



Food and Agriculture Organization
of the United Nations

Chile Case Study

**Prepared for FAO as part of the
State of the World's Forests 2016 (SOFO)**

Written by Jorge Cabrera P. and Hans Grosse W.

Santiago, Chile, October 2015

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

© FAO, 2016

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be addressed to copyright@fao.org.

| TABLE OF CONTENT | PAGE |
|---------------------------------------------------------------------------------------------------|-------------|
| 1. COUNTRY TREND OBSERVATION: FOREST CONDITION, AGRICULTURE AND & FOOD SECURITY TRENDS | 2 |
| | 3 |
| 2. IN-DEPTH COUNTRY ASSESSMENT | |
| A. Context Assessment | |
| 2.1. Economic development | 3 |
| 2.2. Demography | 4 |
| 2.3. Agricultural tenure, investment, production, productivity and trade: | 6 |
| 2.3.1 Tenure | 6 |
| 2.3.2 Investment | 6 |
| 2.3.3 Land productivity | 7 |
| 2.3.4 Trade | 8 |
| 2.3.5 Food Aid | 10 |
| 2.4. Forest condition, productivity and trends | 10 |
| 2.4.1 Forest tenure | 10 |
| 2.4.2 Volume and Trend in investment | 11 |
| 2.4.3 Forest production | 11 |
| 2.4.4 Forest products import and export | 12 |
| 2.5. Other factors | 12 |
| B. Policies, Strategies, Programmes and Institutions | 13 |
| 2.6. Policies and legal aspects | 13 |
| 2.6.1 Forestry policy instruments | 13 |
| 2.6.2 Agricultural policy instruments | 14 |
| 2.6.3 Action plans | 15 |
| 2.7 Institutional frameworks for land use change governance | 15 |
| 2.8 Financial strategies, programs and instruments | 16 |
| 3. ANALYSIS OF POSITIVE TRENDS: KEY CONTRIBUTING FACTORS | 17 |
| 4. SUMMARY/CONCLUSION | 19 |
| ANNEXS | |
| I : Figures and statistical tables | 24 |
| II : Description of forestry legislation and Agricultural policy instruments | 54 |
| III : Summary Forestry Plans | 65 |

Chile is considered a high-income developing country. For its nearly 18 million people life quality, economic growth, human development, globalization and per capita GDP are among the highest in Latin America.

- **Forest area**

The forest area, including indigenous forest and plantation forest has been increasing by 18,5 % between 1997 and 2014, reaching 15,9 million hectares representing 21 % of Chile total area (75,7 millones ha). Today's forest economy is based on private plantations that grew in 17 years from 1,9 million hectares to 2,4 million hectares (INFOR, 2003 y 2014¹, 2014²).

An important part of native forests is represented in the State National System of Protected Areas and is administered by CONAF³, with 36 National Parks, 49 National Reserves and 15 Natural Monuments. Over the past 25 years they have established native forest private reserves. About 2/3 of native forest belongs to privates and the rest to the state.

- **Agriculture and food security status in the last 25 years**

According MINSAL (2010⁴) Chile's nutritional situation changed from a high prevalence of malnutrition in the early 70s to his near eradication in the late 80s. There is now no question of food availability, existing obesity problems in the vulnerable population strata due to food quality and consumption excess.

Regarding food security as Mia and Humphreys, 2013⁵, "Chile is the best country in the region qualified affordability, ahead of Brazil (31) and Argentina (33). Its GDP per capita has improved considerably since 2012, with an increase of US \$ 2.330, or 14,4%. However, the proportion of Chileans living below the global poverty line is the biggest weakness for Chile (2,7 % of the population living below US\$ 2 a day".

In Latin America, Argentina has the highest rank in quality and safety (24), while Chile and Mexico tied for second place (30). The quality of the protein in food has improved since 2012 due to higher total protein consumption. According to the National Health Survey of 2010, 25,1 % of Chileans are overweight, up 3,2 percentage points from the previous survey in 2003.

The proportion of people suffering from undernourishment below 5 %, have been met by Chile (SOFI, 2015⁶). This was made possible improving agricultural yield due to favorable economic conditions and well targeted social protection.

2. IN-DEPTH COUNTRY ASSESMENT

A. CONTEXT ASSESSMENT

¹ INFOR, 2013, 2014: El sector forestal chileno.

² INFOR, 2014. Anuario Forestal 2014. Boletín Estadístico 144. Santiago, Chile.
<http://wef.infor.cl/publicaciones/anuario/2014/Anuario2014.pdf>

³ CONAF: Corporación Nacional Forestal (see chapter 2.7)

⁴ MINISTERIO DE SALUD, MINSAL, 2010: Nutrición para el desarrollo, el modelo chileno.96p.

