. In theory, after leaving school, these young people should have an opportunity to select a personal way of education at university in order to build up personal skills and to train high-qualified expertise to become integrated into the Brazilian job market.

However, this exit mechanism is still poorly realized. The Brazilian education system is confronted with a high competition between young people who want to apply for higher education which constraints the exit of the *Bolsa Familia* program and the training of high-qualified work-force. Especially in recent times of economic growth, the lack of high-qualified work forces and expertise, such as engineers, has become meaningful in Brazil. The system presents two significant weaknesses. First, the quality of education varies widely between the different states and regions, causing high inequalities in the local social and economic development. Second, places in the national public universities are not enough, which causes a high competition among students and also limits the possibilities to increase the amount of trained staff and expertise.

Another program which is considered to be weak is the *Agrarian Reform*. It aims at distributing land to people in need for a collective production in order to overcome the Brazilian historical inequalities in land properties. Even though some positive results have been delivered in the past years, the process of this kind of structural change becomes limited due to strong interests and doubts of some groups of

farmers. This situation slows down the bureaucratic and realization process within financing, technical assistance, and thus, limiting the redistribution of land.