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"The demographic development of the  
Nationalpark-Region Podocarpus  
in Southern Ecuador"

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*A summary of the thesis: "Die Bevölkerungsentwicklung in der Nationalpark-Region  
Podocarpus in Südecuador"*

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## Zusammenfassung (der Diplomarbeit)

Die vorliegende Diplomarbeit befasst sich mit der Untersuchung der Bevölkerungsentwicklung in der Nationalpark-Region Podocarpus (NRP), die sich, im Süden von Ecuador befindet. Um räumlich differenzierte Aussagen zur Thematik treffen zu können, wurde das Untersuchungsgebiet in vier Teilregionen untergliedert und diesbezüglich ebenfalls untersucht.

Neben dem Ziel, die Entwicklung der absoluten Einwohnerzahlen der NRP zu analysieren, werden die demographischen Charakteristika, Bevölkerungsstruktur, Bevölkerungsverteilung, Mortalität und Fertilität, sowie Migration im Kontext der zeitlichen Entwicklung untersucht.

Zur Analyse der genannten Sachverhalte, wird weitestgehend auf quantitative Daten der amtlichen Bevölkerungsstatistik Ecuadors zurückgegriffen, die in Rahmen eines 5-monatigen Aufenthalts vor Ort gesammelt wurden. Diese wurden, unter Einbeziehung bevölkerungsstatistischer Methoden, sekundäranalytisch ausgewertet. Zudem erfolgte die Erhebung qualitativer Daten in Form von Experteninterviews, deren Ergebnisse bei der Interpretation der Ergebnisse der Sekundäranalyse hinzugezogen wurden.

Durch die Untersuchung wurde festgestellt, dass die NRP im betrachteten Untersuchungszeitraum einem durchgängigen Anstieg ihrer Einwohnerzahl unterlag, die sich zwischen 1974 und 2001 mehr als verdoppelte. Jedoch ist, trotz absoluter Zuwächse, eine Verlangsamung des Bevölkerungswachstums der NRP zu konstatieren. Dies drückt sich durch sinkende prozentuale Zuwachsraten im gesamten Untersuchungszeitraum, sowie sinkende absolute Zuwächse im zuletzt betrachteten Zeitraum (1990-2001), sowie einem stärkeren Rückgang der Fertilität im Vergleich zur Mortalität aus, als dessen Folge sich auch die Altersstruktur zu Gunsten der älteren Bevölkerungsanteile verändert hat. Bezüglich der Migration lässt sich festhalten, dass es sich bei der NRP, über den gesamten Untersuchungszeitraum, um ein Zuzugsgebiet handelt, wobei insbesondere im letztbetrachteten Teilzeitraum das Wanderungssaldo stark zu Gunsten der weiblichen Bevölkerung ausgeprägt ist.

Die räumlich differenzierte Betrachtung, der Teilgebiete konnte aufzeigen, dass die Entwicklung der NRP zum größten Teil durch die Entwicklung ihrer westlichen Teilregion, bestimmt wird, die einen Anteil von knapp 90 % der, in der NRP lebenden, Einwohner auf sich vereint.

Auf der Grundlage der bisherigen demographischen Entwicklung, kann auch für die zurückliegenden neun Jahre von einer absoluten Zunahme, bei einem relativen Rückgang, und somit einer weiteren Verlangsamung des Wachstums der Einwohnerzahl der NRP ausgegangen werden. Die geplante Volkszählung in diesem Jahr (2010) wird einen Aufschluss darüber geben und stellt somit die Grundlage für weitere Untersuchungen dar.

**Abstract** (of the diploma thesis)

The diploma thesis deals with an investigation on population development in the National park Region Podocarpus (NRP), South Ecuador. The investigation area has been divided into four Subregions, in order to give spatially differentiated information considering several demographical topics.

Besides the ambition to analyse the development of the absolute number of inhabitants within NRP, demographical characteristics like population structure, population distribution, mortality and fertility, as well as migration have been examined over their chronological trend.

The analysis of these contemplated issues relies mostly on quantitative data by official population statistics of Ecuador which have been gathered during a five-month field work. By integration of population statistical methodology, this secondary data has been interpreted. Beyond, evaluation of qualitative data was carried out in form of expert interviews, and furthermore, these results were consulted for the secondary data examination.

From 1974 to 2001, NRP's number of inhabitants increased continuously which more than doubled in the same period. However, besides absolute increases, retardation of population growth in NRP can be stated. This process is conveyed by sinking percental growth rates in the sample time as well as a declining absolute growth in the last investigated time period (1990 – 2001) and a stronger decrease in fertility in comparison to mortality. In consequence, age distribution changed in favour of the older share of population. For the whole period of examination, NRP has been an immigration area, whereas, especially in the final partial period, migration balance is much more pronounced in favour of female population.

The spatially differentiated examination of the Regional Subspaces revealed that the development of NRP is largely determined by the development of the western sub-region where approximately 90% of NRP's inhabitants live.

For the past nine years, an absolute increase, corresponding to a relative decrease, and consequently, retardation in population growth within NRP can be assumed on the basis of present demographical developments. The intended population census in 2010 will give more information about it, and thus, provide a basis for further investigations.

# 1 Introduction

## 1.1 Preface

The present research paper is a summary of the thesis "*Die Bevölkerungsentwicklung in der Nationalpark-Region Podocarpus in Südecuador*" (engl.: "The demographic development of the Nationalpark-Region Podocarpus in Southern Ecuador"), which focuses on the demographic development in the Nationalpark-Region Podocarpus (NRP) in South-Eastern Ecuador.

The thesis is part of a cooperative project about the implementation of a Monitoring System in the Podocarpus Nationalpark (PNP) between the *Ministerio del Ambiente del Ecuador*<sup>1</sup> the *Universidad Técnica Particular de Loja*<sup>2</sup> (UTPL, Ecuador) and the *GoBI<sup>3</sup>-Research Group* at the University of Greifswald (Germany).

The outcomes of this research may help those responsible building up a Monitoring System for the PNP.

This summary is focussing on essential results of the afore-mentioned thesis, which are presented compactly in subchapters in order to show the most important outcomes of the thesis.

All relevant aspects to characterise the study area and its Regional Subspaces demographically, moreover are shown in figures and listed in tables (see Appendix).

Furthermore the present research paper will give a summary about the methodology that came in operation in the thesis.

Thematic and theoretical aspects of the thesis' issue will not be presented in the present research paper. The complete thesis (in german language) will be attached to this document as pdf-file.

## 1.2 Scientific Rationale

In the course of the afore-mentioned implementation of a monitoring system for the PNP, there is an increasing demand for data and information about the population of the NRP and its development. This is of special interest to the management of the protected area and will increase their capacity to sustainably manage the PNP. The outcomes of this research may help the management body of the PNP identifying new options for reconciling biodiversity conservation and sustainable development.

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<sup>1</sup> Department of the Environment of Ecuador

<sup>2</sup> Loja University of Technology

<sup>3</sup> Governance of Biodiversity

Data about the demographic development of the region exist, but only for certain Subregions, on a large scale (province level) and/or for a short period, according to the reference area of this thesis.

To make a statement on the demographic development of the study area and its Regional Subspaces, all relevant demographic data of the 14 involved municipalities were fitted together to a database and have been analysed.

### **1.3 Research Objective and Research Questions**

The overall research objective of the thesis was to show and analyse the demographic development in the NRP in a maximum possible timeframe by relevant demographic indicators by collecting data (municipal level) from the national Bureau of Statistics and Census of Ecuador (INEC), as well as background information from different local authorities and analyse it to find out reasons for the developments.

To achieve the research objective following research questions needed to be answered:

How did the total population of the NRP and its Subregions change?

Are there recognised any changes according to the demographic structure in the context of the total population change?

How did the distribution of population, with reference to the Regional Subspaces, change?

How did the proportion of the rural and urban population change?

How are settlements and their population distributed in the direct and indirect sphere of PNP?

Which developments took place in terms of mortality and fertility in the research area and its Subterritories?

Which migration trends can be stated in the NRP?

## 2 Study Area and Sample Period

### 2.1 Study Area

The study area, characterised by tropical mountain forests, is situated in South-eastern Ecuador and spreads over 4 Cantons of the two provinces of Loja and Zamora-Chinchipec (ZCH) (see Fig.1)

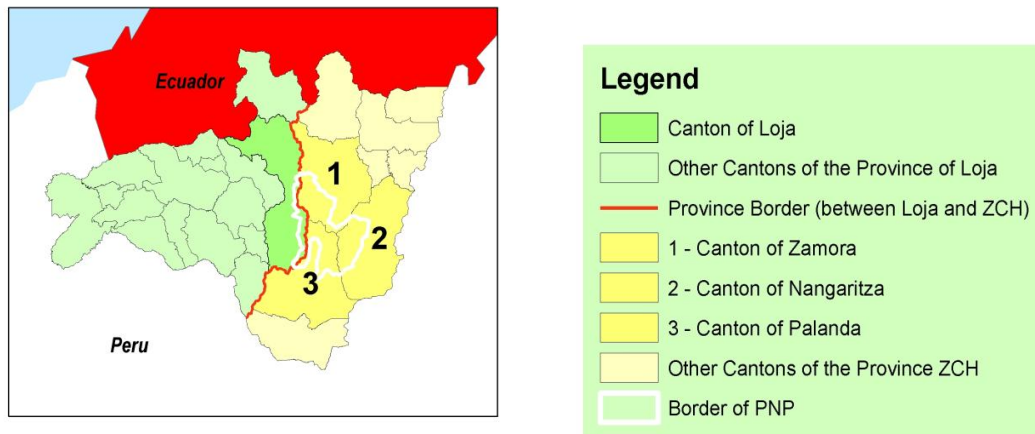


Fig. 1: Participating Cantons of the NRP (INEC 2007; compiled by the author)

The PNP is roughly divided into an upper pre-montane high zone (*zona alta*) in the west, rising up to 3,600 meters, and a subtropical low zone (*zona baja*) in the east (Global Reporter 2010). The topographic and climatic diversity of the region leads to an enormous biodiversity and impressive nature (Riviera Rossi 2007: 186).

The PNP, which was created in 1982 and covers 146.280 ha, is situated in the centre of the NRP and is considered to be one of the *hotspots of biodiversity* in Ecuador.

Furthermore PNP is part of the Podocarpus – El Condor Biosphere Reserve, which has been accepted as a member to the UNESCO Man & Biosphere (MaB) Programme in September 2007 (UNESCO 2010).

The NRP comprises 14 municipalities, whose territories (partially) cover the PNP (direct sphere) or its 5 km - Buffer Zone (indirect sphere)<sup>4</sup>. Eleven rural and three urban municipalities are part of four cantons of the two provinces of Loja and Zamora-Chinchipec (see Tab. 1).

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<sup>4</sup> Exceptions are the municipalities of Quinara and Guayazimi, which were integrated in the research area for statistical reasons.



Furthermore the research area was divided into four Regional Subspaces, the **NRP-West**, **NRP-North**, **NRP-South** and **NRP-East**, in order to give regional differentiated statements about demographic issues (see Fig.2 and Tab.1).

Province	Surface (km <sup>2</sup> )	Canton	Surface (km <sup>2</sup> )	Municipality	Surface (km <sup>2</sup> )	NRP-Subspace	Surface (km <sup>2</sup> )
Loja	11062,85	Loja	1895,23	Loja (urb. <sup>5</sup> )	285,84	NRP-West	1136,78
				Malacatos	206,78		
				SPdV <sup>6</sup>	67,84		
				Vilcabamba	159,24		
				Yangana	269,16		
				Quinara	147,92		
ZCH	10582,93	Zamora	1899,18	Zamora (urb.)	561,53	NRP-North	1335,85
				Sabanilla	307,36		
				Timbara	128,29		
				Imbana	338,67		
		Palanda	1936,42	Valladolid	520,59	NRP-South	1111,72
				EPdC <sup>7</sup>	591,13		
		Nangaritz a	2021,72	Guayazimi (urb.)	184,61	NRP-East	2021,72
				Zurmi	1837,11		

Tab.1: Administrative Divisions of the NRP (INEC 2007; compiled by the author)

## 2.2 Sample Time

According to the existence of data for the research area, the sample time of the thesis has been set from 1974 till 2001. This means that in this 27-year sample period, which covers four Censuses (see Tab.2), data according to relevant demographic indicators for all participating municipalities<sup>8</sup> were available.

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Date of Census

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<sup>5</sup> abbr.: urban municipality

<sup>6</sup> abbr.: San Pedro de Vilcabamba

<sup>7</sup> abbr.: El Porvenir del Carmen

<sup>8</sup> excepting the NRP-East (see A X, A XIV; NRP-East)

1. Census	29 November 1950
2. Census	25 November 1962
3. Census	08 June 1974
4. Census	28 November 1982
5. Census	25 November 1990
6. Census	25 November 2001
7. Census	28 November 2010

Tab. 2.: National Censuses in Ecuador (INEC 2001a; compiled by the author)

For some Regional Subspaces or municipalities (e.g. all municipalities of Loja) there were data already available before 1974. In this case, all data was collected and integrated to make a statement about the development of the population of certain sub-regions and municipalities as complete as possible. Detailed data is listed in the Appendix. The next National Census of Ecuador is implemented on the 28 of November in 2010. To have actual information about demographic issues for the NRP, it is suggested by the author, to integrate the new data (expected in 2011) into the data set, in terms of up-dating them on the base of the results of this research

paper.

## Administrative Divisions of the Nationalpark-Region Podocarpus (NRP)

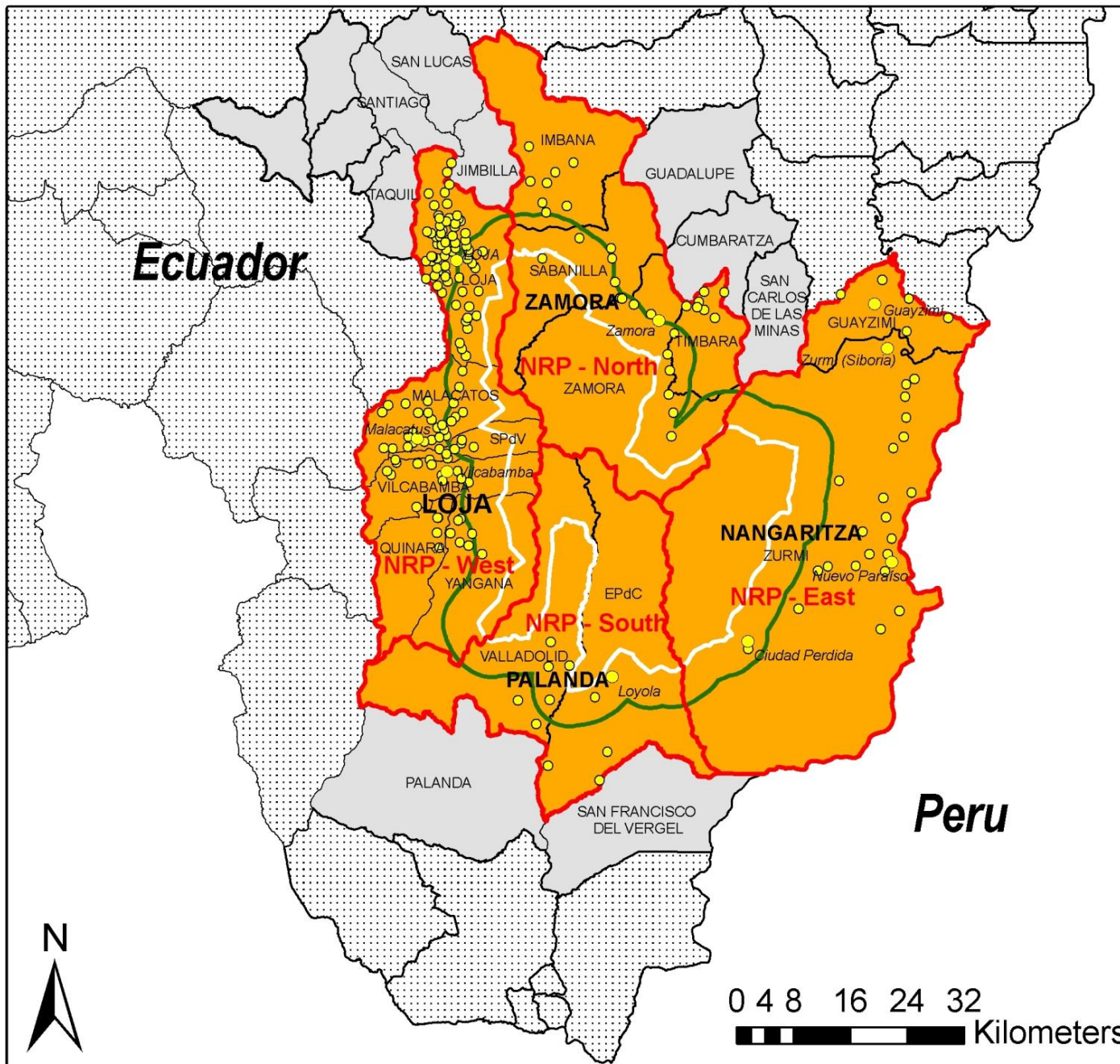
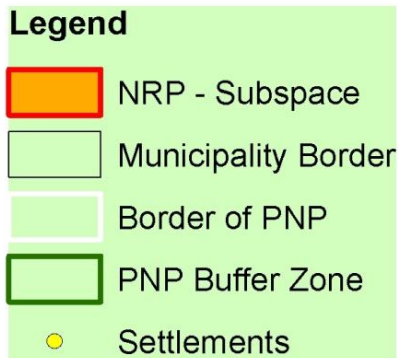


Fig.2: Administrative Divisions and Regional Subspaces of the NRP (INEC 2007;



### 3 Research Methodology

In this research paper mostly methods of secondary data analysis came in operation. The data acquisition of this research paper was realised from January 2009 till May 2009 in Ecuador<sup>9</sup>.

After compiling specific regional data of the 14 participating municipalities of the *Official Population Statistics of Ecuador* (INEC) the data sets have been fit together to four major data sets<sup>10</sup> and one main data set, which have been analysed, to make scientific statements about demographic issues of the research area, NRP. Moreover essential demographic parameters and key figures, which did not appear in the Official Population Statistics were computed on the base of the aforementioned data sets by methods of *Calculations of Population Statistics Data*.

In the course of the elicitation of primary data by guideline-based Expert Interviews, methods of *Qualitative Research*, as well as consulting regional specific literature, came in operation to gain background information and causal explanations for the results of the secondary data analysis.

#### 3.1 Official Population Statistics

The compilation and analysis of Official Population Statistics Data published by the INEC, marks the main method used in this research paper, as fundamental data basis.

Official Population Statistics Data can be differentiated in the following two main groups of data:

Statistics of the State of Population  
Statistics of the *Population Change*

Statistics of the State of Population

Data of the State of the Population in Ecuador are generated by Censuses. Since 1950 six National Censuses were carried out in Ecuador (see Tab.2). Obtained data is listed in Statistical Books and documents and is provided as digital data on the Official Website of INEC.

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<sup>9</sup> Quito (head office INEC), Cuenca (regional office South INEC), Loja (regional office INEC) and most of the *municipalities of the research area*

<sup>10</sup> for the 4 Regional Subspaces of the NRP

## Statistics of the Population Change

The Statistics of Population Change can be differentiated in two types:

- (a) Vital Statistics
- (b) Migration Statistics

### (a) Vital Statistics

Data of the **Natural Change of Population** by *Births* and *Deaths* are published by INEC in statistical yearbooks.

The availability of this data is generally very good in Ecuador.

### (b) Migration Statistics

Data of **Spatial Changes of Population** by *Immigration* and *Emigration* can be generated immediately directly (system of registration) or afterwards-directly with the help of Censuses<sup>11</sup>.

Furthermore there is the opportunity to record migration indirectly with the help of other methods.