⁵ Irene Mia & David Humphreys (2013): Midiendo el estado de la seguridad alimentaria en Chile en una perspectiva internacional. Los hallazgos del Índice de Seguridad Alimentaria. Economist Intelligence Unit

⁶ FAO, FIDA y PMA. (2015): El estado de la inseguridad alimentaria en el mundo 2015. Cumplimiento de los objetivos internacionales para 2015 en relación con el hambre: balance de los desiguales progresos. Roma, FAO. 88p

2.1 Economic development (Details on pages 1-4 Annex I)

- **Country's structure of economy and income**
 - **Gross Domestic Product** (Explains the trajectory, why it grows, which have been the strengths)

The country's GDP grows steadily in the period since 1990, with an average annual rate of 8,7%, showing the highest rate between 2000 and 2010 (FAOSTAT, 2015 ⁷).

The conditions that favor this growth can be summarized as follows: The policy emphasizes an open economy, focused on trade with the rest of the world based on its comparative advantages. It is a system of free competition, lower tariffs and private ownership of the production means.

- **Major contributing sectors to GDP**

The services sector is the largest contributor to GDP, which goes from 57,1% to 64,8% between 1990 and 2014. Then there is the Manufacturing Industry, although its share decreases during the period, it is always positioned in second place. Almost at the previous level, Mining with highs and lows reached 11,2% in 2014 (ODEPA, 2015 ⁸).

The primary agricultural and forestry sector in relative terms steadily decreased its contribution to GDP going from 10,7% to 2,7% in the period, growing in absolute terms 46%. This is mainly due to the increase in the service sector.

- **Gross National Income per capita (GNI per capita)**

The GNI per capita has increased five times over the past 25 years, from US\$ 4.140 in 1990 to USD 21.570 in 2014, corresponding to an annual growth rate in the period of 7,1% (<http://faostat3.fao.org/download/M/MK/E>).

Compared to Latin America, Chile as of 1990 exceeds these figures increasingly distancing. Although the per capita income is increasing, what is very important, it is almost half the average of OECD countries maintaining inequality problems. The income comparison index between quintiles fell from 38,8 10/10 in the year 2009 to 29,1 in 2013 (20/20 changed from 12,7 to 11,7 respectively), being a favorable trend between incomes of the poorest and the richest⁹.

- **Public investment**

The agriculture and forestry sector shows a low level of investment, when compared with the trend of the economy as a whole, expressed in Gross Fixed Capital Formation (GFCF) as a percentage of

⁷ <http://faostat3.fao.org/download/M/MK/E>

⁸ <http://www.odepa.cl/pib-por-clase-de-actividad-economica/>

⁹ Fuente: Evolución del Ingreso, MDSocial, Encuesta Casen 2006-2013,

http://observatorio.ministeriodesarrollosocial.gob.cl/documentos/Casen2013_Evolucion_Distribucion_Ingresos.pdf

GDP and National Agriculturel (Banco Central de Chile, 2014)¹⁰.

In the course of the fixed capital investment in the agricultural sector can be identified two main phenomena for analysis: The first is the loss of relative importance of the sector investment in the global economy GFCF. Indeed, in 2003 CLP, the ratio GFCF agricultural/global GFCF falls from 5,2% in 1985 to 1,0 % in 2006. This phenomenon is consistent with the decline in agricultural GDP in the overall economy and the fall in agricultural employment in total employment (INE, 2014¹¹)

In monetary terms, the numbers are rising, while the 2008 capital formation in agriculture is US\$ 494 million, in 2010 US\$ 525 million and for 2013 US\$ 567 million.

The second recognizable phenomenon in agriculture is the fall in ratio investment/product contrary to showing the overall economy, in the same period. Measured at 2003 prices, the ratio in the agriculture-forestry sector goes from 17,2% in 1985 to 6,4% in 2006. The same ratio for the whole economy, increased from 12,6% to 24,2%.

- **Share of agriculture value added in total GDP (% of GDP).**

The agricultural sector has decreased its share in GDP from nearly 10% to 3% explained by the significant increase in the services of the national economy.

In monetary terms the agricultural GDP is growing from US \$ 5.190 million in 2008 to US \$ 5.938 million in 2010 and US \$ 7.326 million in 2013.

This generally does not increase or decrease the agricultural area, it merely reassigns the same surface towards more profitable crops and larger units (FAOSTAT, 2015 ¹²).

- **The Share of the forestry sector value added in total GDP (% of GDP)**

In the case of forestry (primary production, without pulp and paper industry) the participation is almost constant over the last 15 years to a level of 1,5% in GDP, with the exception of a slight increase in two specific years, 2002 and 2008, where it reached 2,1% and 2,3% respectively. Maintaining their level of participation is due to an increase in plantation area and increased industrial projects. However, the GDP share of the forest and related industry is 2,7 % in 2013 (INFOR , 2014¹³).

2.2 Demography (Details on pages 5-7 Annex I)

- **General demographic information**

¹⁰http://si3.bcentral.cl/estadisticas/Principal1/Informes/CCNN/ANUALES/..%5C..%5CanuarioCCNN%5Cindex_anuario_CCNN_2014.html

¹¹ INE, Chile, 2007: Structural changes of Chilean agriculture: Intercensal Analysis 1976, 1997 y 2007

¹² <http://faostat3.fao.org/download/M/MK/E>

¹³ <http://wef.infor.cl/publicaciones/publicaciones.php#PO>

The country has a total population growing in absolute terms, but with a downward trajectory over the rate of annual population growth, with an annual average of 1,24% between 1990 and 2014, 1,58% in the nineties and 1,05% in the following decade, two thousand. Over the next four it decreases to 0,89%.

In 1990 the size of the Chilean population is 13,2 million people reaching 17,7 million in 2014 (World Bank, 2014 ¹⁴).

- **Population urban and rural**

The participation of the rural population is ever less, going from 16,7% of the total population of the country to 10,4% a year between 1990 and 2013 (UN DESA, 2013¹⁵).

By using figures from the Census of Population conducted in the country, these confirm previous estimates and projections in the sense that rural participation is declining.

The growth of the urban population is mainly due to own growth by birth whose growth rate is above the national average and well above the country. Historic rural migration to urban areas, has been made with mostly young people (looking for better opportunities) leaving an adult population in the field with the corresponding lower birth rate, which explains the current low growth. The annual growth rates for the past 20 years has been 1,24% for the total population, 1,45% for urban and 0,04% for rural (INE-CELADE, 2014¹⁶)

- **How much of the rural population live near/in forests in the country**

For the four regions (VI, VII, VIII and IX), which account for 82% the total area of plantations in the country, a study for those municipalities whose plantation area covering over 50% of the communal area was performed. In this case, the forest rural population accounts for 1,25% of the total population of these regions (4,4% considering the whole commune as forest (urban + rural)) (CONAF, 2014)¹⁷.

- **Employment**

Chile's total workforce has grown from 5,5 million people to 8,4 million from 1996 to 2014 while agricultural employment has fallen from 783 to 680 thousand employed persons representing in total 14% and 8% respectively. It may be noted that the unemployment rate in recent years has not exceeded 7%, currently being in September 2015, of 6,8 % (ODEPA-INE, 2014¹⁸)

¹⁴ <http://data.worldbank.org/indicator/SP.POP.TOTL>.

¹⁵ United Nations Department of Economic and Social Affairs (DESA) <http://www.un.org/en/development/desa/what-we-do.html> and [Source: UNDESA \(2013b\). World Urbanisation Prospects, 2011 Revisions. Correspondence on urban population. http://esa.un.org/unpd/wup/index.htm](http://esa.un.org/unpd/wup/index.htm)

¹⁶ Instituto Nacional de Estadísticas (INE) Comisión Económica para América Latina y el Caribe (CEPAL) División de Población Centro Latinoamericano y Caribeño de Demografía (CELADE), 2014. CHILE: Proyecciones y Estimaciones de Población.Total/País1950-2050.

^{103p}http://www.ine.cl/canales/chile_estadistico/demografia_y_vitales/proyecciones/Informes/MicrosoftWordInforP_T.pdf

¹⁷ CONAF, 2014. Plantaciones y Pobreza en Comunas Forestales. Estudio Gerencia Forestal. 81p

¹⁸<http://apps.odepa.cl/menu/AgroEconomicas.action;jsessionid=CFF6659434CAD8EEC631AF1AEFAF0D61?rubro=empleo&reporte=>

2.3. Agricultural tenure, investment, production, productivity and trade

2.3.1 Tenure (Details on page 7, Annex I)

Chile's agricultural activity is 100 % private, participating a broad spectrum of farm sizes and types of properties and producers, operating as landowners, in agreement, renting and in mixtures of these.

Size property tendency is to more than 2.000 ha what is giving economies of scale production processes, which have been necessary for market competitively and to attend the international market. The smaller property segment somehow remains static, while medium size properties add to larger units (INE, 1976, 1997, 2007¹⁹)

2.3.2 Investment (Details on pages 8-10 Annex I)

- **Domestic private investment**

Domestic private investment comes primarily from farmers, and the most comprehensive data available to measure this are estimates of on-farm agricultural capital stock calculated by FAO.