Data generated afterwards-directly exist in Ecuador on the level of Provinces and Cantons, but not on the level of the Municipalities, the level which is analysed in this research paper.

To make statements about (net-) migration of the research area however, indirect methods came in operation (e.g. *Difference Method* – see 3.2.8).

## 3.2 Calculations of Population Statistics Data

This chapter shows the methods of calculations of essential demographic parameters to gain secondary data as a base to make statements about regional demographic issues for the research area.

### 3.2.1 Calculation of Population Density

The population density (D) refers to the size of a resident population<sup>12</sup> (P) in a statistical defined jurisdiction, in relation to the size of the area (A - usually per km<sup>2</sup>) that they occupy.

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<sup>11</sup> Question to the Place of Residence.

<sup>12</sup> Number of inhabitants

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### 3.2.2 Calculation of the Rate of Urbanisation

The rate of urbanisation  $PR_{urb}$  is the number of inhabitants living in urban areas in relation to the total population  $P_{tot}$  of a statistical defined area.

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### 3.2.3 Calculations of the Age Distribution of a Population

An age distribution of a population can be characterised by the proportional distribution of certain cohorts<sup>13</sup> within a population.

Besides the **Average Age** (arithmetic mean) there are moreover existing different indices to characterise a population according to its age structure. Hereafter will be shown three of them used by the United Nations.

**Youth Dependency Ratio (YDR):** This ratio provides information about the "juvenility" of a population.

The youth dependency ratio is the number of persons 0 to 14 years per one hundred persons 15 to 64 (59) years (UN 2009).

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**Old-Age Dependency (OAD):** This ratio provides information about the "obsolescence" of a population.

The old-age dependency ratio is the number of persons 65 (60) years and over per one hundred persons 15 to 64 (59) years (UN 2009).

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**Total Dependency Ratio (TDR):** This ratio provides information about the dependency of the population not in labour force (dependent part) and those in labour force (productive part).

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<sup>13</sup> The classification of cohorts (age groups), is depending on the existence of statistical data.

The total dependency ratio is the number of persons under age 15 plus persons aged 65 (60) or older per one hundred persons 15 to 64 (59). It is the sum of the youth dependency ratio and the old-age dependency ratio (UN 2009).

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### 3.2.4 Calculation of the Sex Ratio of a Population

In this research paper the Sex Ratio ( $PR_{sex}$ ) is defined as the number of males or females ( $P_{sex}$ ) in relation to the total population  $P_{tot}$  of a statistical defined area.

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### 3.2.5 Calculation of Key Figures describing the Change or Growth of a Population

#### Population Growth Rate

A population's **Growth Rate** ( $GR_{t,t+n}$ ) is the increase (or decrease) in the number of persons in the population during a certain period of time (between  $t$  and  $t+n$ ), expressed as a percentage of the population at the beginning of the time period ( $P_t$ ) (UN 2009).

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#### Annual Population Growth Rate

The (Average) **Annual Population Growth Rate (APGR)** describes the relative average annual growth of a population for a period of time between two censuses ( $P_t, P_{t+n}$ ), which were realised in the interval of  $n$  years (BÄHR 2004: 162). It is calculated on the assumption that growth is continuous.

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### 3.2.6 Calculation of an unknown Population (number of inhabitants)

Data calculated by these simplified methods are the basis for the calculation of relevant demographic parameters, such as crude birth rate or crude death rate, for points of time between the years of censuses<sup>14</sup> or make a statement possible about the approximate population in the past or future.

#### Interpolation

The method of Interpolation enables the calculation of an unknown population ( $P_{t+y}$ ) for a certain point of time ( $t+y$ ) between two censuses ( $t$  and  $t+n$ ). On the basis of the APGR within this period of time ( $x$ -years), on the assumption that growth is continuous, an unknown population can be calculated by the following formula (HUSA, WOHLSCHLÄGL 2007: 71):

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Calculated population data by the method of Interpolation is the calculation base to ascertain data according to the Mortality Rate, Fertility Rate or Infant Mortality Rate with the help of data of the vital statistics, which are published every year by the *Instituto Nacional de Estadísticas y Censos de Ecuador* (INEC).

#### Extrapolation

The method of Extrapolation enables the forecast and back-calculation of population data for a prospective ( $t+x$ ) or preceding ( $t-x$ ) point of time on the base of the APGR of the actual (forecast) or the earliest available (back-calculation) data. It is calculated on the assumption that the APGR remains constantly for the forecasted or back-calculated point of time (HUSA, WOHLSCHLÄGL 2007: 71).

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<sup>14</sup> the population is known for the years of censuses, as it is listed in the official population statistics



### 3.2.7 Calculation of Key Figures for the Natural change of Population

#### Crude Birth Rate

The Crude Birth Rate (CBR) is the ratio of the number of births per year (B) per 1.000 people to the average population in that year (P) (HEINEBERG 2007: 69ff.).

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#### Crude Death Rate

The Crude Death Rate (CDR) the ratio of the number of deaths occurring during a year (D) per 1.000 people to the population (P) at midyear (average population in that year) (HEINEBERG 2007: 72ff.).

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#### Infant Mortality Rate

The Infant Mortality Rate (IMR) is the ratio of the number of deaths of persons under 1 year ( $D_0$ ) per 1.000 live births (B) in a given year (HEINEBERG 2007: 72ff.).

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#### Margin of Births and Deaths

The Margin of Births and Deaths (MBD) is the difference of the number of births (B) and the number of deaths (D) of a population within 1 year.

This can either be a birth surplus (number of births is higher than the number of deaths) or a deficit of births (number of deaths is higher than the number of births), which is equal to the (absolute) population growth in absence of migration (LAUX 2005: 92)

The MBD, differentiated by sex, conduces as calculation basis for the net migration in this research paper.

### 3.2.8 Calculation of Migration Key Figures

The following chapter focuses on the methods of calculation according to Migration key figures that came in operation in this paper.

As there are no migration data existing on municipality-level<sup>15</sup>, the level which is relevant in this investigation referring to the administrative structure<sup>16</sup> of the investigation area, data according to the issue of migration have been ascertained by the calculation method of *Difference Method*.

As a result of this method data about the *Net Migration* for the research area could be calculated.

Consequently the following migration key figures only refer to the aspect of Net Migration.

#### Calculation of the Net Migration by Difference Method

Demographers refer to the *difference method*<sup>17</sup> if there is no data available according to the issue of migration<sup>18</sup>.

As there is data existing for the years of censuses as well as data of the vital statistics (births/deaths) for each year of the period of investigation, it is possible to calculate the net migration by the difference of two populations (e.g. 1982 and 1990) and the margin of births and deaths (see above) in this period of time. It either can be positive (immigration area) negative (emigration area) or neutral (number of immigrating and emigrating persons is equal). As the above mentioned data is differentiated in male and female persons it is possible to make gender-specific statements about net migration. (HUSA, WOHLSCHLÄGEL 2007: 143)

However no statement can be made about the quantity of immigration and emigration<sup>19</sup>.

#### Net Migration

Net Migration (NM) in terms of the difference method is calculated as follows:

Population at the point of time t

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<sup>15</sup> Data about migration are only published on the level of Cantons and Provinces.

<sup>16</sup> The research area, as mentioned before, consists of 14 municipalities of four different Cantons respectively two provinces.

<sup>17</sup> *Differenz-* or *Residualmethode* (ger.)

<sup>18</sup> There is no data available in Ecuador on the level of municipalities, which is the required level in this research paper (see 1.2).

<sup>19</sup> A net migration of 1.000 persons for instance can result from 10.000 immigrating and 9.000 emigrating persons as well as from 100.000 immigrating and 99.000 emigrating persons.

Population at the point of time t+n  
Margin of Births and Deaths for n years  
Net Migration Rate

The Net Migration Rate (NMR) is the Net Migration of an area per 1.000 people to the average population ( $P_{med}$ ) of a period of time.

Net Migration and Net Migration Rate of an area can be positive (more people entering than leaving) or negative (more people leaving than entering) (HUSA, WOHLISCHLÄGEL 2007: 144)

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### 3.3 Other Methods

Literature and Background information

To gain general information, information about the issue of demography and its methods as well as regional background information of the research area, german, english and spanish literature was consulted.

Digital Data (GIS)

As there are no maps existing, which exactly fitting the research area, neither thematically nor the precise spatial extend, three regional maps with special thematic issues could be generated, with the help of *Arc View*, a Geographic Information System (GIS) software.

Methods of Qualitative research

Methods of qualitative research came in operation in the form of guideline-based Expert Interviews, which were realised with four persons in charge of administrative bodies of the region.

The importance of the qualitative research according to the results of this paper is fairly slight. Nevertheless it helped to find explanations and background information for the gained quantitative data, as well as general geographical information of the research area.

## 4 Results and Discussion

The following chapter will give an overview about demographic issues of the research area by referring to the most important results of the thesis. The complete results on the level of municipalities, mainly listed in tables, can be found in the Appendix.

Moreover it is attempted to give reasons and explanations for the gained results.

### 4.1 The development of the Total Population of the NRP and its Sub-Regions

As appears from Table 3, the NRP subjected to an ongoing increase of its **total population** between 1974 and 2001 from **82.975** to **177.784** inhabitants. This means more than a doubling (about 114 %) of its number of inhabitants, which is equivalent to an addition of 94.809 inhabitants (see Tab.4) in the 27-year sample time. The Relative Growth of the total population of the Subregions<sup>20</sup> are listed in the Appendix (see A VI).

Viewing the four Regional Subspaces in Table 3, an increase of the total population in each region can be stated as well. However the four Regional Subspaces are varying significantly in their quantitative level of Total Growth.

Year of Census	NRP	NRP- West	NRP- North	NRP- South	NRP- East
1974	82.975	75.101	5.602	1.257	1.015
1982	110.345	98.144	8.727	1.712	1.762
1990	142.486	125.045	10.800	2.325	4.316
2001	177.784	156.835	13.486	2.666	4.797
Total Growth	94.809	81.732	7.884	1.409	3.782

Tab.3: Development of the Total Population and Total Growth of the NRP and its Regional Subspaces 1974 – 2001 (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by the author) While the absolute number

of inhabitants is increasing in the NRP the **Relative Growth**<sup>21</sup> of the total population and the **Annual Population Growth Rate** (APGR) is declining within the investigated timeframe (see Tab.4). Especially from 1990 to 2001 a remarkable decrease of the APGR to 2,03 can be registered within the NRP.

<sup>20</sup> Further data according to Absolute and Relative Growth of the Subregions are listed in A VII – A X)

<sup>21</sup> also Relative Change

	Absolute Growth	Relative Growth (%)	(in APGR <sup>22</sup> (in %))
1974 - 2001	94.809	114,26	2,86
1974 - 1982	27.370	32,98	3,63
1982 - 1990	32.141	29,13	3,25
1990 - 2001 <sup>23</sup>	35.298	24,77	2,03

Tab.4: Absolute Growth, Relative Growth and Annual Population Growth Rate of the NRP 1974 – 2001 (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by the author)

Looking at the APGR of the NRP Subregions (see Figure 3), a general trend as shown for the Total NRP can be registered, with exception of the NRP-East<sup>24</sup>.

It should be noted, that the APGR in the NRP-West and NRP-South is decreasing, firstly moderate (1974-1982 till 1982-1990) and later notably stronger (1982-1990 till 1990-2001), whilst the development in the NRP-North is just about inversely.

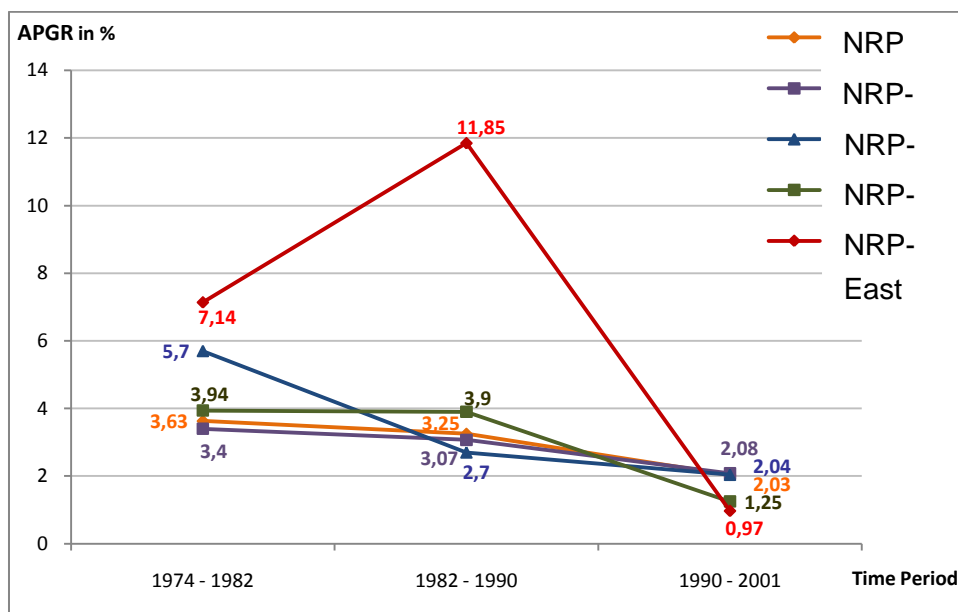


Fig.3: APGR of the NRP and its Regional Subspaces 1974 - 2001 (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by the author)

Looking on the **Annual Absolute Population Growth** of the NRP and its Subspaces in Table 5, an increase of the absolute Growth per year can be ascertained until the period of 1982- 1990 for most of the Subspaces, with exception of the NRP-North. During the period of 1990-2001 the absolute Growth per year was declining, compared to the period of 1982-1990, and even drop under the absolute Growth per year of the period of 1974-1982, with exception of the NRP-West, which has been about the same level.

	NRP	NRP-	NRP-	NRP-	NRP-
--	-----	------	------	------	------

Tab. 5: Annual Absolute Growth of the NRP and its Regional Subspaces 1974 –

<sup>22</sup> Annual Population Growth Rate (APGR)

<sup>23</sup> 11- year timeframe

<sup>24</sup> Territorially and administrative changes in the NRP-East, thus demographic data (see A XIV, NRP-East) in the period investigated, made it difficult to make clear statements about the development of demographic issues in the NRP-East, which has to be critically judged in this paper.

		West	North	South	East
1974-2001	3.511	3.027	292	52	149
1974-1982	3.421	2.880	391	57	93
1982-1990	4.018	3.363	259	77	319
1990-2001	3.209	2.890	224	31	44

In contrast to the above mentioned APGR, which was decreasing in the total investigated time, the absolute annual Growth of the population, was increasing from the period of 1974-1982 to the period of 1982-1990 and was decreasing in last listed period of 1990-2001.

Furthermore can be stated, that the major quantitative population growth took place in the NRP-West (see Tab. 3 and 5), whereby the development of this Regional Subspace substantially affects the development of the population of the NRP and its demographic characteristics (see Chapter 4.3.2).

As shown in this subchapter the number of inhabitants of the NRP increased, while the Annual Absolute Population Growth (since 1990-2001) as well as the Annual Population Growth Rate (APGR) in the total investigated timeframe decreased. It is expected that this trend of retardation of relative and absolute Growth of the population has been continued since 2001 (see Chapters 4.4 and 4.5).

This trend can be explained by the development of fertility, mortality (see Chapter 4.4) and Net Migration (see Chapter 4.5).

More data according to the Subregions and participating municipalities are listed in the Appendix (A XII-A X; A XIV-A XXXII).

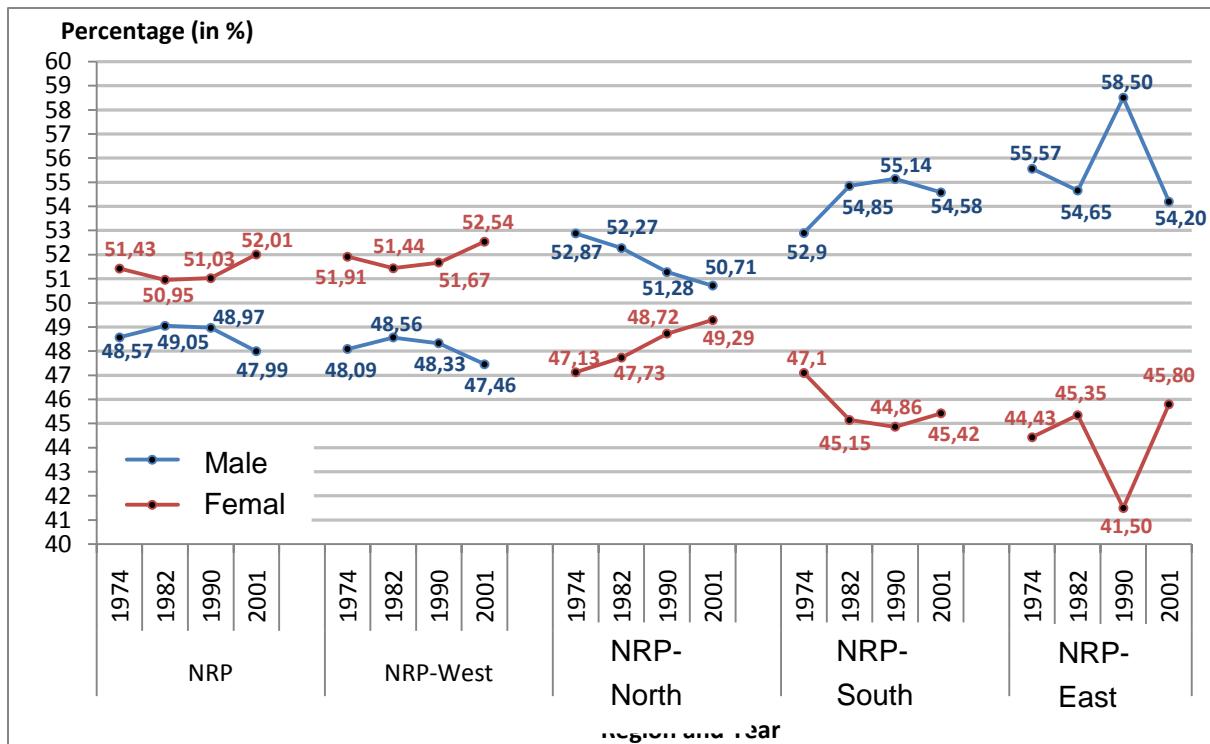
## **4.2 The development of die Demographic Structure of the NRP and its Regional Subspaces**

This subchapter shows the development of the structure of the population by demographic characteristics in the NRP and its Regional Subspaces. Socio-economic characteristics are not mentioned, as the focus of this paper lies on demographic issues. Chapter 4.6.2 shows the ethnic structure of the NRP and its Subspaces for the year 2001<sup>25</sup>.

### **4.2.1 Sex Ratio**

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<sup>25</sup> No data available before 2001, according to the ethnic structure of the NRP and participating Subspaces and municipalities



**Fig. 4: Development of the Sex Ratio by Region 1974 – 2001** (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by author)

As apparent from Figure 4, the percentage of female persons outweighs the percentage of male persons in the NRP in the investigated time.

Furthermore a differentiation, according to the Subspaces can be stated. While the percentage of female persons is dominating in the NRP-West, the number of male persons outweighs the female persons in the other three Subterritories.