Agricultural total capital stock (investment trajectory), remains more or less constant from 1990 to 2007, with 19 billion and 22 billion dollars invested respectively for each year (<http://faostat3.fao.org/download/I/CS/E>).

This Capital Stock can be expressed in US \$ per worker, whose values US \$, 20,368 , 23,189 , 22,689 for 1990 , 2000 and 2005 respectively, show growth during the period, as result of fewer people in rural areas and increased mechanization.

- **Domestic public investment by governments**

Chile invests little in R&D. In absolute magnitudes grows to US \$ 1,007 million in total (what includes agriculture and forestry and all other subjects) by 2013. GDP percentage participation has been 0, 3% in 2007 and 2010 and 0, 4% in the other years of the period until 2013. In 2013 Chile ranks last among the 29 OECD countries, whose average exceeds 2% of GDP (MINECOM, 2014)²⁶.

R & D State's contribution in 2013 represents 38%, while the companies are 34%. International funds contribute 15 %, higher education institutions 11% and non-profit institutions 1%. Between 2007 and 2013, the state reduced its share by half (from 10% to 5%), the non-profit institutions doubled their share to 21%, while Enterprises and institutions of higher education are still leading with 78 % and 75 % respectively (MINECOM, 2014²⁰).

- **Private foreign investment**

Foreign investment has been a key factor in for the country development. From 1990 on, the country has shown a favorable climate for such investment, supported by the positive macroeconomic indicators. In 1990 entered US \$ 1,500 million, in 2000 US \$ 3.676 million, in 2010 US \$ 15,095,000

¹⁹ INE, 1976, 1997, 2007: Census data

²⁰ MINECOM, 2014: Ministerio Economía, 2014 IV Encuesta de Gasto y Personal en R&D)

and in 2014 US \$ 23.302 million. Investment focus has been mainly mining and service sectors (infrastructure, energy and communications).

Agriculture has been marginally involved in foreign investment. In the period 1990-1999 the investment in the sector reached 3% of total foreign investment; in 2000-2009 it fell to 2%. In 2013 agriculture participates with 0,2 % (US\$ 202 million). The focus has been mainly natural resources and export oriented agribusiness (Foreign Investment Committee, 2012).

Foreign investment for agriculture has focused on large-scale projects covered by the DL 600, not being trendsetting. This funding amounts to US \$ 55 million in 2011 and US\$ 67 million in 2012. (Comite Inversión extranjera, 2015)²¹

- **Foreign public investment**

Foreign public investment is measured by data on official development assistance (ODA) to agriculture collected by the Organization for Economic Co-operation and Development (OECD) (SOFA 2012 ²¹).

The main source of funding for agriculture is the banking system, which accounts for 84, 4 % of the requirements of the sector having totaled US\$ 8.641.000 for the year 2011. The balance is provided by input suppliers (11,6 %) and a number of other sources, including INDAP (state agriculture development agency) (1,1%).

Bank loans for forestry and agriculture, represent in 2011 a percentage of 6, 3% of the total. The trend since 2006 is increasingly going up from 2.656 million to 5.752 million dollars, growing annually at 13, 8 %, higher than other sectors (ODEPA, 2014²²).

The main users of these credits are agriculture, livestock and especially the fruit export sector. The other major sources of funds for the sector are given by agricultural inputs supplying companies, which typically get pay their loans at harvest. Another source of credit is given by INDAP, whose focus is family agriculture. Foreign investment destined for agriculture has focused on large-scale projects covered by the DL 600. This funding amounts to US\$ 55 million in 2011. On the other hand, the state has a number of not refundable financing instruments to support agriculture (ODEPA, 2014²³).

In brief terms, agriculture financing comes from private banks (84,4 %), privates (11,6 %), Foreign Investment (0,6 %) and others, with a totaling US \$ 8.641 million in addition of state non-refundable US \$ 539 (Clarke y Asociados 2009) (ODEPA, 2014²⁴).

2.3.3 Land Productivity (Details on pages 10-12 Annex I)

- **Trend of agricultural production**

²¹ <http://www.ciechile.gob.cl/es/inversion-en-chile/estadisticas/>

²² ODEPA, 2014. Financiamiento Agrícola. 11p

²³ ODEPA, 2014. Financiamiento Agrícola. Marzo, 2013. 11p ; Clarke Asociados 2009: Estudio de Financiamiento Agrícola. Instrumentos disponibles, coberturas, innovaciones y desafíos pendientes.178p

²⁴ ODEPA, 2014. Financiamiento Agrícola. Marzo, 2013. 11p ; Clarke Asociados 2009: Estudio de Financiamiento Agrícola. Instrumentos disponibles, coberturas, innovaciones y desafíos pendientes.178p

Agricultural production shows a steady growth during the period from 1991 to 2012. Agriculture (Crops & livestock) after a more or less stable period until 2003, starts strong growth until 2012, where both subgroups grow at similar rates. During 2012 and 2013, crops make the greatest contribution. A similar trend is observed in cereals, food and non-food.

In terms of relative changes by type of grown crop, between the censuses conducted in 1997 and 2007, surface decreased by 26 % for cereals, legumes and tubers by 44 %, vegetables by 14%, forage plants by 16 % and forest plantations by 22 %. Added relative surface was recorded for vines (59%), flowers (45 %), seed (43 %) and fruit (39%). Fruit trees, being the main permanent crop tripled from 89 thousand hectares in 1976 to 230.000 ha in 2007 (INE, 2010)²⁵.

The crop type's changes are mainly due to the conditions of profitability and potential export markets, where increasing production allows economies of scale. The domestic market cannot consume large volumes, what necessarily incentives exports.

- **Agricultural productivity**

During the last 25 years increasing yields in major crops of the country were observed. Between 1990 and 2013, productivity of wheat cultivation increase by 72 %, oats by 66 %, potatoes by 53 %, sugar beet by 53 % and maize by 44 %. It is interesting to add to this list the industrial tomato, whose production becomes important in 2007 with 316.000 ha seeded and a yield of 457 QQH / ha. In 2013 the area was doubled with a yield of 911 QQM / ha. (1 QQH = 0,1 tonnes= 100 kg) (INE, 2001,2014: Anuario de Estadísticas Agropecuarias).

- **Average Product per employed worker**

Agriculture employs around 795 thousand workers, with a slight tendency to decline in absolute terms since 1985. This has resulted in a steady drop in overall employment of 20 % in the mid - eighties, to 12 % in 2007.

A relative stability of agricultural employment and GDP growth causes the upward productivity trend of agricultural labor. Taking as starting point the agricultural and silvicultural productivity levels per worker as 100 in the year 1985, a significant change to 330 happened in the year 2007. This growth exceeds by far the rest of the economy, which in 2007 reached 180 (INE, 2010²⁶).

New technologies in irrigation, genetics and equipment explain partly higher labor productivity in agriculture.

- **Biofuels Production**

Chile is not producing biofuels.

2.3.4 Trade (Details on pages 13-16 Annex I)

²⁵ Fuente: Cambios estructurales en la agricultura chilena. Análisis intercensal 1976-1997-2007).

²⁶ INE, 2010: Cambios estructurales en la agricultura chilena. Análisis intercensal 1976-1997-2007

Market liberalization, export promotion and the elimination of import barriers with low tariffs (6 %) is in effect for over 30 years. In practice, the actual average tax is less than the fixed value, as a result of the various trade agreements signed by Chile.

The country has established trade agreements with several countries (European Union, United States, Mercosur and others) all of which promote trade. Exceptionally they have applied safeguards applied to sensitive products and for specified periods and rates such as agricultural products as wheat, flour, sugar, oil and milk. (ODEPA, 2014²⁷)

These conditions have allowed export agriculture based on their own production capacities.

- **Import and export trends for agricultural products (top 5) in terms of quantity and value**

- **Export**

Grapes, wine and apples lead the FOB ranking since 1990 for agricultural and livestock products. In the year 2014, applying a lot of technology and oriented to foreign markets cranberries and cherries enter the top 5 list, exporting five times more than in 2005 (FAOSTAT <http://faostat3.fao.org/download/T/TP/E> and figures 2014, ODEPA²⁸).

- **Import**

Maize and wheat have traditionally been the mostly imported agricultural products in terms of weight (tonnage). In terms of value meat and corn had been the leaders. In general, except meat, other imports are explained by the growth of semi -industrial production of chicken and pigs that require concentrates of these food products (FAOSTAT <http://faostat3.fao.org/download/T/TP/E>).

- **Food import dependency ratio**

The dependency ratio indicates the relative share of food import. This index grows steadily from 0,23 to 0,68 in 21 years, with a greater intensity during the last ten years. This is due to imports growing faster than production (<http://faostat.fao.org/site/612/default.aspx#ancor>).

Annual growth rates between 1990 and 2012 show similar numbers for imports (11,8 %) and exports (10,0%) , whereas production (6,2%) is about half of these.