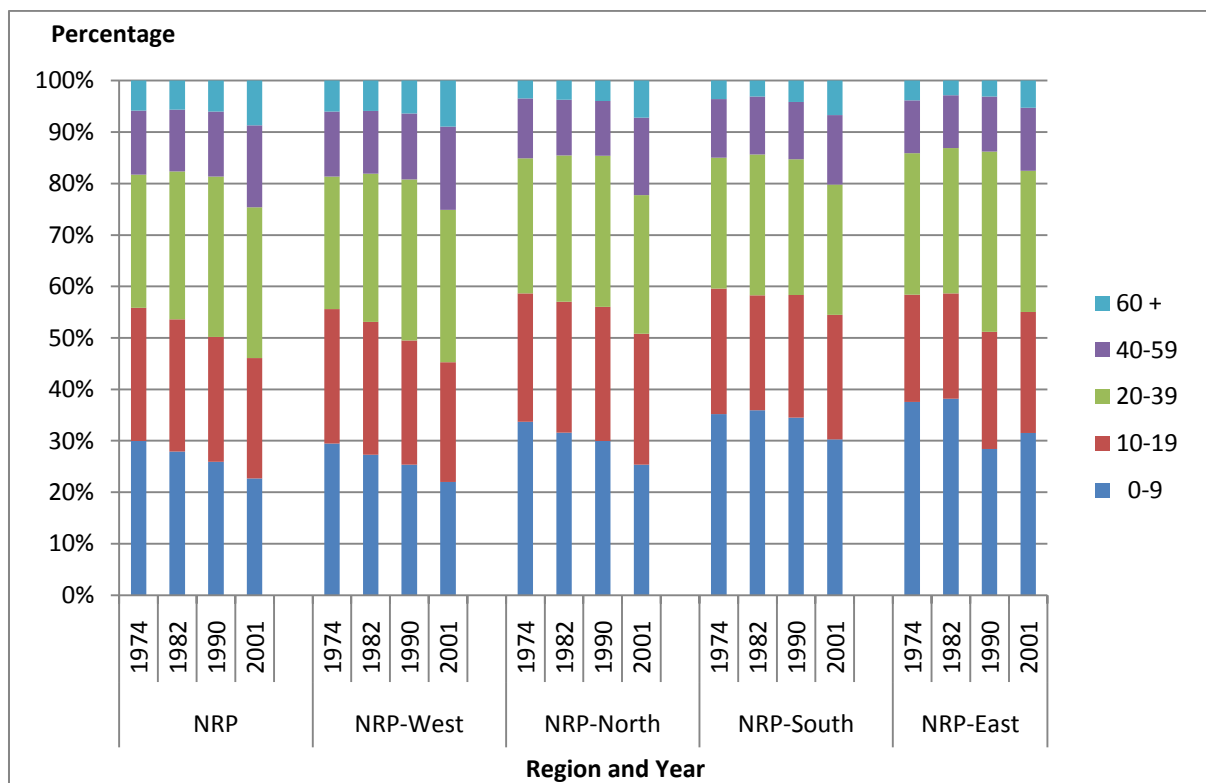
The rural dominated Subspaces, NRP-South and NRP-East, are strongly dominated by male persons, while the gender distribution in the NRP-North is almost equal, with a slight tendency to the percentage of female inhabitants.

Generally can be mentioned, that gender distribution in the regarded Regions, has developed in favour of the female population.

Especially between 1990 and 2001 the female population grew noticeable.

The development of the Sex Ratio of the NRP can be partly explained with the changes in Net-Migration (see Chapter 4.5).

## 4.2.2 Age Distribution



**Fig. 5: Development of the Age Distribution by Region 1974 – 2001** (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by author)

As pictured in Figure 5 the Age Distribution of the NRP changed in favor of the younger age groups (0-9; 10-19), which diminished from about 56% in 1974 to 46% in 2001. Older Age Groups (40-59; 60+) by contrast, developed basically inverse and increased from 18% (1974) to about 25% (2001). Particularly from 1990 to 2001 this trend can be stated. Precise data of the age groups are listed in the Appendix (A XI).

Viewing the Regional Subspaces in Figure 5 a geographical differentiation can be noticed. While the NRP-South and NRP-East are „younger” Regions, the NRP-North and notably the NRP-West are “older” (see Chapter 4.6.1).

The trend of *ageing* however can be stated in all Regions (see Table 6), even though the NRP is a Region with a low average age (see Chapter 4.6.1).

The Development of the Age Distribution can be explained by the development of the fertility and mortality of the NRP (see Chapter 4.4).

	NRP	NRP-West	NRP-North	NRP-South	NRP-East
60+	Increase	Increase	Increase	Increase	Increase
40-59	Increase	Increase	Increase	Increase	Increase
20-39	Increase	Increase	Constant	Constant	Constant
10-19	Decrease	Decrease	Decrease	Constant	Increase
0-9	Decrease	Decrease	Decrease	Decrease	Decrease

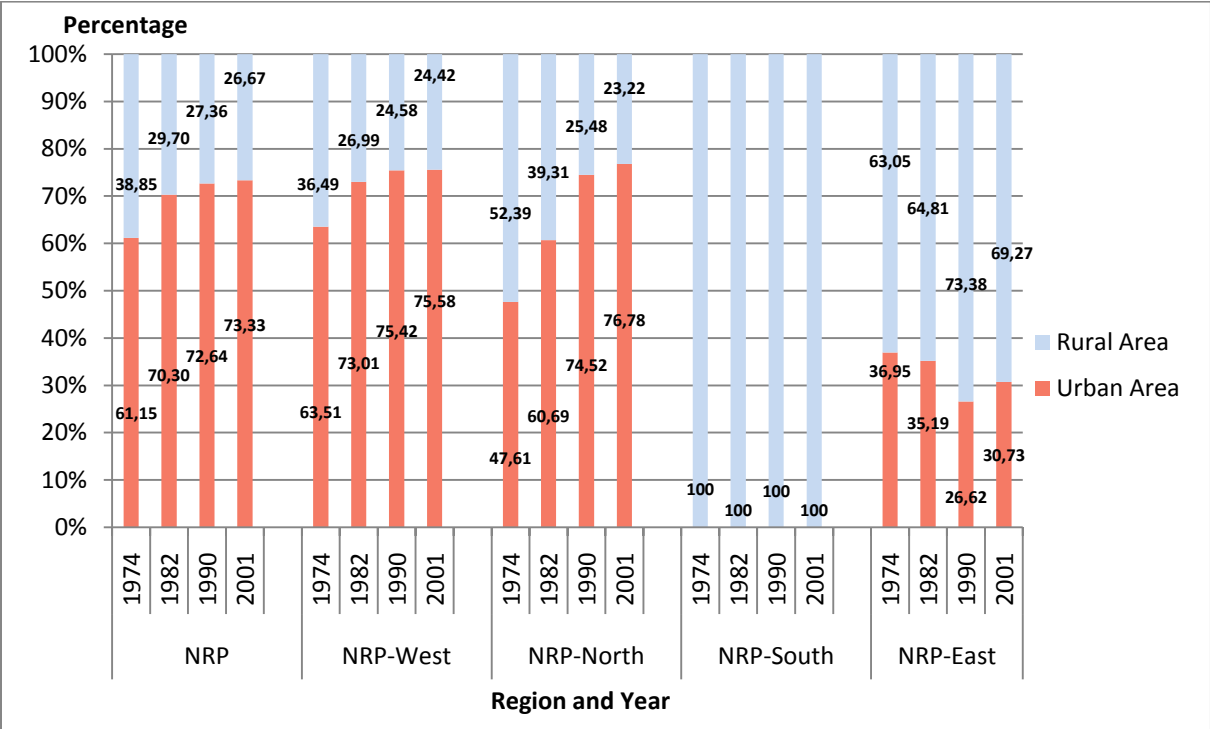


**Tab. 6: Development of Age Groups by tendency (1974 – 2001) by region** (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by author)

**4.3 The development of the Distribution of Population**

This chapter gives an overview about the distribution of the population and its development by area (Urban/Rural) and by Regional Subspace (share of the NRP). Moreover the development of the density of population is shown.

**4.3.1 The development of the Distribution of Population by Area**



**Fig. 6: The development of the Distribution of Population by Area** (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by author)

As shown in Figure 6 the percentage of inhabitants living in urban areas<sup>26</sup>, which is defined as urbanisation rate, increased from 61% (1974) to 73% in 2001 in the NRP.

As a consequence the number of people living in rural areas diminished from 39% in 1974 to 27% in 2001.

In 2001 the Regional Subspaces NRP-West (73%) and NRP-North (76%) are characterised by a high urbanisation rate compared to the NRP-East (31%) and the NRP-South<sup>27</sup> (0%).

<sup>26</sup> The NRP comprises 3 urban areas.

<sup>27</sup> The NRP-South does not possess an urban area, according to the statistics of INEC.

The comparatively high urbanisation rate of the NRP-West and NRP-North can be explained by the two cities: *Ciudad de Loja* (118.532 inhabitants) in the NRP-West and *Ciudad de Zamora* (10.355 inhabitants) in the NRP-North.

This trend of urbanisation within the NRP generally is a result of an increasing rural depopulation and a drift to the cities of Loja and Zamora (Interview partner 1). Fundamentally this trend of urbanisation can be explained with the help of the *Push-Pull Theory* by EVERETT S. LEE, whereupon certain “Pull-factors” (work, opportunities of education, health care...) of the cities are “pulling” people from rural areas that are often characterised by Push-factors (unemployment, poverty, insufficient infrastructure and facilities...), which make people migrate to the cities, hoping to improve their personal situation. Specific information about internal migration could not be worked out due to the lack of data according to the NRP<sup>28</sup>

**4.3.2 The development of the Distribution of Population by Regional Subspaces**

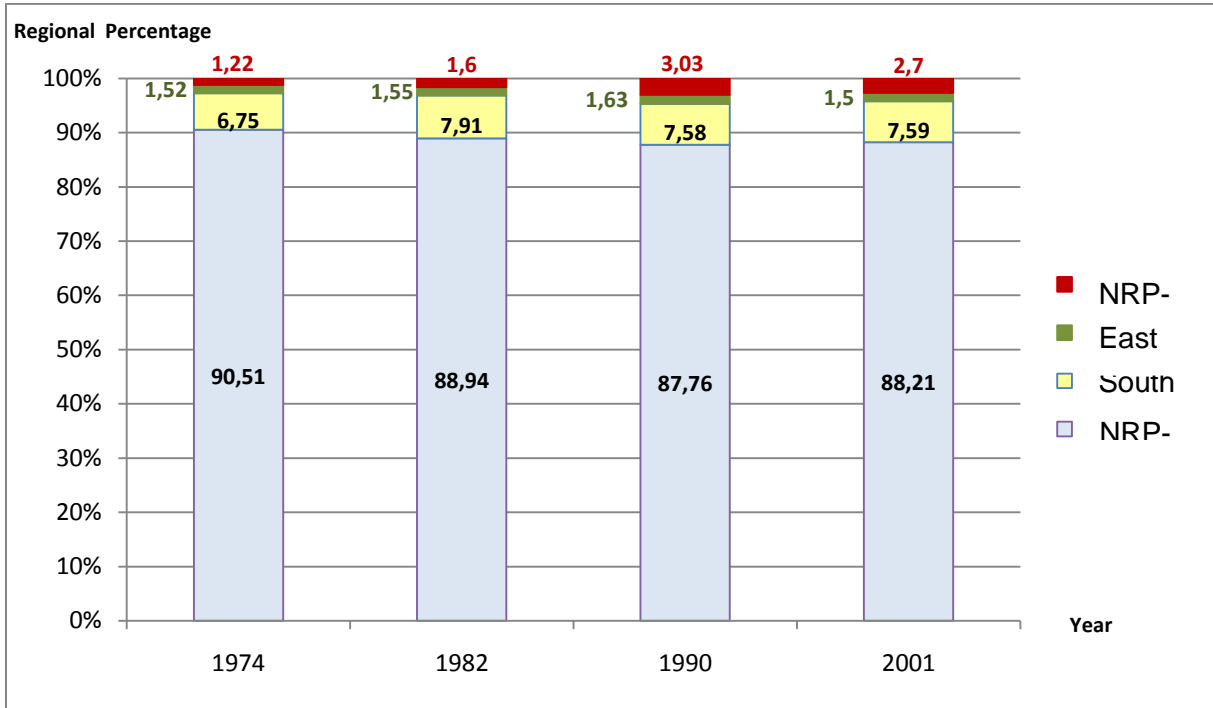


Fig. 7: Development of the relative Distribution by Population by Regional Subspaces (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by author)

As pictured in Figure 7 about 90% of the population of the investigation area is living within the NRP-West. Due to this the NRP-West predominantly determined the development of the NRP. This fact becomes apparent in the absolute distribution of inhabitants listed in Table 7. The proportion of the four regional subspaces generally remained about equal.

	1974	1982	1990	2001
--	------	------	------	------

<sup>28</sup> Data about migration only partly exist, but not for the level of municipalities.

NRP	82.975	110345	142.486	177.784
NRP-West	75.101	98.144	125.045	156.835
NRP-North	5.602	8.727	10.800	13.486
NRP-South	1.257	1.712	2.325	2.666
NRP-East	1.015	1.762	4.316	4.797

Tab. 7: Development of the absolute Distribution by Population by Regional Subspaces (Source see Fig. 7)

### 4.3.3 Development of the Population Density

As a result of the development of the population in the NRP, and the fact that the reference area remained the same, with exception of the NRP-East, the Population Density of the NRP, pictured in Table 8 more than doubled in the sample time.

	1974	1982	1990	2001
NRP	14,8	19,68	25,42	31,71
NRP-West	66,07	86,34	110	137,96
NRP-North	4,19	6,53	8,08	10,1
NRP-South	1,13	1,54	2,09	2,4
NRP-East	0,5*	0,87*	2,14	2,37

Tab. 8: Development of the Population Density (inhabitants per km<sup>2</sup>) by Region 1974 – 2001

While the NRP-West is characterised by a relatively high population density of 138 inh./km<sup>2</sup> in 2001, the NRP-North (10 inh./km<sup>2</sup>) and in particular the NRP-South and NRP-East (about 2 inh./km<sup>2</sup>) are sparsely inhabited.

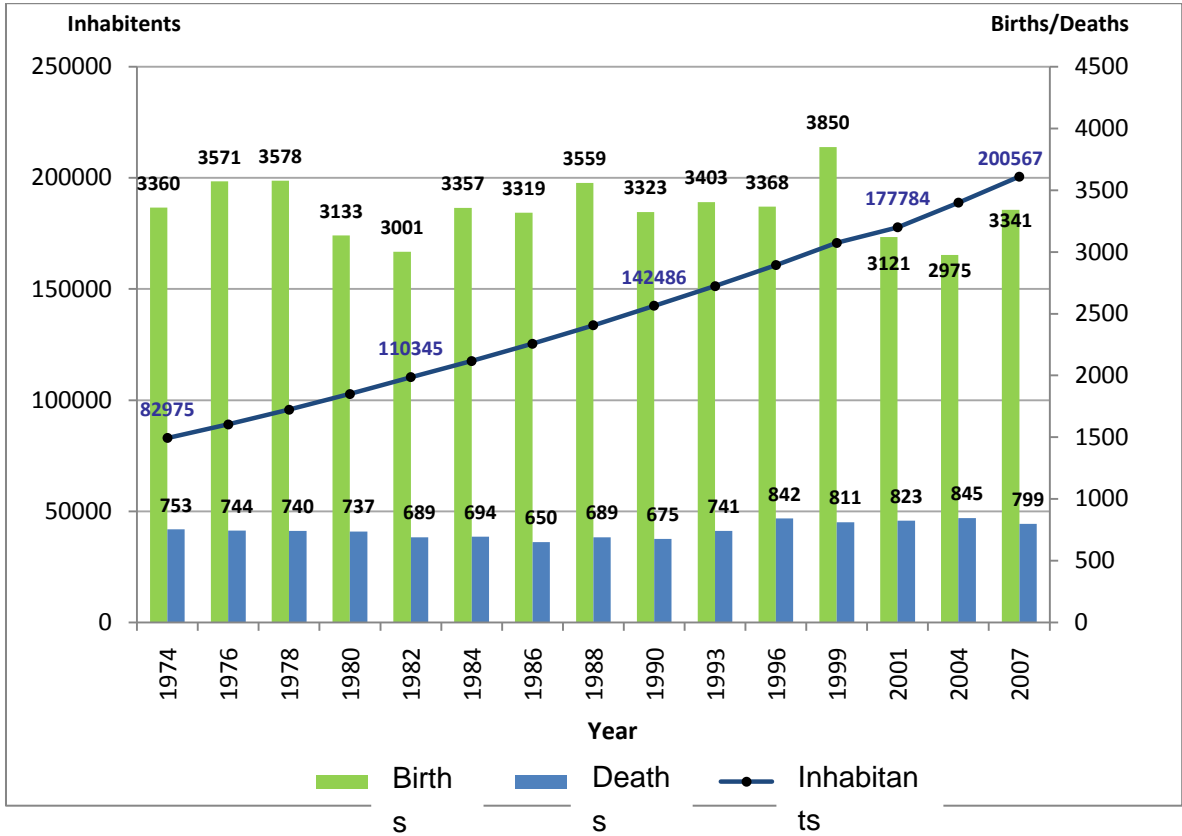
The reasons for the comparatively big population in the western part of the NRP, can be explained with the early settlement of the Spanish conquerors, the topography, which made it easier to settle and noticeably the position and infrastructure of the NRP-West in Southern Ecuador, as this part was directly connected to the Pan-American Highway.

### 4.4 The development of the Natural Growth of population 1974 -2007

The following Chapter will focus on the Natural Growth of the population in the NRP between 1974 and 2007. This includes the development of the absolute numbers of births and deaths

as well as the relative parameters of Fertility and Mortality. Moreover the Infant Mortality is presented.

**4.4.1 Births and Deaths in the NRP**



**Fig. 8: The Development of Births and Deaths of the NRP per Year 1974 – 2007** (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; INEC 1974-2007; compiled by author)

Figure 8 is showing the number of births and deaths<sup>29</sup> in the NRP from 1974 to 2007<sup>30</sup>.

<sup>29</sup> The above number of births and deaths refers to data as published by INEC, considering that these are the births and deaths that were ascertained in the respective years. Births and deaths of a particular year, ascertained in the following years are not included in the number of births and deaths shown above. On the level of Municipalities no data according to this issue are published. According to estimations of the author the actual number of births and deaths is about 10% higher than shown. This number follows from the parentage of the number of birth and deaths that were listed in the publications of INEC for the province level.

<sup>30</sup> Data according to the number of inhabitants after 2001, shown in the Figure were calculated by the method of Trendextrapolation. This data is the base to calculate the data for the CBR and CDR after 2001 presented in Chapter 4.4.2.

As apparent the number of Deaths per year generally remains constant with a tendency of dropping slightly until the end of the 1980s, before increasing lightly to a higher level in the last ten years of the investigated time.

Viewing the development of the number of Births no explicit chronological trend can be stated, as the number of births for the single years are varying noticeably, by developing more inconstantly, basically remaining in a certain range of quantity.

Comparing the absolute number of Deaths and Births in the NRP it becomes evident that these parameters developing on a different quantitative level as the number of Births apparently is about four to five times higher than the number of Deaths.

4.4.2 Mortality and Fertility of the NRP

Figure 9 pictures the development of the Mortality (Crude Death Rate - CDR) and Fertility (Crude Birth Rate - CBR) along with the development of the population in the NRP from 1974 to 2007.

To show trend of the development Trend lines (Trend BR/DR) were added.