- **Assess trends in cereal import dependency ratio in the last 25 years (e.g.data available through FAOSTAT)**

The cereal import dependency ratio presents an upward trend, considering the 2005 low and the immediate and sustained recovery up to 40 % .

- **Trends in share of food in total trade in terms of import and export**

²⁷ http://www.odepa.gob.cl/odepaweb/publicaciones/SalvaguuardiasProd_Agricolas.pdf

²⁸ <http://www.odepa.cl/series-anuales-por-producto-de-exportaciones-importaciones/>

The food import as % of merchandise imports increased from 4,4% in 1990 to 8,4% in 2014, while the food exports have done from 23,7 % to 22,5 %. The increase in imports is explained by the demand for more sophisticated products and improved living standard (FAOSTAT)

2.3.5 Food Aid Shipments (WFP)

Very exceptionally Chile has received food aid (FAOSTAT data series²⁹):

Between 1990 and 1995, mainly wheat (24.976 tonnes) and milk derivatives (11.374 tonnes) are received. Following that period between 1998 and 2002, only milk derivatives (around 130 tonnes/year) and then between 2010 and 2011 only 100 tonnes/year for each product.

These grants are linked to certain events of natural disasters in 1990 and 1995 like a sand barrage and earthquake in the north and a so called “white earthquake” in the south with heavy snowfalls and rains. In 1998 a severe drought reduced agriculture production and subsequently earthquakes above grade 7 in 2003, 2005, 2007, 2010, 2011, 2012, 2013 and 2014 killed people destroying and damaging infrastructure .

2.4. Forest condition, productivity and trends

2.4.1 Forest tenure (Details on pages 16-17 Annex I)

Plantations are 100% privately owned and it is estimated that there are still between 1,5 to 2,0 million hectares suitable to be afforested, private too. Changes in land ownership and switch to plantations for the past 25 years, is mainly due to the purchase by large forestry companies of forestry qualified land (class 6 and 7 with heavy slopes, used for extensive agriculture before and incrementing soil degradation). This shift toward forestry on one million hectares meant for the period 1990-2014.

Regarding the ownership of forest plantations, 54% belong to large companies (> 30.000 ha), 7% to medium-sized companies (5.000-30.000 ha), 12% to medium landowners (200-5.000 ha) and 27 % (5-200 ha) to smallholders (Grosse and Barros, 2013³⁰, INFOR, 2015³¹).

The annual afforestation area reached peak levels between 2005 and 2006 with a top of 73.000 ha. Thereafter it decreases to a level of about 7.000 ha per year by 2013. The levels of reforestation cover the annual harvest, reaching the last record to 89.000 ha (INFOR, 2015³²).

The change from plantations with exotic species to the native ones originally in place is understood as restoration. It is a process that is just in its beginning and will be implemented by the major Chilean companies following the FSC certification and approaches 40 thousand hectares.

- **Agroforestry systems**

²⁹ <http://faostat.fao.org/site/485/DesktopDefault.aspx?PageID=485#ancor>

³⁰ Grosse, Hans and Barros, Santiago (2013): RESULTADOS DE UNA POLITICA ESTATAL ESTABLE DE FOMENTO FORESTAL. EL CASO CHILENO Instituto forestal. Ciencia e Investigación Forestal INFOR Chile Volumen 19 N° 1 Abril 2013.

³¹ INFOR, 2015: El sector forestal chileno 2014. En www.infor.cl

³² INFOR, 2015: El sector forestal chileno 2014. En www.infor.cl

In Chile there are about 2.000 hectares under agroforestry use and shelterbelts had been the most traditional (Sotomayor, 2015³³).

2.4.2 Volume and trend in investment in the forest sector (Details on pages 17-18 Annex I)

The Chilean state has invested continuously encouraging afforestation reaching an investment of 565 million US\$. The effect of incentive instruments have been reflected in the mass of forest plantations in Chile with about 2,5 million net hectares (3 million hectares under forest use). 60% (1,48 million hectares) of plantations have been planted with the help of state incentives and 40% was planted with resources from land owners. During the first stage (1974-1997 with DL 701) only 5% of the planted area corresponded to smallholders. During the second stage (1998-2014 with Law 19.581) the participation of smallholders increases to 38%, demonstrating the focus on them, including recovery of degraded soils which increases the cost per unit of planted area.

On the other hand the private sector invested over the past 25 years about 11,7 billion US \$ nominal in the industrialization of the forestry sector and 0,6 billion in forestry.