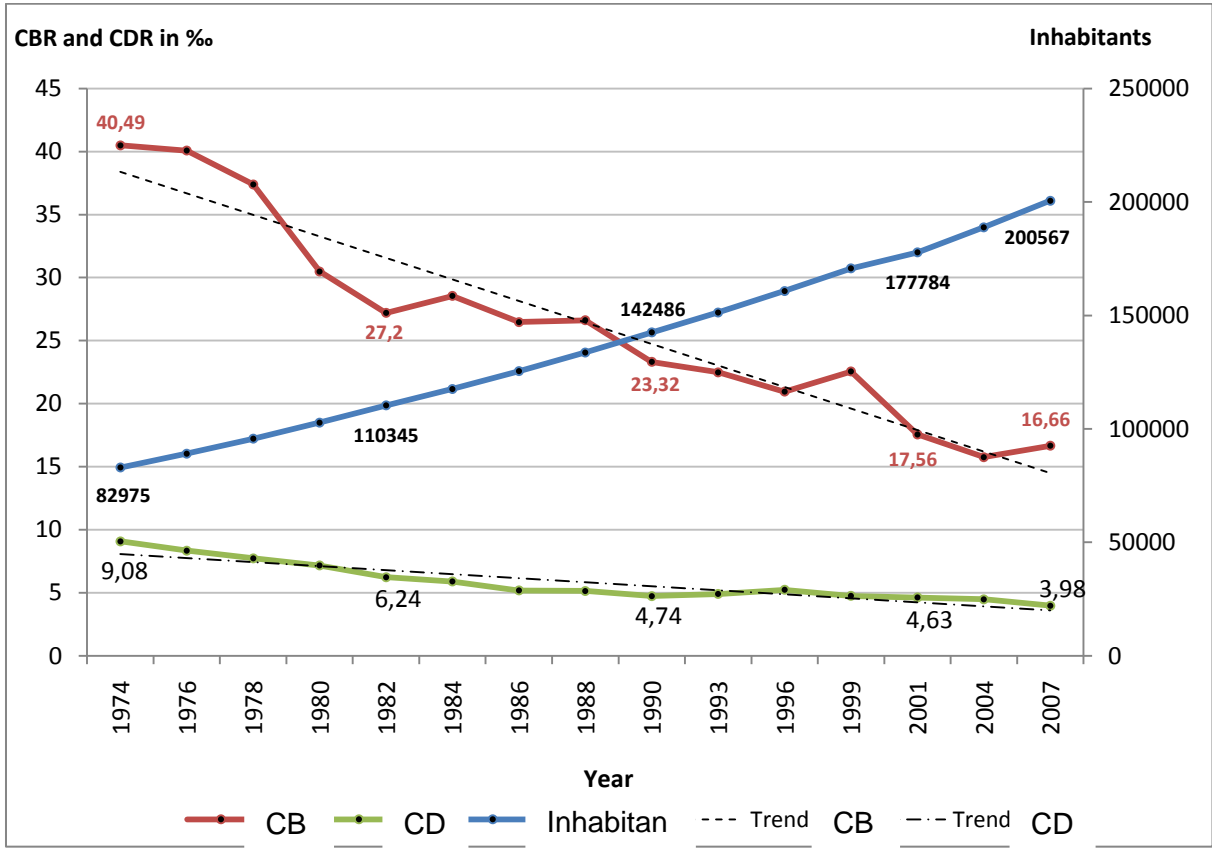


Fig. 9: Development of CBR and CDR along with the development of the population in the NRP from 1974 to 2007. Source: INEC 1974-2007; compiled by author.

As a consequence of the number of births and deaths shown in Chapter 4.4.1, the CBR and CDR have developed on a different level of quantity with the trend downwards<sup>31</sup>. While the CDR is decreasing constantly slightly from 9,1 in 1974 to 4,0 in 2007, the CBR, starting from a level of higher quantity, is decreasing quantitatively stronger and more inconstant than the CDR.

Possibly reasons for the drop of CDR can be: improvement in the fields of the sustenance, hygiene and medical treatment and prevention.

Possibly reasons for the drop of CBR can be: value change, function of the family, emancipation and an increase of wealth.

The demographic state of development of the NRP shown in this paper can be classified in the Model of Demographic Transition<sup>32</sup> (see Figure 10).

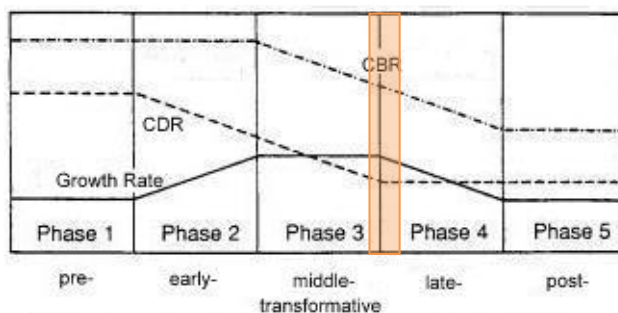


Fig. 10: Model of Demographic Transition (BÄHR 2004: 220)

According to this, the NRP can be categorised as a region that actually is situated between the middle-transformative and late-transformative Phase.

With the demographic transition changes of the total Population Growth and the APGR, as well as changes of the demographic structure (age and sex) and distribution of the population (urban/rural) go along. These changes were shown in previous chapters.

The development of the CBR and CDR of the NRP-Subspaces are pictured in the Appendix (see A VII). Notably the Regional Subspaces with a low quantity of inhabitants (NRP-South, NRP-East) underlie partly extreme variations.

<sup>31</sup> Generally the quantity of the CBR as well as the CDR is supposed to be about 10% higher than shown. Calculations were made on the base of the data published by INEC.

<sup>32</sup> The Model of demographic transition was created on the base of the developments in industrialised countries, so the integration of the NRP in this Model solely serves the classification by tendency.

#### 4.4.2 Infant Mortality in the NRP

As viewed in Figure 11 the Infant Mortality Rate of the NRP diminished from 69,0 in 1974 to 18,9 in 2007.

In analogy of the CBR the reasons for the decrease of the IMR can be found in improvements according to hygiene and medical treatment and prevention.

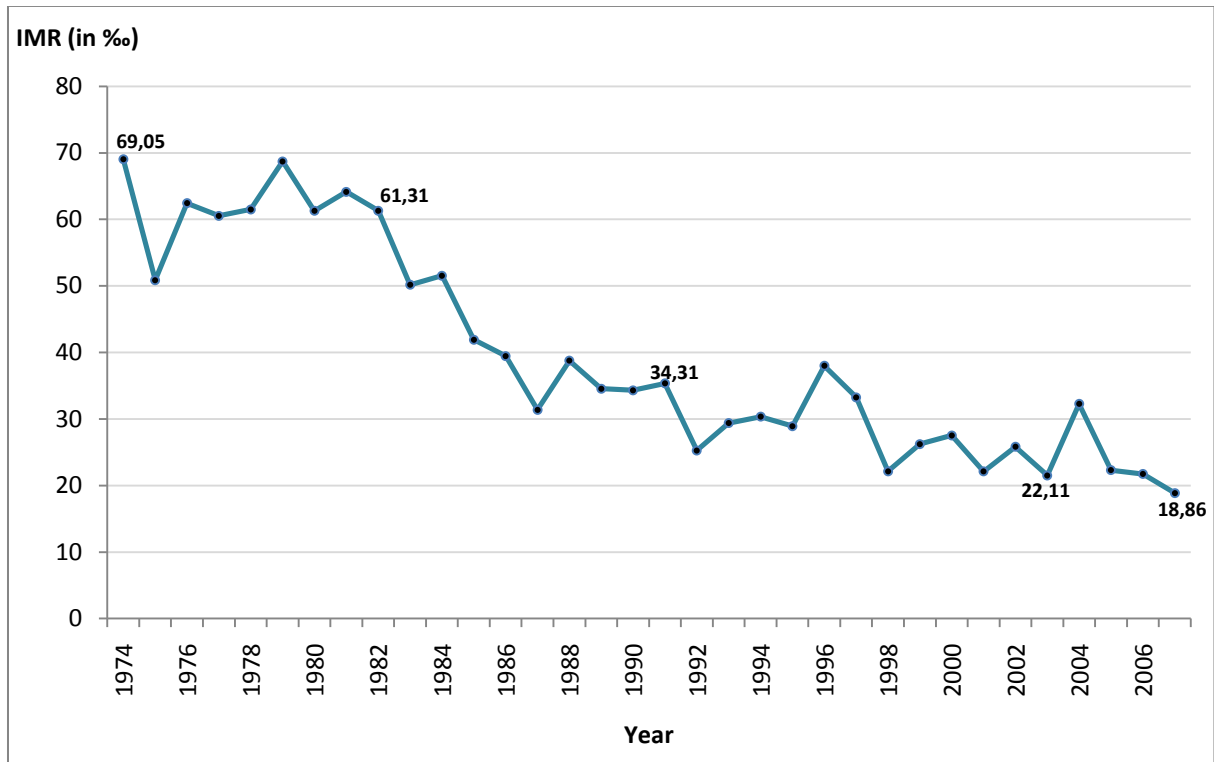
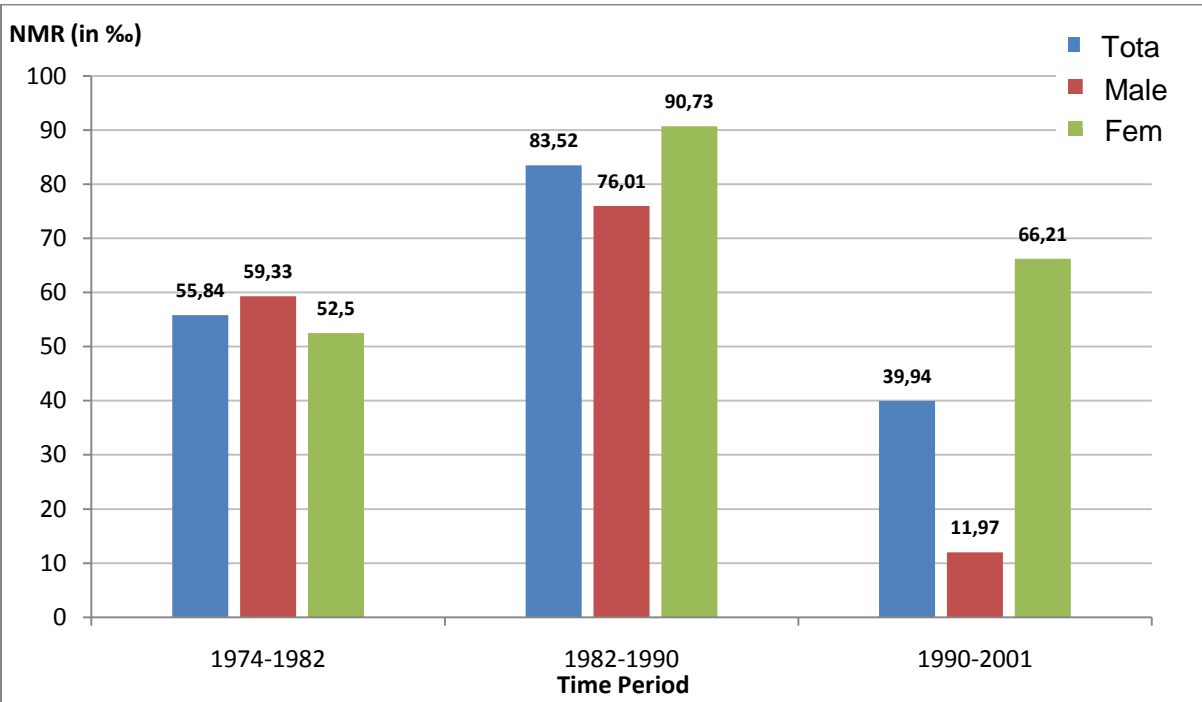


Fig. 11: The Infant Mortality Rate (IMR) of the NRP 1974 - 2001 (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; INEC 1974-2007; compiled by author)

The development of the IMR in the NRP-Subspaces is not included in this research paper as the particular data, partly ranges extremely.

4.5 The development of Net Migration of the NRP and its Regional Subspaces



**Fig. 12: Net Migration Rate (NMR) of the NRP by Time Period and Sex 1974 - 2001** (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by author)

As becomes apparent from figure 12 the NRP can be characterised as an immigration region, as the Net Migration Rate is positive in all regarded time periods within the investigated time.

While the NMR is decreasing from the period 1982-1990 to the period 1990-2001 even under the level of the period 1974-1982, the gender proportion of the NMR is changing in favour of the women from the period of 1974-1982 to 1982-1990. This trend becomes even more intensive from the period 1982-1990 to the period 1990-2001 (see Figure 12).

	Total	Male	Female
1990 - 01	6.396	928	5.468
1982 - 90	10.558	4.709	5.849
1974 - 82	5.397	2.801	2.596

Tab. 9: Absolute Net Migration (NM) of the NRP by Time Period and Sex 1974 - 2001 (Source see Fig. 12)

A possible reason for this trend *could* be that international emigration in Ecuador was rising in the last decades and has been remarkably high at the end of the 1990s, as people, particularly men, left the country due to the economical recession in Ecuador.



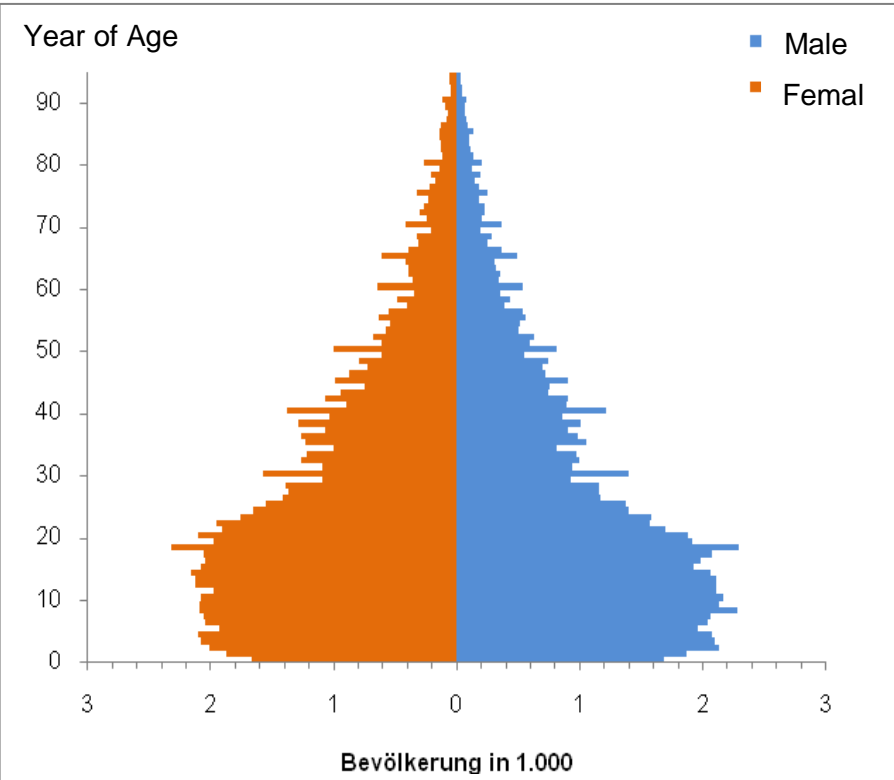
This *could* be an explanation for the disproportion of gender distribution of the population as well as the development of the NMR by sex in the NRP.

The NMR for the NRP-Subspaces along with the absolute number of persons, according to the issue of net migration of the NRP and its Regional Subspaces are shown in the Appendix (A VIII).

4.6 Actual demographic characteristics of the NRP

This Chapter will concentrate on contemporary<sup>33</sup> demographic characteristics of the NRP, as for the following issue only data of the 6. Census or SIISE is available.

4.4.3 Population Pyramid



Number of Persons in  
1.000

Fig. 13: Population Pyramid of the NRP 2001 (INEC 2001b,

Viewing the population pyramid of the NRP<sup>34</sup> (see Figure 13), it becomes obvious that young age groups (thick base of a pyramid) are dominating the age structure of the NRP in 2001. Furthermore a trend of the diminishing CBR becomes noticeable as the number of the young

<sup>33</sup> Year: 2001

<sup>34</sup> Population Pyramids of the Regional Subspaces see A XXXIII

part (approx. 0-15 years) of the population is remaining stable and is even narrowing at the very bottom (0-5 years) of the pyramid.

	Average Age			OAD	YDR	TDR
	Total	Male	Female			
NRP	27,11	26,43	27,79	10,84	58,32	69,16
NRP-West	27,44	26,63	28,24	11,08	56,34	67,42
NRP-North	25,41	25,78	25,04	9,3	68,57	77,87
NRP-South	23,66	24,35	22,84	9,79	87,84	97,63
NRP-East	22,8	23,67	21,76	7,12	85,77	92,88

**Tab. 10: Average Age and Age Indices by Region (INEC 2001b, 2001c)**

In Table 10 several age indices are listed to characterise the age structure of a region. The OAD, YDR and TDR are parameters used by the UN to distinguish regions according to their age structure.

Regarding the Average age, strong differences by regions become obvious. The Average Age of the NRP amounts to 27,1 years.

As the NRP-West is featured by the highest average age, according to the Regional Subspaces the average age in NRP-East amounts 22,8.

Specific reasons for differentiating Average age could not be ascertained

As a possible explanation of the different distribution of gender in the particular Subspaces the fact could be consulted, that a population quantitatively dominated by female persons is "older" (due to higher life expediency of female persons) while "young" populations principally are quantitatively dominated by male persons (see Chapter 4.2.1 Sex Ratio).

### 4.4.4 Ethnic Structure

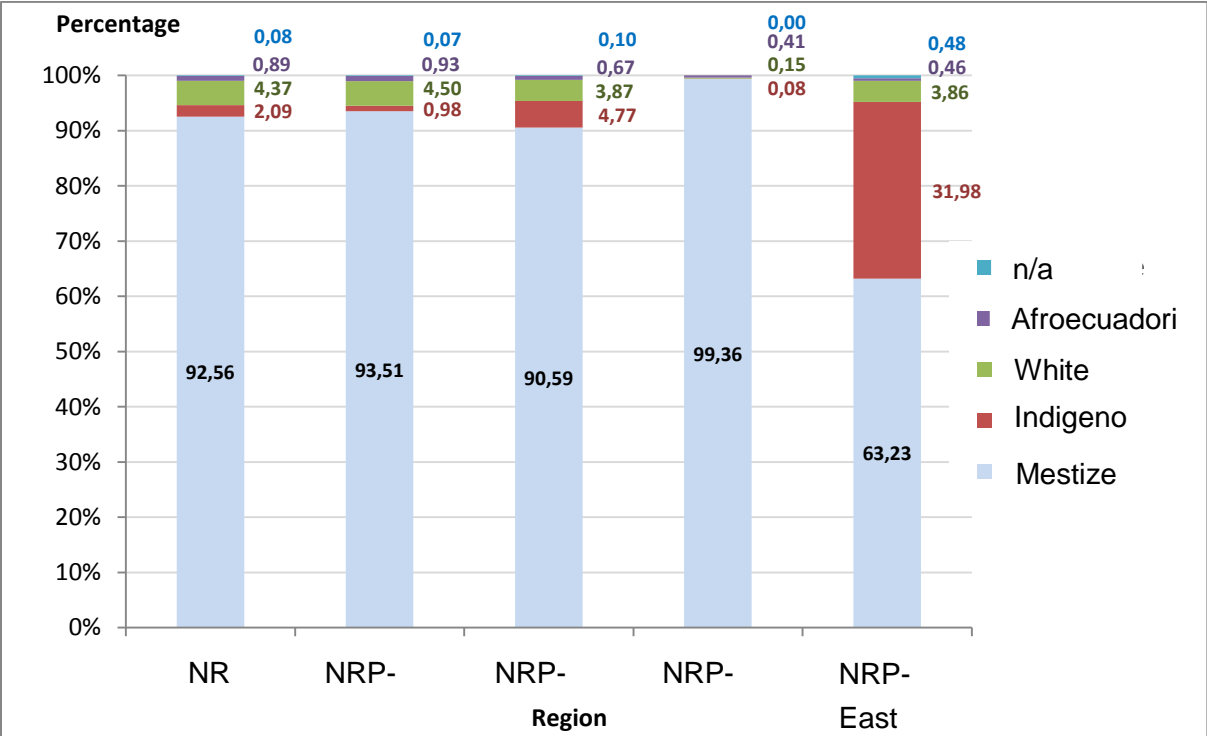


Fig. 14: Ethnic Structure of the Population of the NRP by Regions 2001 (SIISE 2008, compiled by author)

According to its ethnic structure the NRP is characterised by homogeneity (see Figure 14). About 93% of the inhabitants belong to the group of Mestize. In the NRP-South it even amounts 99%.