Forest investments have been basically done with Chilean funds (both the state and the private sector). Within development projects supported by foreign funds include:

- GEF Project: Creation of a national system of protected areas in Chile.
- Sustainable Management Project Earth GEF / World Bank

2.4.3 Forest production and management (Details on pages 19-20 Annex I)

Total industrial round wood production went from 14,2 million m³ in 1990 to 41,0 million m³ in 2013. On the informal market fuel wood harvesting from native forest is estimated over 10 million m³ per year. In 2014 40% of round wood went to pulp, 37% to sawmilling, 13 % to chips and 10% to boards (INFOR , 2014) .

- **Trends in forest products consumption in the country over the last 25 years**

National consumption, which from 1990 to 2013 has doubled and even tripled for some products. Most of the products are exported, but for some cases and especially domestic lumber consumption is very significant matching export volume. The pulp (cellulose) is a net export from 1990 to 2013. The boards are oriented to the domestic market and newsprint to export. So for 1990 the domestic consumption of lumber, pulp, newsprint and boards was 49, 28, 33 and 67 %, while in 2013 it was 50, 12, 45 and 66 % respectively. On the other hand imports of forest products it is negligible.

- **Prevailing forest management types over the last 25 years**

The forest wood market mainstay is from exotic species plantations with about 41 million m³ industrial timbers harvested in 2013 (70% radiata pine, 28% eucalyptus, 1% others species and 0,8% natives). Less than 1 % of the volume and export products are made with native timbers, which over the past 25 years have been falling on their participation. Already in 1965 the production of Radiata

³³ Sotomayor A. (2015): Sistemas agroforestales y su contribución a un desarrollo silvoagropecuario sustentable en Chile. (Paper presented at VII Congreso Internacional de Sistemas Agroforestales, Iguazu, Misiones, Argentina, 7, 8, y 9 de May, 2015).

pine lumber exceeds that of native woods, continually increasing the difference from that year on (INFOR 2014³⁴).

2.4.4 Forest products import and export (Details on pages 20-22 Annex I)

- **Export trends**

The export of forest products grows from US \$ 855 million in 1990 to US \$ 2.365 million in 2000 and US \$ 6.094 million in 2014 (INFOR, 2015, website www.infor.cl).

Historically the main export products are Radiata pine lumber, cellulose based on Radiata pine, pine boards, newsprint and eucalyptus chips. This group of products represents of the total forest export products 78% in 1990, 66 % in 2000 and in 2014 67%, including some added value growth. The growth trend of these items is also significant in the entire period, where lumber grows 5,7 times , 5,5 times the cellulose , the board 295 times and 8,7 times the chips.

Except chips and partly cellulose, almost 100% of these products are based on Radiata pine conifer. The participation of Radiata pine sawn timber goes from 92 % in 1990 to 99% in 2014 and in cellulose from 100% to 84%. For boards, where native species initially participated in production, today pine represents 100 %. Chips species participation varied: Between 1990 and 1998 dominated the native species, whose exports reached zero due market problems in 2003. Since 1990 Eucalyptus always participated, and from 2000 on represents the category.

- **Import trends**

Chile is not an important forest product importer because his plentiful supply of natural forest resources and diverse modern industry. During the year 2013, imports are around US\$ 846 million (15 % of the exported amount for that year), of which 25 % are different paper's; 23 % furniture (China and Brazil); 12% boards and others like manufacturing's, rubber, barrels and cork (:<http://faostat3.fao.org/download/F/FO/E>).

2.5 Other factors

- **Social development in forest plantations areas**

In Chile, poverty is measured by people's income as an approximation of their basic needs. These are estimated by valuing the cost of a food basket and weighting by a coefficient reflecting the cost of non- food component.

According to a recent study (PROGEA, 2014³⁵) , which analyzes and compares the five major forest regions of the country, including 158 communes of which 72 are classified as forested ones, poverty

³⁴ INFOR, 2014: Anuario Forestal 2014. Boletín Estadístico 144, 159p.
<http://wef.infor.cl/publicaciones/anuario/2014/Anuario2014.pdf>

³⁵ PROGEA, 2014. Universidad y Tecnología, Fundación para la transferencia tecnológica, creada por la Universidad de Chile: "Actualización de estudio evaluación del aporte económico y social del sector forestal en Chile y análisis de encadenamientos, año 2014"

reduced between 1994 and 2011 to half, but still not reaching the national average. The same study shows positive trend in terms of socio-economic indicators such as poverty, literacy rate (around 95 %), access to sewerage (more than 70 %), access to potable water (80 %) and complete secondary school education (about 80 %). The relationship between extreme quintiles of income in forest communities shows certain stagnation at the level of 20/20.