An exception constitutes the NRP-East, which is featured by a high percentage of Indigenous (32%), in relation to the other regions.

This can be explained by the colonization by Spanish conquerors since the 16th century especially to the western parts (higher parts), while the eastern parts (lower parts) of the investigation area, historically were settled by the Shuar people, who prevented an invasion into this region by defending their habitat (TEMME 1972).

While the settlement activity of the western part already started with the colonization, the eastern parts were settled in the 20th century, particularly by persons from the Province of Loja (TEMME 1972, MÜLLER-HOHENSTEIN et al 2004).

#### 4.4.5 Distribution of Settlements



Figure 13 is showing a Fig. 13: Settlements in the direct and indirect sphere of the PNP (INEC 2007: and indirect (within a 5-km buffer zone) sphere of the National Park Podocarpus. As pictured a strong concentration of settlements can be stated In the NRP-West.

Apart from the settlement San Francisco (37 inhabitants), which lies within PNP, additional 53 settlements (including the cities of Loja and Zamora) are situated within the (indirect) sphere of PNP.

The total population in the 54 settlements amounts to **133.691** inhabitants (see Appendix A XXXIV). Without the cities of Loja and Zamora the remaining 52 settlements possess 4.804 inhabitants.

Moreover in the centre of the Park, within the municipality of Zamora, there is the (illegal) mine of San Luís, where about 80 workers living in provisional cabins.

There can no statement been giving according to the chronological development of the number of inhabitants living in the settlements, as there only data exists for the year 2001. The Census of 2010 will provide new data which can be integrated.

## A Appendix

### A I: Delimitation of the NRP (bordering administrative areas)

**West:** *Espindola* (Canton of the Province of Loja), *Quilanga* (Canton of the Province of Loja), *Gonzama* (Canton of the Province of Loja), *Catamayo* (Canton of the Province of Loja) and the following municipalities of the Canton of Loja: *Taquil*, *Santiago*, *Jimbilla*, *San Lucas*

**North:** *Paquisha* (Canton of the Province of ZCH), *Centinela del Cóndor* (Canton of the Province of ZCH), *Yacuambi* (Canton of the Province of ZCH) *Saraguro* (Canton of the Province of Loja) and the following municipalities of the Canton of Zamora: *San Carlos de las Minas*, *Cumbaratza*, *Guadalupe*

**South:** municipalities of the Canton of Palanda: *Palanda* , *San Fransico de Vergel*

**East:** República del Perú

### A II: Development of the Population of the Province of Loja<sup>35</sup>

Year	Inhabitants	APGR <sup>36</sup>
1573	16.000	0,21 %
1780	24.490	0,44 %
1814	28.460	1,77 %
1887	72.159	2.34 %
1935	219.162	2,35 %
1941	251.879	-1,65 %
1950	216.802	

(TEMME 1972: 60)

### A III: Number of inhabitants of the NRP and its Regional Subspaces from 1950 to 1962

	1950	1962
NRP	40.000 <sup>37</sup>	54.295 <sup>38</sup>

<sup>35</sup> refers to changing territorial expansion of the Province of Loja; detailed statements about the territorial changes cannot be made

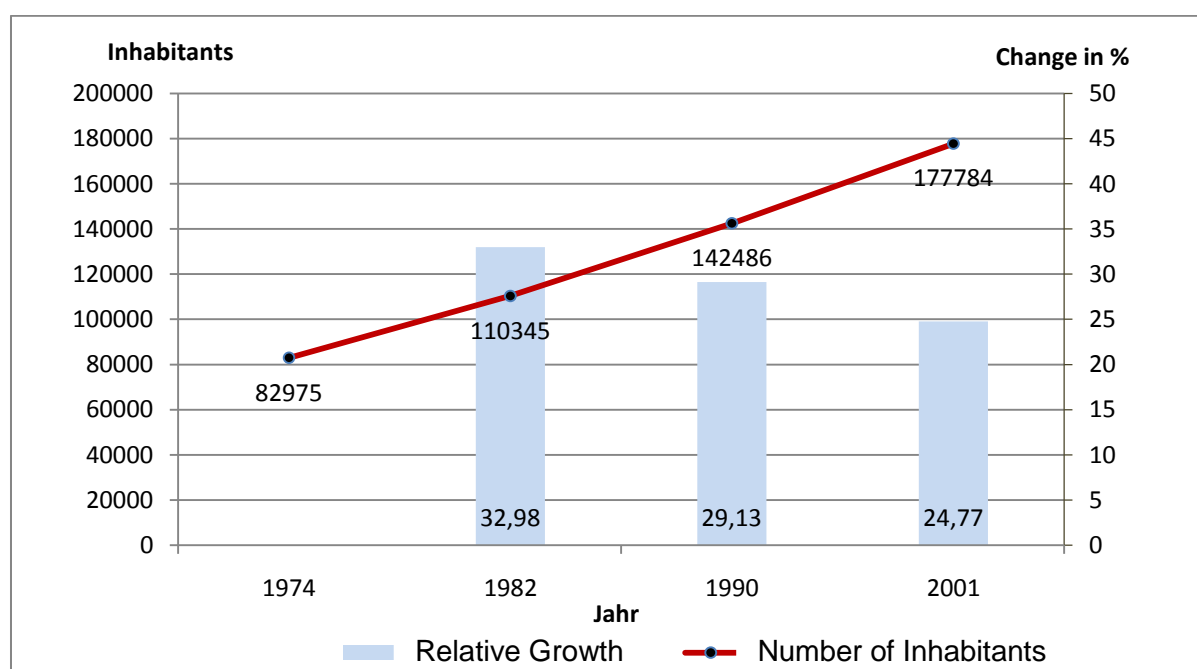
<sup>36</sup> own calculation

<sup>37</sup> Estimation by the author

NRP-West	37.724	50.433
NRP-North	-	2.627 <sup>39</sup>
NRP-South	-	791 <sup>40</sup>
NRP-East	-	444 <sup>41</sup>

( DELAUNAY 1985: 32, 66; INEC 1962b;  
compiled by the author)

#### A IV: Absolute and Relative Growth of the NRP by Period 1974 – 2001



#### A V: Inhabitants of the Research Area by Administrative Divisions in 2001

Province	Inhabitants	Canton	Inhabitants	Municipality	Inhabitants	NRP-Subspace	Inhabitants
Loja	404.835	Loja	175.077	Loja (urb.)	142.271	NRP-West	156.835
				Malacatos	6.292		
				SPdV	1.268		
				Vilcabamba	4.164		
				Yangana	1.509		

<sup>38</sup> on the base of calculations for the NRP-South und NRP-East

<sup>39</sup> The Municipality of Zamora included northern parts of the actual NRP-East (Guayazimi) at this time. (see A XIV)

<sup>40</sup> calculated by the method of Extrapolation (see 3.2.6)

<sup>41</sup> calculated by the method of Extrapolation (see 3.2.6)

				Quinara	1.331				
ZCH	76.601	Zamora	21.791	Zamora (urb.)	10.975	NRP-North	13.486		
				Sabanilla	507				
				Timbara	704				
				Imbana	1.300				
		Palanda	7.066	Valladolid	1.311	NRP-South	2.666		
				EPdC	1.355				
		Nangaritza	4.797	Guayazimi (urb.)	3.175	NRP-East	4.797		
				Zurmi	1.622				
		(INEC 2001a, 2001b, 2001c; compiled by the author)						<b>NRP (Total)</b>	<b>177.784</b>

**A VI:** Absolute and Relative Growth of the Total Population of the NRP and its Subregions within 27 years<sup>42</sup> (1974 – 2001)

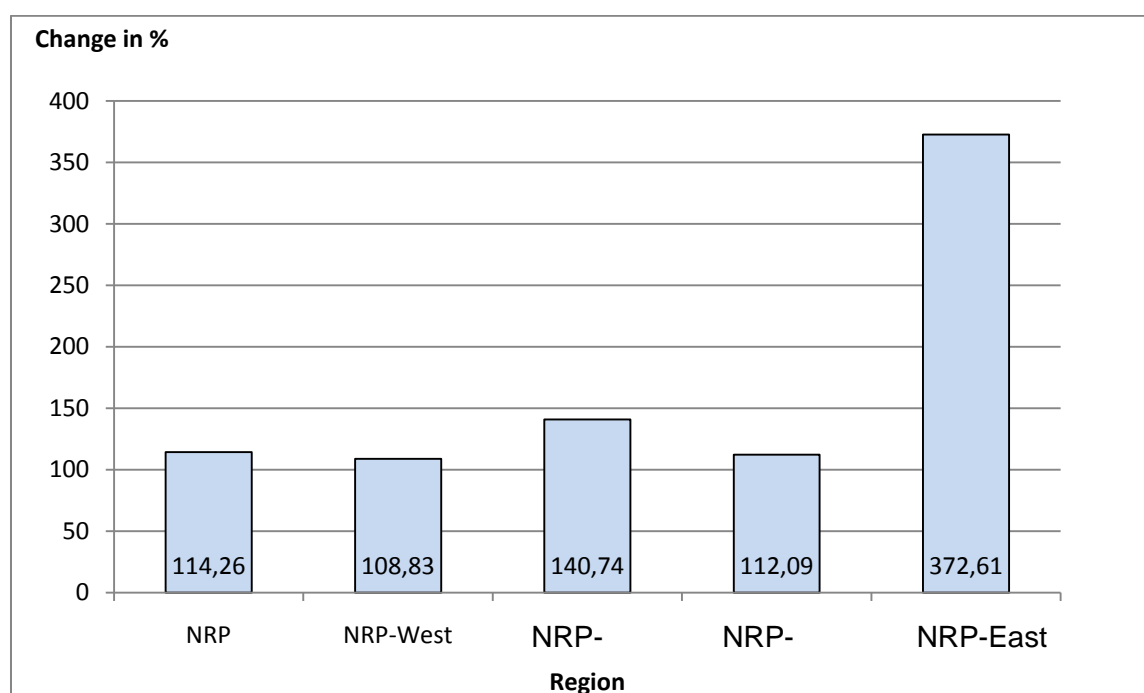


Figure: Relative Growth of the Total Population of the NRP and its Subregions within 27 years (1974 – 2001)

(INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by the author)<sup>43</sup>

<sup>42</sup> Within the investigation time

<sup>43</sup> Due to territorial changes in the NRP-East a strong Relative Total Population Growth can be stated in the investigated timeframe of this research.



Region	Absolute Growth
NRP	94.809
NRP-West	81.734
NRP-North	7.884
NRP-South	1.409
NRP-East	3.782

Table: Absolute Growth of the Total Population by Region within 27 years (1974-2001) (Source: see Figure above)

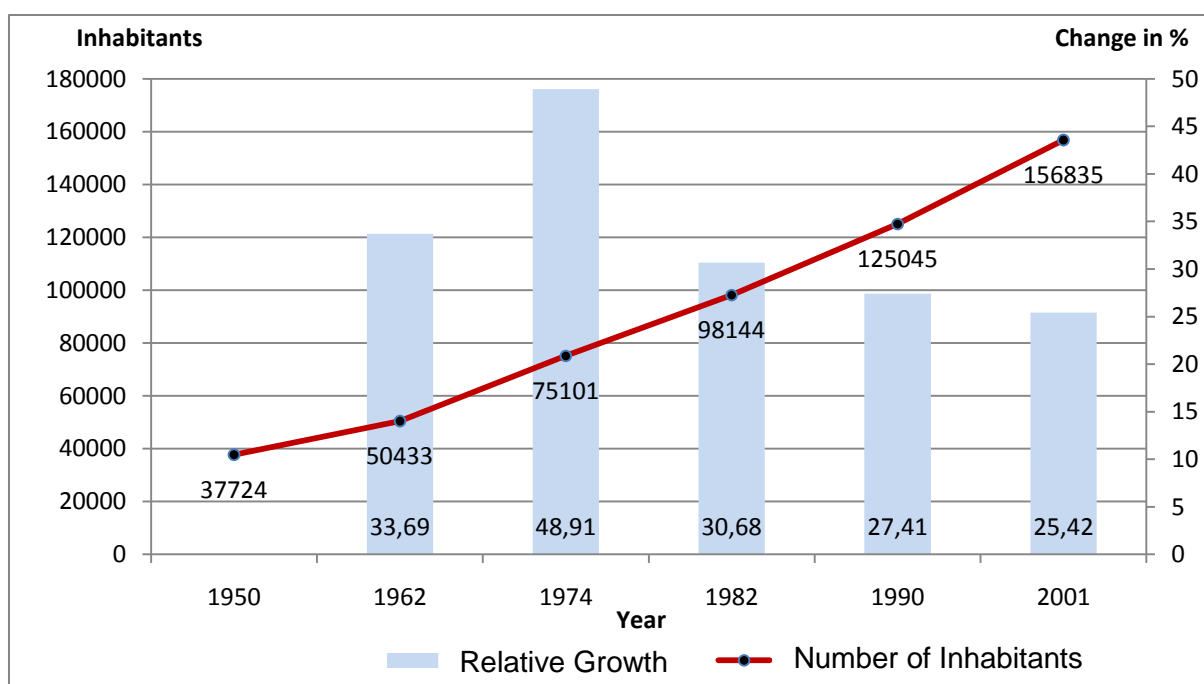
	APGR	Absolute Growth per year
NRP	2,86	3.511
NRP-West	2,77	3.027
NRP-North	3,31	292
NRP-South	2,82	52
NRP-East	5,92	140

Table: Annual Relative and Absolute Population Growth within 27 years (1974-2001) by Region (Source: see Figure above)

#### A VII: Absolute and Relative Growth of the NRP-West by Period 1950<sup>44</sup> - 2001

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<sup>44</sup> As there is data existing since 1950 for the NRP-West, the issue of Population Growth is shown from 1950 till 2001



**Figure: Development of the Population and Relative Growth of the NRP-West 1950 – 2001** (DELAUNAY, CARRERA, LEON 1985: 32; INEC 1962b, 1974b, 1982b, 1990b, 2001b; compiled by the author)

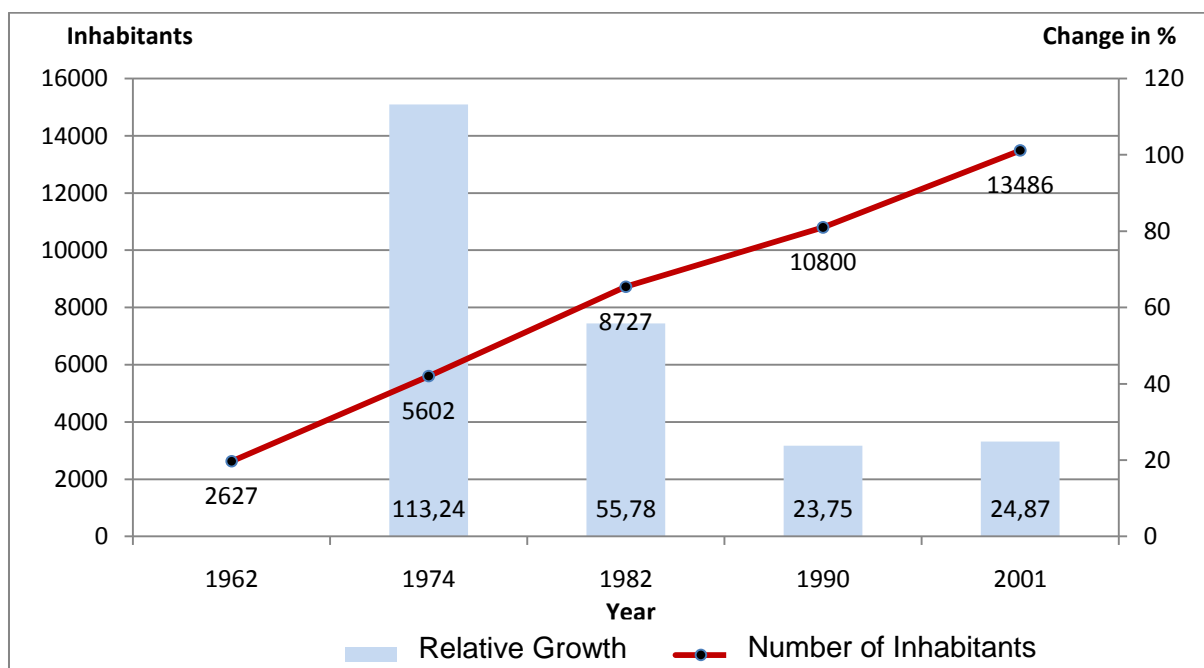
Period	Absolute Growth
1950-1962 <sup>45</sup>	12.709
1962-1974	24.668
1974-1982	23.043
1982-1990	26.091
1990-2001 <sup>46</sup>	31.790

Table: Absolute Growth of the Population per Period - NRP-West (Source: see Figure above)

<sup>45</sup> 12-year time period

<sup>46</sup> 11-year time period

A VIII: Absolute and Relative Growth of the NRP-North by Period 1962<sup>47</sup> - 2001



**Figure: Development of the Population and Relative Growth of the NRP- North 1962 – 2001** (DELAUNAY, CARRERA, LEON 1985: 66; INEC 1974c, 1982c, 1990c, 2001c; compiled by the author)

Period	Absolute Growth
1962-1974	2.975
1974-1982	3.125
1982-1990	2.073
1990-2001	2.686

Table: Absolute Growth of the Population per Period - NRP-North (Source: see Figure above)

<sup>47</sup> As there is data existing for the NRP-North since 1962, the issue of Population Growth is shown from 1962 till 2001

A IX: Absolute and Relative Growth of the NRP-South by Period 1974 - 2001

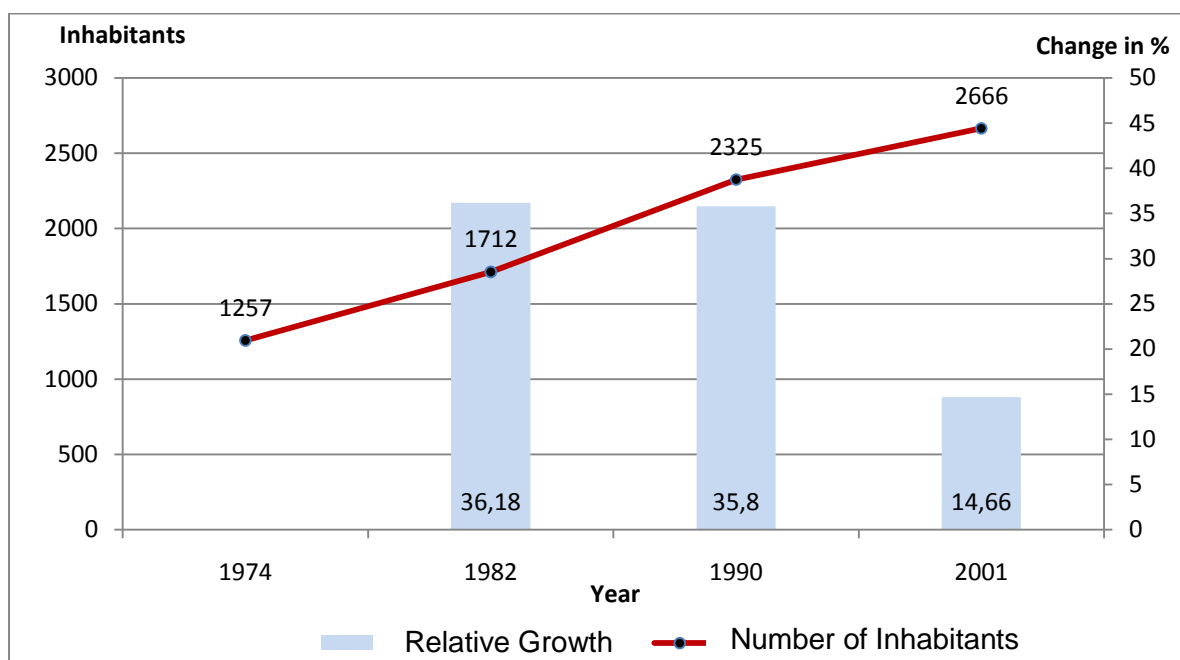


Figure: Development of the Population and Relative Growth of the NRP-South 1974 – 2001 (INEC 1974c, 1982c, 1990c, 2001c; compiled by the author)

Period	Absolute Growth
1974-1982	455
1982-1990	613
1990-2001	341

Table: Absolute Growth of the Population per Period - NRP-South (Source: see Figure above)

A X: Absolute and Relative Growth of the NRP-East by Period 1974 - 2001

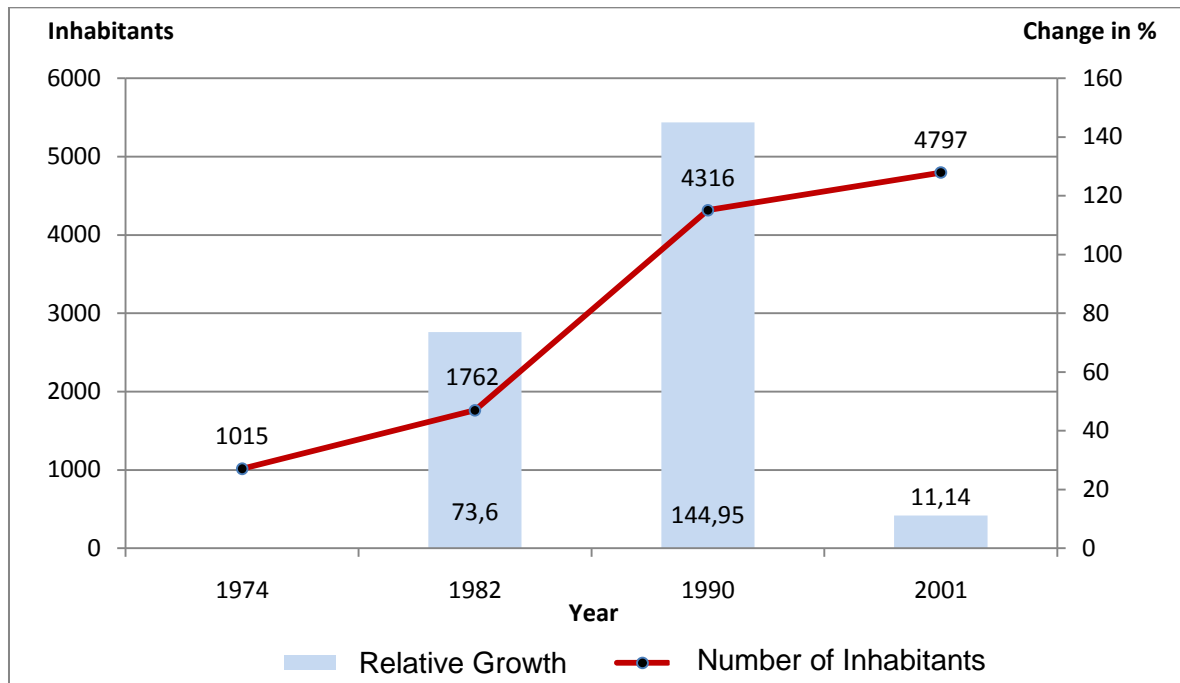


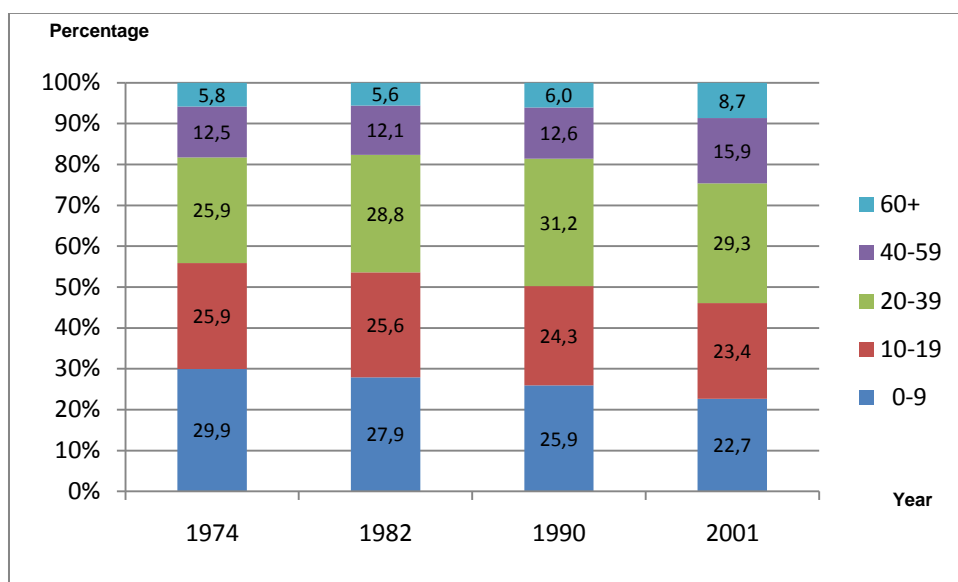
Figure: Development of the Population and Relative Growth of the NRP-East 1974 – 2001 (INEC 1974c, 1982c, 1990c, 2001c; compiled by the author)<sup>48</sup>

Period	Absolute Growth
1974-1982	747
1982-1990	2.554
1990-2001	481

Table: Absolute Growth of the Population per Period - NRP-South (Source: see Figure above)

<sup>48</sup> Due to territorial changes in the NRP-East between 1982 and 1990 the number of inhabitants increased disproportionately strong. This led to a strong Absolute and Relative Growth of the total population in the investigated timeframe of this research.

**A XI: Age Distribution of the NRP and its Regional Subspaces**



**Figure:**  
**Development of the Percentage of Age Groups of the NRP 1974 – 2001 (INEC)**

	NRP				West				North				South			
	1974	1982	1990	2001	1974	1982	1990	2001	1974	1982	1990	2001	1974	1982	1990	2001
60+	5,80	5,61	6,04	8,69	6,03	5,88	6,36	8,96	3,48	3,70	3,96	7,18	3,58	3,10	4,00	4,00
40-59	12,48	12,05	12,57	15,91	12,60	12,21	12,83	16,13	11,60	10,81	10,65	15,05	11,38	11,27	11,00	11,00
20-39	25,85	28,76	31,18	29,30	25,80	28,81	31,30	29,62	26,26	28,47	29,36	26,99	25,46	27,34	26,00	26,00
10-19	25,92	25,64	24,28	23,44	26,08	25,80	24,18	23,25	24,96	25,46	26,08	25,43	24,42	22,37	23,00	23,00
0-9	29,95	27,94	25,93	22,66	29,49	27,30	25,34	22,03	33,70	31,56	29,94	25,34	35,16	35,92	34,00	34,00

**Table.: Development of the Percentage of Age Groups by Region 1974 – 2001 (INEC 1974b, 1974c, 2001c; compiled by author)**

**A XII: Fertility and Mortality of the NRP-Subspaces 1974 – 2007**

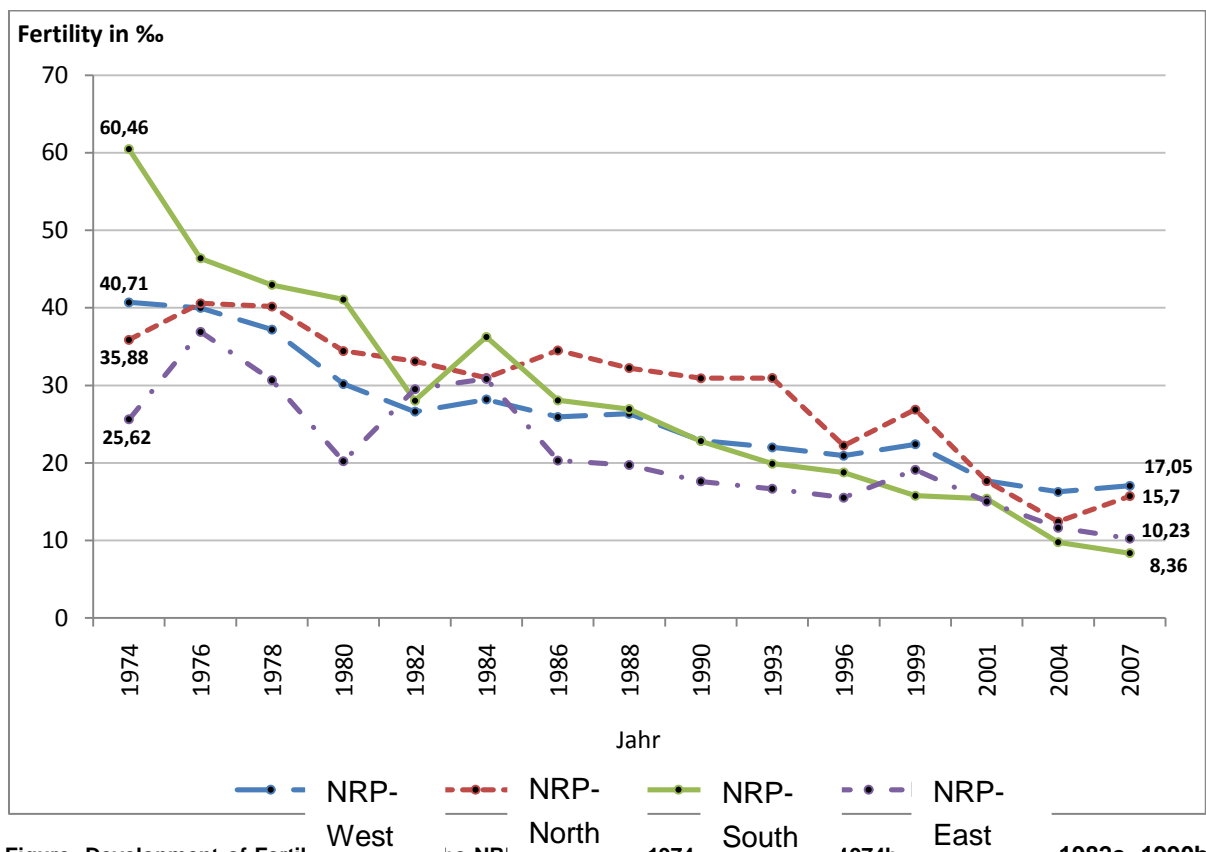
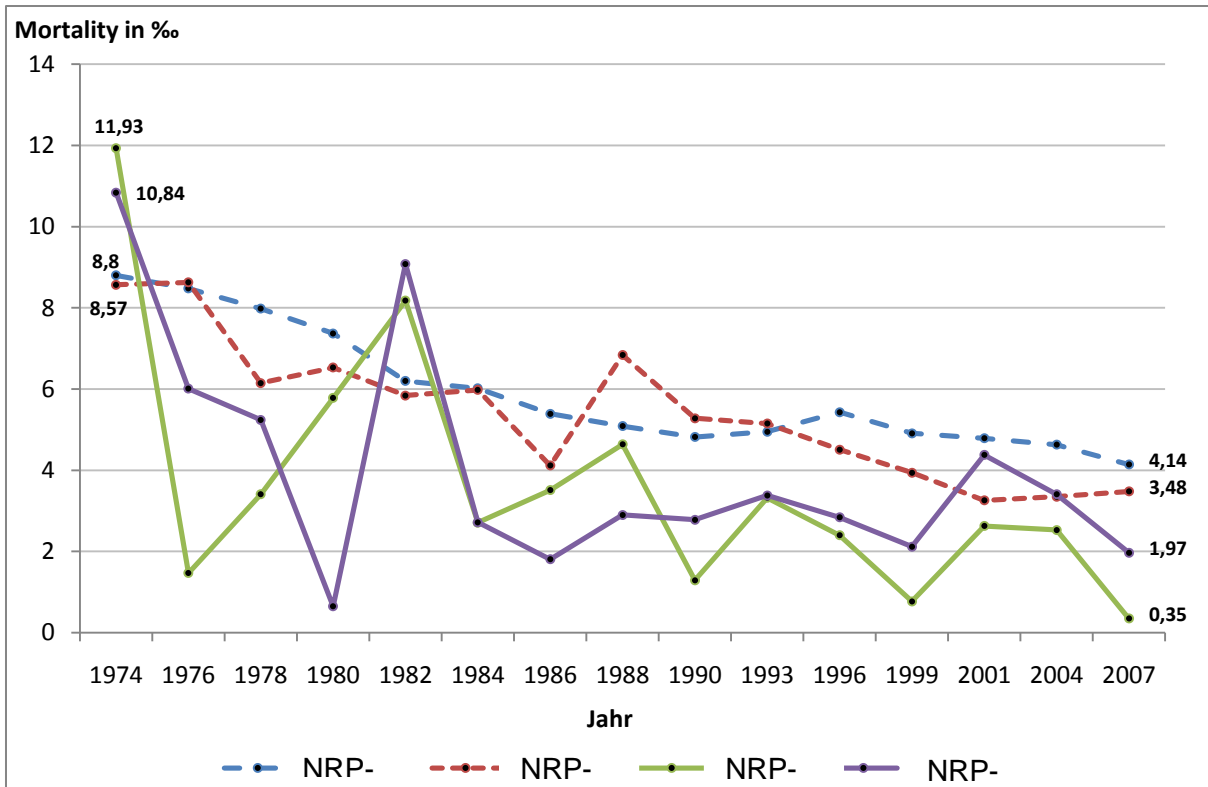
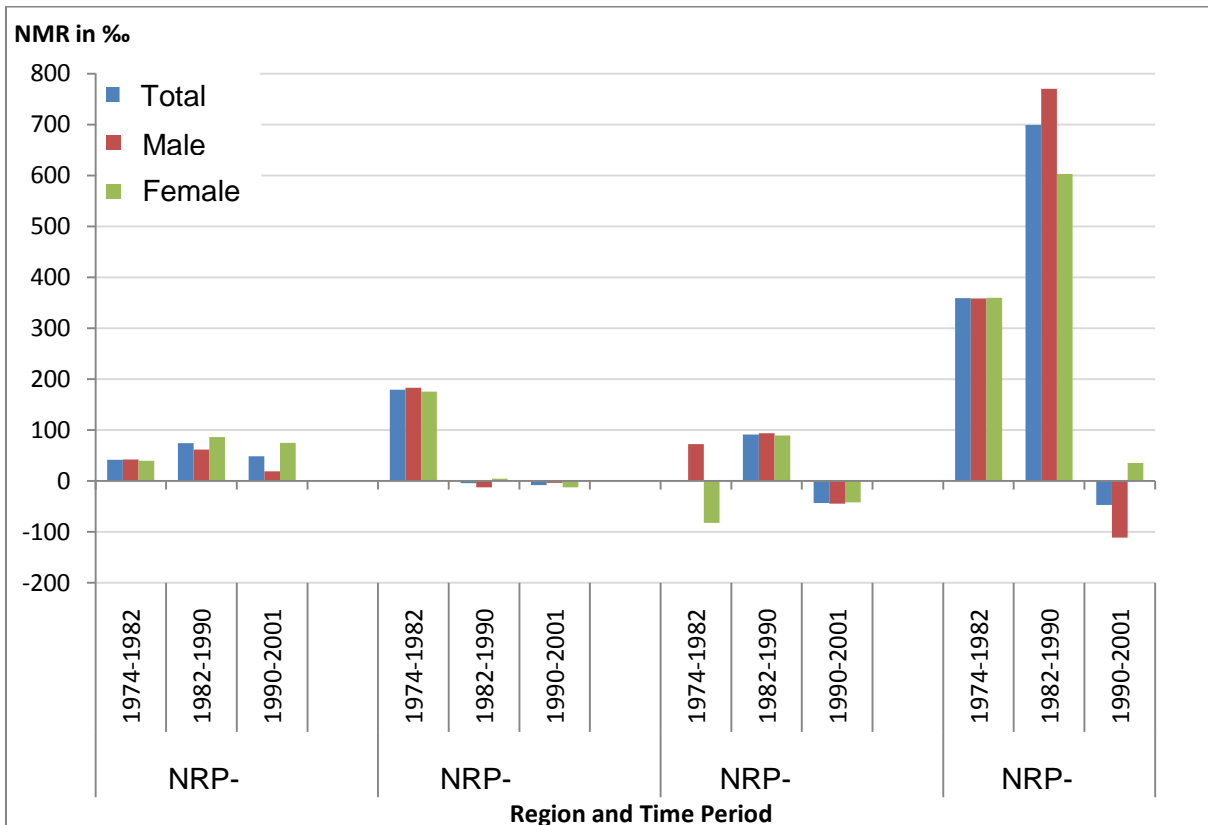


Figure: Development of Fertility in the NRP-Subspaces 1974-2007; compiled by author)



**Figure: Development of Mortality** North the | South pace East 2007 (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; INEC 1974-2007; compiled by author)

A XIII: Net Migration of the NRP-Subspaces





**Figure: Net Migration Rate (MNR) of the NRP-Subspaces by Time Period and Sex 1974 - 2001** (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; INEC 1974-2007; compiled by author)

	NRP-West			NRP-North			NRP-South			NRP-East		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
1990-2001	48,35	19,22	75,07	-7,82	-3,56	-12,26	-43,27	-44,56	-41,7	-47,18	-111,2	35,11
1982-1990	74,3	61,54	86,27	-4,3	-12,67	4,67	91,63	93,61	89,21	698,91	770,07	603,1
1974-1982	41,68	42,5	39,79	179,48	183,15	175,43	1,35	72,32	-81,99	359,25	358,64	360

Table: Net Migration Rate (MNR) of the NRP-Subspaces by Time Period and Sex 1974 - 2001 (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b; compiled by author)

	NRP-West			NRP-North			NRP-South			NRP-East		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
1990-2001	-6.814	1.296	5.518	-95	-22	-73	-108	-61	-47	-215	-285	70
1982-1990	-8.291	3.326	4.965	-42	-64	22	185	104	81	2.124	1.343	781
1974-1982	-3.610	1.780	1.830	1.286	689	597	2	58	-56	499	274	225

Table: Absolute Net Migration (NM) of the NRP-Subspaces by Time Period and Sex 1974 - 2001 (INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by author)

#### A XIV: Territorial Changes of the Municipalities of the NRP (1974 – 2001)

##### NRP-West:

Loja: remained territorially unchanged<sup>49</sup>

Malacatos: remained territorially unchanged

San Pedro de Vilcabamba (SPdV): The Municipality of SPdV is listed administratively independent in the publications of Official Statistics of Ecuador since 1988. Before it was a subterritory of the Municipality of Vilcabamba (old).

Vilcabamba: Until 1987 the Municipality of Vilcabamba (old) comprised a bigger territory, which included the actual Municipalities of SPdV and Vilcabamba. In the course of administrative independence of SPdV in 1988, Vilcabamba (old) lost parts of its territory and population. For the purpose of comparison, Vilcabamba (old)<sup>50</sup> is listed in the Appendix as a “Profile” as well (see A XVIII)

Yangana: Until 1995 the Municipality of Yangana (old) comprised a bigger territory, which included the actual Municipalities of Yangana and Quinara. In the course of administrative independence of Quinara in 1996, Yangana (old) lost parts of its territory and population.

Quinara: The Municipality of Quinara is listed administratively independent in the publications of Official Statistics of Ecuador since 1996. Before it was a subterritory of the Municipality of Yangana (old). For the purpose of comparison, Yangana (old)<sup>51</sup> is listed in the Appendix as a “Profile” as well (see A XXI).

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##### NRP-North:

Zamora: Already before the Census of 1974 the former Municipality of Zamora

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<sup>49</sup> respectively, if there were any territorially changes, they did not influence the number of inhabitants

<sup>50</sup> Vilcabamba (old) is equivalent to the primal Municipality of Vilcabamba in 1974.

<sup>51</sup> Yangana (old) is equivalent to the primal Municipality of Yangana in 1974.

was extended by the territory of the former Municipality of El Limón, which is part of the urban Municipality since then. Moreover the actual Municipality of Guayazimi and Northern parts of the actual Municipality of Zurmi form a part of the Canton Zamora before 1982.

Sabanilla: remained territorially unchanged

Timbara: remained territorially unchanged

Imbana: remained territorially unchanged

NRP-South:

Valladolid: Until 1981 the Municipality of Valladolid (old) comprised a bigger territory, which included the actual Municipalities of El Porvenir del Carmen and Valladolid. In the course of administrative independence of El Porvenir del Carmen in 1982, Valladolid (old) lost parts of its territory and population. Until the Census of 1990, both Municipalities were part of the Canton of Chinchipe, while the Canton of Palanda, which they actually belong to, is listed administratively independent since the Census of 2001.

El Porvenir del Carmen (EPdC): The Municipality of EPdC is listed administratively independent in the publications of Official Statistics of Ecuador since 1982. Before it was a subterritory of the Municipality of Valladolid (old). For the purpose of comparison, Valladolid (old)<sup>52</sup> is listed in the Appendix as a “Profile” as well (see A XXVIII).

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NRP-East:

Guayazimi: Until the Census of 1982, the Municipality of Guayazimi has been part of the Canton of Zamora and consisted of the actual Municipality of Guayazimi, as well as *northern parts* of the actual Municipality of Zurmi.

In 1987 a new canton, Nangaritza, was founded. In the publication of the Census of 1990 the area of Guayazimi (now called Nangaritza and **equivalent to the NRP East**), consisted of the actual Municipality of

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<sup>52</sup> Valladolid (old) is equivalent to the primal Municipality of Valladolid in 1974.

Guayazimi and the actual Municipality of Zurmi (including the *southern parts*, which were not part in 1982) as one administrative, thus statistic area.

As a result of administrative changes between 1982 and 1990, the area of Guayazimi/Nangaritza was subjected to an expansion of its area and as a consequence a remarkable increase of its inhabitants.

In 1993 the new Canton of Nangaritza was (administratively) divided into the *urban* Municipality of Guayazimi and the *rural* Municipality of Zurmi.

The territorially and administrative changes in the NRP-East in the period investigated, made it difficult to make clear statements about the development of demographic issues, which has to be critically judged in this paper.

Zurmi: The actual Municipality of Zurmi became independent in 1993. Before it has been part of the Canton of Nangaritza. In 1982 (Census) its northern part belonged to Guayazimi, while its bigger southern area, was part of the former Municipality of Zumbi (Canton Chinchipe). About the detailed dimension of the size of the former southern/northern part, thus the number of inhabitants, no statement can be made.

As a result of the abovementioned territorial changes during the sample period, there can be no statements made about the demographic development from 1974 - 2001 for some **actual** subregions (Municipalities). Adding "*Municipality (old)*" to the database and "Profiles", enables comparisons of subregions, as well as statements about the demographic development of the entire NRP.

A XV: Relative and Absolute Development of the Population of the participating Municipalities of the NRP within 27 years (1974 – 2001)

	Relative Growth	Absolute Growth
NRP-West		
Loja	132,15	80.988
Malacatos	-4,45	-293
SPdV- Vilabamba	19,04	869
Yangana- Quinara	6,37	170
NRP-North		

Zamora	197,1	7.281
Sabanilla	121,4	278
Timbara	6,83	45
Imbana	27,45	280
NRP-South		
Valladolid- EPdC	112,09	1.409
NRP-East		
Guayazimi- Zurmi	372,61	3.782

Table: Relative and Absolute Growth of the Population of the participating Municipalities of the NRP within 27 years (1974 – 2001)  
(INEC 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; compiled by author)

A XVI: Profile<sup>53</sup> - Municipality (urban) of Loja ( NRP-West)

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<sup>53</sup> INEC 1962b, 1974b, 1974c, 1982b, 1982c, 1990b, 1990c, 2001b, 2001c; DELAUNAY 1985: 32, 66  
Same source for subsequent Profiles.

a) Inhabitants by Sex and Area in %

	Total			Urban Area*			Rural Area		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	26.597	-	-	21.104	-	-	5493	-	-
1962	38.000	46,46	53,54	26.785	45,39	54,61	11.215	49,00	51,00
1974	61.283	47,38	52,62	47.697	46,63	53,37	13.586	50,01	49,99
1982	87.281	48,28	51,72	71.652	48,08	51,92	15.629	49,20	50,80
1990	110.633	48,03	51,97	94.305	47,75	52,25	16.328	49,68	50,32
2001	142.271	47,16	52,84	118.532	46,84	53,16	23.739	48,72	51,28

(-) no data available

\* Ciudad de Loja

b) Relative Change of the Total Population and APGR in %

Loja	Change	APGR
1974 - 2001	132,15	3,17
1950 - 1962	42,62	3,02
1962 - 1974	61,27	4,06
1974 - 1982	42,42	4,52
1982 . 1990	26,75	3,01
1990 - 2001	28,6	2,31

c) Distribution of Population by Area in %

Loja	Total	Urban Area	Rural Area
1950	26.597	79,35	20,65
1962	38.000	70,49	29,51
1974	61.283	77,83	22,17
1982	87.281	82,09	17,91
1990	110.633	85,24	14,76
2001	142.271	83,31	16,69

d) Age Distribution (Age Groups) in %

Loja	1974	1982	1990	2001
60+	5,64	5,53	5,80	8,41
40-59	12,33	11,91	12,60	16,11
20-39	26,45	29,66	32,35	30,25
10-19	26,77	26,16	24,11	23,43
0-9	28,81	26,73	25,14	21,80

e) Distribution of Ethnic Groups in %

Loja	Proportion
Total	142.271
Afroecuadorian	0,97
Indigenous	1,00
Mestize	93,21
White	4,75
n/a	0,07

**A XVII: Profile - Municipality of Malacatos (NRP-West)**

**a) Inhabitants by Sex and Area in %**

	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	6.096	-	-	-	-	-	-	-	-
1962	6.324	50,25	49,75	1.131	55,08	62,60	4.993	51,17	48,83
1974	6.585	50,71	49,29	753	51,00	49,00	5.832	50,67	49,33
1982*	2.897	47,91	52,09	463	47,08	52,92	2.434	48,07	51,93
1990	6.038	51,14	48,86	964	50,31	49,69	5.074	51,30	48,70
2001	6.292	50,49	49,51	991	51,06	48,94	5.301	50,39	49,61

\* All data of this year have to be considered critically

**b) Relative Change of the Total Population and APGR in %**

Malacatos	Change	APGR
1974 - 2001	-4,45	-0,17
1950 - 1962	3,74	0,31
1962 - 1974	4,31	0,34
1974 - 1982	-56,01	-9,75
1982 . 1990	108,42	9,61
1990 - 2001	4,21	0,38

**c) Distribution of Population by Area in %**

Malacatos	Total	Capital	Periphery
1950	6.096	-	-
1962	6.324	17,88	78,95
1974	6.585	11,44	88,56
1982	2.897	15,98	84,02
1990	6.038	15,97	84,03
2001	6.292	15,75	84,25

**d) Age Distribution (Age Groups) in %**

Malacatos	1974	1982	1990	2001
60+	8,23	8,22	11,25	14,54
40-59	13,99	15,60	15,14	15,80
20-39	21,73	22,51	23,73	23,22
10-19	23,28	22,51	24,56	20,77
0-9	32,77	31,17	25,32	25,67

**e) Distribution of Ethnic Groups in %**

Malacatos	Proportion
Total	6.292
Afroecuatorialian	0,49
Indigenous	0,25
Mestize	98,11
White	1,11
n/a	0,03

A XVIII: Profile - Municipality of Vilcabamba (old)<sup>54</sup> (NRP-West)

a) Inhabitants by Sex and Area in %

	Total			Capital*			Periphery**		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	3.210	-	-	-	-	-	-	-	-
1962	3.555	51,48	48,52	887	48,03	51,97	2.668	52,62	47,38
1974	4.563	51,41	48,59	1.106	48,82	51,18	3.457	52,24	47,76
1982	5.143	51,39	48,61	1.365	50,18	49,82	3.778	51,83	48,17
1990	5.436	50,22	49,78	1.451	48,59	51,41	3.985	50,82	49,18
2001	5.432	49,74	50,26	1.715	46,71	53,29	3.717	51,14	48,86

\* Vilcabamba (Cabecera Parroquial)

\*\* Periphery of Municipality of Vilcabamba and complete Municipality of SPdV.

b) Relative Change of the Total Population and APGR in %

SPdV-Vilcabamba	Change	APGR
1974 - 2001	19,04	0,65
1950 - 1962	10,75	0,85
1962 - 1974	28,35	2,1
1974 - 1982	12,71	1,51
1982 - 1990	5,7	0,7
1990 - 2001	-0,07	-0,01

c) Distribution of Population by Area in %

SPdV-Vilcabamba	Total	Capital	Periphery
1950	3.210	-	-
1962	3.555	24,95	75,05
1974	4.563	24,24	75,76
1982	5.143	26,54	73,46
1990	5.436	26,69	73,31
2001	5.432	31,57	68,43

d) Age Distribution (Age Groups) in %

SPdV-Vilcabamba	1974	1982	1990	2001
60+	7,89	9,86	11,20	14,27
40-59	14,16	14,62	14,68	17,36
20-39	22,70	21,37	23,40	23,29
10-19	22,27	23,49	23,99	22,75
0-9	32,98	30,66	26,73	22,33

e) Distribution of Ethnic Groups in %

SPdV-Vilcabamba	Proportion
Total	5.432
Afroecuatorialian	0,85
Indigenous	1,77
Mestize	93,45
White	3,85
n/a	0,09

<sup>54</sup> Actual Municipalities of San Pedro de Vilcabamba and Vilcabamba



A XIX: Profile - Municipality of San Pedro de Vilcabamba (SPdV) (NRP-West)

a) Inhabitants by Sex and Area in %

	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-
1990	1.542	49,61	50,39	557	47,94	52,06	985	50,56	49,44
2001	1.268	49,61*	50,39*	501	49,10	50,90	767	49,93	50,07

\* No mistake. It is the same percentage as 1990!

b) Relative Change of the Total Population and APGR in %

SPdV	Change	APGR
1974 - 2001	19,04	0,65
1950 - 1962	10,75	0,85
1962 - 1974	28,35	2,1
1974 - 1982	12,71	1,51
1982 . 1990	5,7	0,7
1990 - 2001	-0,07	-0,01

c) Distribution of Population by Area in %

SPdV	Total	Capital	Periphery
1950	-	-	-
1962	-	-	-
1974	-	-	-
1982	-	-	-
1990	1.542	36,12	63,88
2001	1.268	39,51	60,49

d) Age Distribution (Age Groups) in %

SPdV	1974	1982	1990	2001
60+	-	-	13,36	19,48
40-59	-	-	16,86	18,93
20-39	-	-	20,75	22,16
10-19	-	-	24,19	21,21
0-9	-	-	24,84	18,22

e) Distribution of Ethnic Groups in %

SPdV	Proportion
Total	1.268
Afroecuatorian	2,21
Indigenous	0,08
Mestize	92,74
White	4,89
n/a	0,08

A XX: Profile - Municipality of Vilcabamba (NRP-West)

a) Inhabitants by Sex and Area in %

Vilcabamba	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	3.210	-	-	-	-	-	-	-	-
1962	3.555	51,48	48,52	887	48,03	51,97	2.668	52,62	47,38
1974	4.563	51,41	48,59	1.106	48,82	51,18	3.457	52,24	47,76
1982	5.143	51,39	48,61	1.365	50,18	49,82	3.778	51,83	48,17
1990	3.894	50,46	49,54	1.451	48,59	51,41	2.443	51,58	48,42
2001	4.164	49,78	50,22	1.715	46,71	53,29	2.449	51,94	48,06

b) Relative Change of the Total Population and APGR in %

Vilcabamba	Change	APGR
1974 - 2001	-8,74	-0,34
1950 - 1962	10,75	0,85
1962 - 1974	28,35	2,1
1974 - 1982	12,71	1,51
1982 . 1990	-24,29	-3,41
1990 - 2001	6,93	0,61

c) Distribution of Population by Area in %

Vilcabamba	Total	Capital	Periphery
1950	3.210	-	-
1962	3.555	24,95	75,05
1974	4.563	24,24	75,76
1982	5.143	26,54	73,46
1990	3.894	37,26	62,74
2001	4.164	41,19	58,81

d) Age Distribution (Age Groups) in %

Vilcabamba	1974	1982	1990	2001
60+	7,89	9,86	10,35	12,68
40-59	14,16	14,62	13,82	16,88
20-39	22,70	21,37	24,45	23,63
10-19	22,27	23,49	23,91	23,22
0-9	32,98	30,66	27,48	23,58

e) Distribution of Ethnic Groups in %

Vilcabamba	Proportion
Total	4.164
Afroecuatorialian	0,43
Indigenous	2,28
Mestize	93,66
White	3,53
n/a	0,10

A XXI: Profile – Municipality of Yangana (old)<sup>55</sup> (NRP-West)

a) Inhabitants by Sex and Area in %

Yangana-Quinara	Total			Capital*			Periphery**		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	1.821	-	-	-	-	-	-	-	-
1962	2.554	52,82	47,18	455	51,87	48,13	2.099	53,03	46,97
1974	2.670	52,21	47,79	457	50,11	49,89	2.213	52,64	47,36
1982	2.823	52,82	47,18	559	51,70	48,30	2.264	53,09	46,91
1990	2.938	50,17	49,83	576	49,13	50,87	2.362	50,42	49,58
2001	2.840	51,51	48,49	618	46,76	53,24	2.222	52,84	47,16

\* Yangana (Cabecera Parroquial)

\*\* Periphery of Municipality of Yangana and complete Municipality of Quinara.

b) Relative Change of the Total Population and APGR in %

Yangana-Quinara	Change	APGR
1974 - 2001	6,37	0,23
1950 - 1962	40,25	2,86
1962 - 1974	4,54	0,37
1974 - 1982	5,73	0,7
1982 - 1990	4,07	0,5
1990 - 2001	-3,34	-0,31

c) Distribution of Population by Area in %

Yangana-Quinara	Total	Capital	Periphery
1950	1.821	-	-
1962	2.554	17,82	82,18
1974	2.670	17,12	82,88
1982	2.823	19,80	80,20
1990	2.938	19,61	80,39
2001	2.840	21,76	78,24

d) Age Distribution (Age Groups) in %

Yangana-Quinara	1974	1982	1990	2001
60+	6,37	6,87	8,37	14,37
40-59	12,58	13,43	13,21	15,77
20-39	22,58	22,71	21,92	24,05
10-19	23,82	22,46	26,24	20,85
0-9	34,64	34,54	30,26	24,96

e) Distribution of Ethnic Groups in %

Yangana-Quinara	Proportion
Total	2.840
Afroecuatorialian	0,25
Indigenous	0,42
Mestize	98,59
White	0,67
n/a	0,07

<sup>55</sup> Actual Municipalities of Yangana and Quinara

**A XXII: Profile - Municipality of Yangana (NRP-West)**

**a) Inhabitants by Sex and Area in %**

Yangana	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	1.821	-	-	-	-	-	-	-	-
1962	2.554	52,82	47,18	455	51,87	48,13	2.099	53,03	46,97
1974	2.670	52,21	47,79	457	50,11	49,89	2.213	52,64	47,36
1982	2.823	52,82	47,18	559	51,70	48,30	2.264	53,09	46,91
1990	2.938	50,17	49,83	576	49,13	50,87	2.362	50,42	49,58
2001	1.509	50,30	49,70	618	46,76	53,24	891	52,75	47,25

**b) Relative Change of the Total Population and APGR in %**

Yangana	Change	APGR
1974 - 2001	-43,48	-2,09
1950 - 1962	40,25	2,86
1962 - 1974	4,54	0,37
1974 - 1982	5,73	0,7
1982 . 1990	4,07	0,5
1990 - 2001	-48,64	-5,88

**c) Distribution of Population by Area in %**

Yangana	Total	Capital	Periphery
1950	1.821	-	-
1962	2.554	17,82	82,18
1974	2.670	17,12	82,88
1982	2.823	19,80	80,20
1990	2.938	19,61	80,39
2001	1.509	40,95	59,05

**d) Age Distribution (Age Groups) in %**

Yangana	1974	1982	1990	2001
60+	6,37	6,87	8,37	16,24
40-59	12,58	13,43	13,21	15,90
20-39	22,58	22,71	21,92	24,19
10-19	23,82	22,46	26,24	21,34
0-9	34,64	34,54	30,26	22,33

**e) Distribution of Ethnic Groups in %**

Yangana	Proportion
Total	1.509
Afroecuatorialian	0,20
Indigenous	0,00
Mestize	98,94
White	0,86
n/a	0,00

A XXIII: Profile - Municipality of Quinara (NRP-West)

a) Inhabitants by Sex and Area in %

Quinara	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-
1990	-	-	-	-	-	-	-	-	-
2001	1.331	52,89	47,11	300	51,33	48,67	1.031	53,35	46,65

b) Relative Change of the Total Population and APGR in %

Quinara	Change	APGR
1974 - 2001	-	-
1950 - 1962	-	-
1962 - 1974	-	-
1974 - 1982	-	-
1982 - 1990	-	-
1990 - 2001	-	-

c) Distribution of Population by Area in %

Quinara	Total	Capital	Periphery
1950	-	-	-
1962	-	-	-
1974	-	-	-
1982	-	-	-
1990	-	-	-
2001	1.331	22,54	77,46

d) Age Distribution (Age Groups) in %

Quinara	1974	1982	1990	2001
60+	-	-	-	12,25
40-59	-	-	-	15,63
20-39	-	-	-	23,89
10-19	-	-	-	20,29
0-9	-	-	-	27,95

e) Distribution of Ethnic Groups in %

Quinara	Proportion
Total	1.331
Afroecuatorian	0,30
Indigenous	0,90
Mestize	98,20
White	0,45
n/a	0,15

A XXIV: Profile – Municipality (urban) of Zamora (NRP-North)

a) Inhabitants by Sex and Area in %

Zamora	Total			Urban Area*			Rural Area		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	1.675	-	-	-	-	-	-	-	-
1974	3.694	51,87	48,13	2.667	49,91	50,09	1.027	56,96	43,04
1982	6.365	51,28	48,72	5.296	47,72	52,28	1.069	68,94	31,06
1990	8.736	50,86	49,14	8.048	50,56	49,44	688	54,36	45,64
2001	10.975	50,36	49,64	10.355	50,29	49,71	620	51,45	48,55

\* Ciudad de Zamora

b) Relative Change of the Total Population and APGR in %

Zamora	Change	APGR
1974 - 2001	197,1	4,11
1962 - 1974	120,54	6,81
1974 - 1982	72,31	7,04
1982 . 1990	37,25	4,04
1990 - 2001	25,63	2,09

c) Distribution of Population by Area in %

Zamora	Total	Urban Area	Rural Area
1950	-	-	-
1962	1.675	-	-
1974	3.694	72,20	27,80
1982	6.365	83,21	16,79
1990	8.736	92,12	7,88
2001	10.975	94,35	5,65

d) Age Distribution (Age Groups) in %

Zamora	1974	1982	1990	2001
60+	3,00	3,35	3,58	6,65
40-59	10,56	9,69	9,82	15,04
20-39	26,15	29,51	30,82	27,65
10-19	26,39	27,16	26,26	26,09
0-9	33,89	30,29	29,52	24,56

e) Distribution of Ethnic Groups in %

Zamora	Proportion
Total	10.975
Afroecuatorian	0,77
Indigenous	1,59
Mestize	93,18
White	4,35
n/a	0,12

**A XXV: Profile - Municipality of Sabanilla (NRP-North)**

**a) Inhabitants by Sex and Area in %**

Sabanilla	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	388	-	-	-	-	-	-	-	-
1974	229	57,21	42,79	110	56,36	43,64	119	57,98	42,02
1982	262	54,96	45,04	78	53,85	46,15	184	55,43	44,57
1990	308	57,14	42,86	67	52,24	47,76	241	58,51	41,49
2001	507	56,41	43,59	55	54,55	45,45	452	56,64	43,36

**b) Relative Change of the Total Population and APGR in %**

Sabanilla	Change	APGR
1974 - 2001	121,4	2,99
1962 - 1974	-40,98	-4,3
1974 - 1982	14,41	1,7
1982 . 1990	17,56	2,04

**c) Distribution of Population by Area in %**

Sabanilla	Total	Capital	Periphery
1950	-	-	-
1962	388	-	-
1974	229	48,03	51,97
1982	262	29,77	70,23
1990	308	21,75	78,25
2001	507	10,85	89,15

**d) Age Distribution (Age Groups) in %**

Sabanilla	1974	1982	1990	2001
60+	3,49	4,96	6,49	6,31
40-59	15,72	12,98	13,64	17,16
20-39	27,07	27,86	25,00	24,65
10-19	20,09	24,43	24,03	22,49
0-9	33,62	29,77	30,84	29,39

**e) Distribution of Ethnic Groups in %**

Sabanilla	Proportion
Total	507
Afroecuatorialian	0,20
Indigenous	3,35
Mestize	94,87
White	1,58
n/a	0,00

A XXVI: Profile - Municipality of Timbara (NRP-North)

a) Inhabitants by Sex and Area in %

Timbara	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	230	-	-	-	-	-	-	-	-
1974	659	55,39	44,61	90	48,89	51,11	569	56,41	43,59
1982	876	58,22	41,78	62	56,45	43,55	814	58,35	41,65
1990	665	53,68	46,32	91	53,85	46,15	574	53,66	46,34
2001	704	52,27	47,73	65	50,77	49,23	639	52,43	47,57

b) Relative Change of the Total Population and APGR in %

Timbara	Change	APGR
1974 - 2001	6,83	0,25
1950 - 1962	98,28	5,87
1962 - 1974	186,52	9,17
1974 - 1982	32,93	3,62
1982 . 1990	-24,09	-3,39
1990 - 2001	5,86	0,52

c) Distribution of Population by Area in %

Timbara	Total	Capital	Periphery
1950	-	-	-
1962	230	-	-
1974	659	13,66	86,34
1982	876	7,08	92,92
1990	665	13,68	86,32
2001	704	9,23	90,77

d) Age Distribution (Age Groups) in %

Timbara	1974	1982	1990	2001
60+	4,70	5,59	6,02	12,07
40-59	12,44	11,87	15,19	13,49
20-39	27,47	26,03	20,60	22,44
10-19	20,79	19,75	26,17	24,29
0-9	34,60	36,76	32,03	27,70

e) Distribution of Ethnic Groups in %

Timbara	Proportion
Total	704
Afroecuatorian	0,28
Indigenous	20,88
Mestize	78,55
White	0,28
n/a	0,00



A XXVII: Profile - Municipality of Imbana (NRP-North)

a) Inhabitants by Sex and Area in %

Imbana	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-
1974	1.020	53,92	46,08	155	52,90	47,10	865	54,10	45,90
1982	1.224	52,61	47,39	211	55,92	44,08	1.013	51,92	48,08
1990	1.091	51,51	48,49	204	51,96	48,04	887	51,41	48,59
2001	1.300	50,62	49,38	246	47,97	52,03	1.054	51,23	48,77

b) Relative Change of the Total Population and APGR in %

Imbana	Change	APGR
1974 - 2001	27,45	0,92
1962 - 1974	-	-
1974 - 1982	20	2,31
1982 - 1990	-10,87	-1,42
1990 - 2001	19,16	1,61

c) Distribution of Population by Area in %

Imbana	Total	Capital	Periphery
1950	-	-	-
1962	-	-	-
1974	1.020	15,20	84,80
1982	1.224	17,24	82,76
1990	1.091	18,70	81,30
2001	1.300	18,92	81,08

d) Age Distribution (Age Groups) in %

Imbana	1974	1982	1990	2001
60+	4,41	3,92	5,04	9,31
40-59	13,92	15,36	13,66	15,15
20-39	25,69	25,00	24,29	24,77
10-19	23,53	20,92	25,21	21,69
0-9	32,45	34,80	31,81	29,08

e) Distribution of Ethnic Groups in %

Imbana	Proportion
Total	1.300
Afroecuatorian	0,23
Indigenous	23,46
Mestize	73,62
White	2,69
n/a	0,00

A XXVIII: Profile – Municipality of Valladolid (old)<sup>56</sup> (NRP-South)

a) Inhabitants by Sex and Area in %

Valladolid-EPdC	Total			Capital*			Periphery**		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-
1974	1.257	52,90	47,10	224	54,02	45,98	1.033	52,66	47,34
1982	1.712	54,85	45,15	327	56,57	43,43	1.385	54,44	45,56
1990	2.325	55,14	44,86	509	50,29	49,71	1.816	56,50	43,50
2001	2.666	54,58	45,42	645	53,49	46,51	2.021	54,92	45,08

\* Valladolid (Cabecera Parroquial)

\*\* Periphery of Municipality of Valladolid and complete Municipality of EPdC.

b) Relative Change of the Total Population and APGR in %

Valladolid-EPdC	Change	APGR
1974 - 2001	112,09	2,82
1950 - 1962	-	-
1962 - 1974	-	-
1974 - 1982	36,2	3,94
1982 - 1990	35,81	3,9
1990 - 2001	14,67	1,25

c) Distribution of Population by Area in %

Valladolid-EPdC-	Total	Capital	Periphery
1950	-	-	-
1962	-	-	-
1974	1.257	17,82	82,18
1982	1.712	19,10	80,90
1990	2.325	21,89	78,11
2001	2.666	24,19	75,81

d) Age Distribution (Age Groups) in %

Valladolid-EPdC	1974	1982	1990	2001
60+	3,58	3,10	4,13	6,68
40-59	11,38	11,27	11,18	13,50
20-39	25,46	27,34	26,37	25,32
10-19	24,42	22,37	23,83	24,23
0-9	35,16	35,92	34,49	30,27

e) Distribution of Ethnic Groups in %

Valladolid-EPdC	Proportion
Total	2.666
Afroecuatorialian	0,41
Indigenous	0,08
Mestize	99,36
White	0,15
n/a	0,00

<sup>56</sup> Actual Municipalities of Valladolid and El Porvenir del Carmen

A XXVIX: Profile - Municipality of Valladolid (NRP-South)

a) Inhabitants by Sex and Area in %

Valladolid	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-
1974	1.257	52,90	47,10	224	54,02	45,98	1.033	52,66	47,34
1982	939	56,44	43,56	327	56,57	43,43	612	56,37	43,63
1990	1.144	53,85	46,15	509	50,29	49,71	635	56,69	43,31
2001	1.311	54,08	45,92	645	53,49	46,51	666	54,65	45,35

b) Relative Change of the Total Population and APGR in %

Valladolid	Change	APGR
1974 - 2001	4,29	0,16
1950 - 1962	-	-
1962 - 1974	-	-
1974 - 1982	-25,6	-3,58
1982 . 1990	21,83	2,5
1990 - 2001	14,6	1,25

c) Distribution of Population by Area in %

Valladolid	Total	Capital	Periphery
1950	-	-	-
1962	-	-	-
1974	1.257	17,82	82,18
1982	939	34,82	65,18
1990	1.144	44,49	55,51
2001	1.311	49,20	50,80

d) Age Distribution (Age Groups) in %

Valladolid	1974	1982	1990	2001
60+	3,58	3,09	4,45	6,64
40-59	11,38	12,35	10,12	13,81
20-39	25,46	27,16	23,31	26,54
10-19	24,42	23,96	21,39	24,33
0-9	35,16	33,44	28,45	28,68

e) Distribution of Ethnic Groups in %

Valladolid	Proportion
Total	1.311
Afroecuatorialian	0,08
Indigenous	0,08
Mestize	99,69
White	0,15
n/a	0,00

A XXX: Profile - Municipality of El Porvenir del Carmen (EPdC) (NRP-South)

a) Inhabitants by Sex and Area in %

EPdC	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	-
1982	773	52,91	47,09	160	51,25	48,75	613	53,34	46,66
1990	1.181	56,39	43,61	185	55,68	44,32	996	56,53	43,47
2001	1.355	55,06	44,94	251	51,79	48,21	1.104	55,80	44,20

b) Relative Change of the Total Population and APGR in %

EPdC	Change	APGR
1974 - 2001	-	-
1950 - 1962	-	-
1962 - 1974	-	-
1974 - 1982	-	-
1982 . 1990	52,78	5,44
1990 - 2001	14,73	1,26

c) Distribution of Population by Area in %

EPdC	Total	Capital	Periphery
1950	-	-	-
1962	-	-	-
1974	-	-	-
1982	773	20,70	79,30
1990	1.181	15,66	84,34
2001	1.355	18,52	81,48

d) Age Distribution (Age Groups) in %

EPdC	1974	1982	1990	2001
60+	-	3,10	3,22	6,72
40-59	-	9,96	10,84	13,21
20-39	-	27,55	26,16	24,13
10-19	-	20,44	23,29	24,13
0-9	-	38,94	36,49	31,81

e) Distribution of Ethnic Groups in %

EPdC	Proportion
Total	1.355
Afroecuatorian	0,74
Indigenous	0,07
Mestize	99,04
White	0,15
n/a	0,00

A XXXI: Profile – Municipality (urban) of Guayazimi (NRP-East)

a) Inhabitants by Sex and Area in %

Guayazimi	Total			Urban Area*			Rural Area		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-
1974	1.015	55,57	44,43	375	56,80	43,20	640	54,84	45,16
1982	1.762	54,65	45,35	620	52,10	47,90	1.142	56,04	43,96
1990	4.316	58,50	41,50	1.149	50,83	49,17	3.167	61,29	38,71
2001	3.175	54,99	45,01	1.474	50,61	49,39	1.701	58,79	41,21

\* Ciudad de Guayazimi

b) Relative Change of the Total Population and APGR in %

Guayazimi	Change	APGR
1974 - 2001	212,81	4,31
1950 - 1962	-	-
1962 - 1974	-	-
1974 - 1982	73,6	7,14
1982 - 1990	144,95	11,85
1990 - 2001	-26,44	2,74

c) Distribution of Population by Area in %

Guayazimi	Total	Urban Area	Rural Area
1950	-	-	-
1962	-	-	-
1974	1.015	36,95	63,05
1982	1.762	35,19	64,81
1990	4.316	26,62	73,38
2001	3.175	46,43	53,57

d) Age Distribution (Age Groups) in %

Guayazimi	1974	1982	1990	2001
60+	3,84	2,84	3,10	5,01
40-59	10,25	10,27	10,70	12,31
20-39	27,49	28,26	34,99	28,85
10-19	20,89	20,43	22,82	23,78
0-9	37,54	38,20	28,38	30,05

e) Distribution of Ethnic Groups in %

Guayazimi	Proportion
Total	3.175
Afroecuatorian	0,63
Indigenous	27,46
Mestize	66,30
White	4,91
n/a	0,69

A XXXII: Profile - Municipality of Zurmi (NRP-East)

a) Inhabitants by Sex and Area in %

Zurmi	Total			Capital			Periphery		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1950	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-
1990	-	-	-	-	-	-	-	-	-
2001	1.622	52,65	47,35	427	53,86	46,14	1.195	52,22	47,78

b) Relative Change of the Total Population and APGR in %

Zurmi	Change	APGR
1974 - 2001	-	-
1950 - 1962	-	-
1962 - 1974	-	-
1974 - 1982	-	-
1982 . 1990	-	-
1990 - 2001	-	-

c) Distribution of Population by Area in %

Zurmi	Total	Capital	Periphery
1950	-	-	-
1962	-	-	-
1974	-	-	-
1982	-	-	-
1990	-	-	-
2001	1.622	26,33	73,67

d) Age Distribution (Age Groups) in %

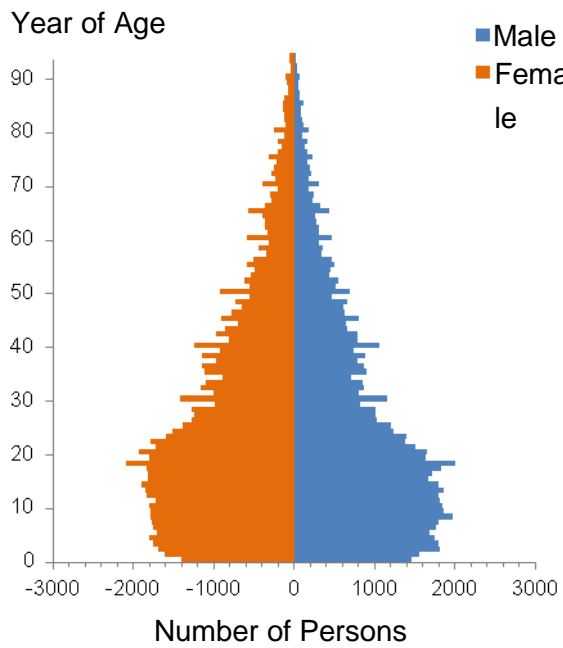
Zurmi	1974	1982	1990	2001
60+	-	-	-	5,67
40-59	-	-	-	12,21
20-39	-	-	-	24,78
10-19	-	-	-	23,00
0-9	-	-	-	34,34

e) Distribution of Ethnic Groups in %

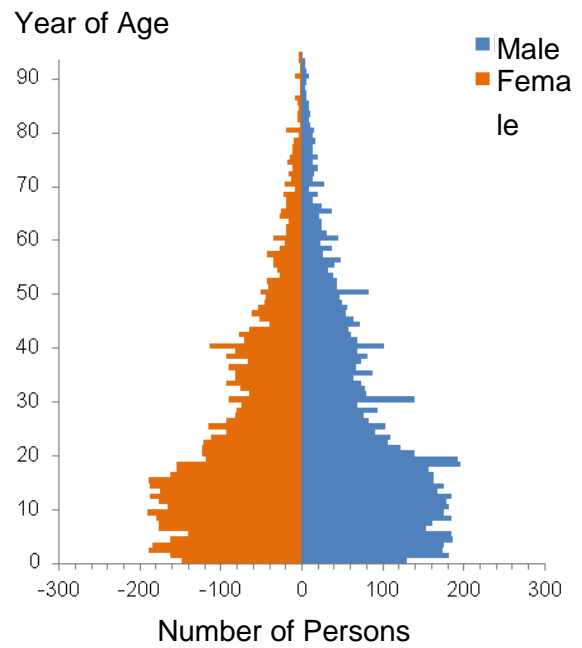
Zurmi	Proportion
Total	1.622
Afroecuatorian	0,12
Indigenous	40,81
Mestize	57,21
White	1,79
n/a	0,06

A XXXIII: Population Pyramids of the Regional Subspaces of the NRP - 2001

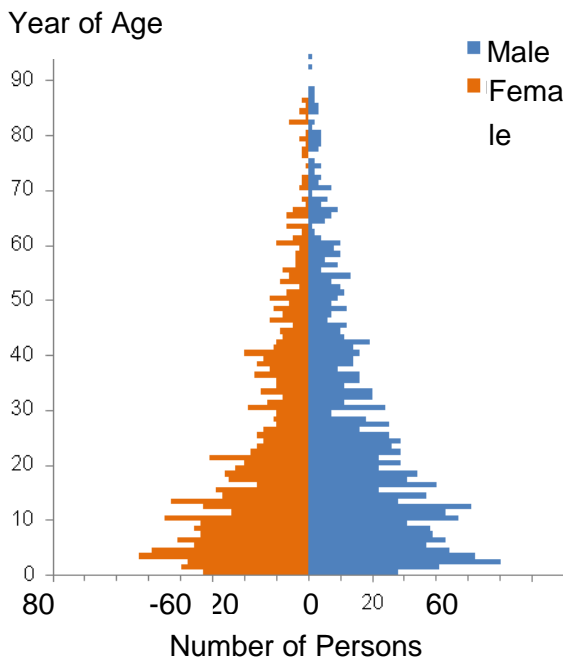
NRP-West



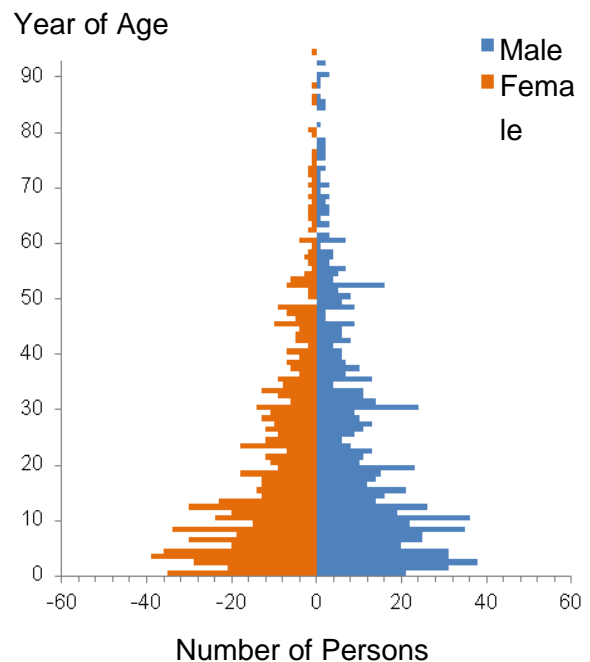
NRP-North



NRP-South



NRP-East



A XXXIV: Settlements in the sphere (direct and indirect) of PNP

Province	Canton	Municipality	Settlement	Inhabitants
ZCH	Nangaritza (NRP-East)	Zurmi	Ciudad Perdida	n/a
			Nayumbi	29
	Valladolid (NRP-South)	EPdC	El Porvenir del Carmen	72
			Loyola	146
		Valladolid	Libertad	72
			Quebrada Honda	26
			Tapala	47
			Las Palmeras	40
	Zamora (NRP-North)	Sabanilla	Sabanilla	55
			La Fragancia	55
			Tanisagua	n/a
			San Francisco	37
		Timbara	Jambue Bajo	61
		Zamora	Numbami	23
			Jambue Alto	11
			La Pituca	63
			Romerillos Alto	43
			Romerillos Bajo	84
			Soñaderos	75
	Zamora		10.355	
Loja	Loja (NRP-West)	Loja	Amanda	n/a
			Cedro Quemado	n/a
			El Capuli	369
			Granada	n/a
			Jipiro	410
			La Rivera	n/a
			Loja	118.532
			Los Dos Puentes	n/a
			Palmeras	n/a
			Pueblo Nuevo	205
			Puembo	n/a
			Punzara Chico	90
			Punzara Grande	335
			Quilloyacu	101
			San Cayetano (Alto)	72
			San Cayetano Bajo	127
Santa Teresita	n/a			
Yanacocha	164			



		Zamora (Bajo)	Huaycu	43	
		Zamora Alto	Huaycu	167	
	Malacatos	Chorrillos		148	
		El Prado		22	
		Granadillos		52	
		Landangui		175	
		Las Tres Leguas		150	
		Nangora		29	
		Potopamba		38	
		Rumishitana		277	
		SPdV	Chalaca		6
			Culebrillas		0
	Queseras			9	
	Sacapo			115	
	Yangana	Suro		143	
		Yangana		618	
Within the PNP (direct sphere)	n/a – not applicable			Total 133.691	

(INEC 2001d)

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