- **Natural disasters**

In Chile natural disasters can basically due to fires caused by volcanism and landslides caused by earthquakes. For the period under review the destruction of approximately 30 thousand hectares of native forest is logged by the eruption of Chaiten volcano (www.conaf.cl). During the summer many fires which are caused primarily by human beings are the cause of far more significant forests destruction. To fight CONAF as large forestry companies have well trained human equipment and infrastructure for ground and air combat.

- **Indigenous communities**

Chile is a country that was dominated by different indigenous groups before the arrival of European conquerors. This population was greatly reduced mainly as a result of introduced diseases and secondarily by wars. Currently the Mapuches group concentrates the highest populations, living in the southern region of Bio Bio and Araucania. These places coincide with major forest plantations. Currently a major challenge for the state of Chile is to find a way to deal with land claims by the Mapuche, and for the companies to harmonize with neighboring Mapuche communities.

- **Water supply**

For fast growing plantations water supply in drought affected areas had become an issue for the state and stakeholders. Discussions with scientific approach are on the way to solution proposals about silviculture and species to be used for these areas.

B. POLICIES, STRATEGIES, PROGRAMMES AND INSTITUCIONS

2.6. Policies and legal aspects³⁶

2.6.1 Forestry policy instruments (Details on pages 23-25 Annex II)

Since the year 1990 four forestry policy instruments have been valid for different periods, these are:

- D.L. 701 of 1974 fixes a legal regime for forestry soils or preferably suitable for afforestation and establishes norms of encouragement on the matter.
- Law N° 19.561 of 1998 modifies DL. N° 701.
- Law N° 20488 of 2011 prorogates validity of D.L 701 and increases afforestation incentives.

³⁶ It may be found at www.leychile.cl (you only need to add the law number)

- Law N° 20.283 of 2008. It refers to Recuperating the Native Forest and Forestry Encouragement.

About environment:

- Law N° 19.300 of 1994. General Basis of the Environment

Regarding plantations, the effect incentive instruments have reflected on the massification of forestry plantations in Chile with more than 2,4 million net hectares (3 million ha under forestry use). 60% (1,48 million ha) of these plantations have been reclaimed and 40% were planted with the foresters own resources. During the first phase (1974-1997 with D.L. 701) only 5% of the planted surface corresponded to that of small landowners. During the second stage (1998-2014 with Law 19.561) the participation of the small landowners increased to 38%, showing the focus on them and on the recuperation of degraded soils which increases costs for the unit of area planted.

The recuperation law of native forest (Law 20.283) is in its first years of exercise, and its implementation has been slower than expected, despite CONAF's effort to maximize the opportunities it delivers. The cutbacks have been low incentives, competition for incentives, and a great dissatisfied demand for technology transfer, especially within the groups of small landowners and communities with unresolved social issues.

Currently, legislation of environment also influences materialization of forestry projects through environmental impact studies that are applied.

Law N° 19.300 of 1994 and modified in the year 2010 of General Basis of the Environment: It seeks ensuring the constitutional right to live in a pollution free environment.

2.6.2 Agricultural policy instruments (Details on pages 25-29 Annex II)

Over the past 25 years efforts were focused on increasing productivity of the soil and improving irrigation conditions. This first factor due to the fact that the soil is deteriorated by erosion and lack of nutrients. The second responds to a growing demand of water to comply with the thriving agricultural development of the country, which is hindered by the tendency of a lesser rainfall (climate change). The following instruments are highlighted:

- **Soil productivity:**
 - **Decree in Force of Law 235, published on 11.15.1999** which establishes an incentive system for recuperating degraded soil.
 - **Law 20.412 published on 02.09.2010** which established an incentive system for agro-environmental sustainability of agricultural soils.
- **Irrigation:**
 - **Law 18.450 published on 10.30.1985.** Its last version dates back to 11.21.2013. It approves norms for the encouragement of private investment in irrigation and draining works.
 - **Law 20.284 published on 09.30.2008.** Modifies law 18.450, allowing tenant farmers to apply for irrigation projects.
 - **Law 20.705 published on 11.21.2013.** Modifies law 18.450, with the objective of encouragement of private investment in irrigation or draining works, including integrated projects and those of multiuse, whose cost exceeds 30.000 UF³⁷.

³⁷ UF: Unidad de Fomento (a daily changing reference. At 09.10.2015: 1 UF=US\$ 37,4)

2.6.3 Forestry Plans (at a level of strategy proposals or long term forestry policies) (Details on pages 32-35 Annex III)

Various strategic action plans have been developed since 1990 being important in defining sectoral policy initiatives:

- **Forestry Action Plan (PAF):** It takes place between 1990 and 1994 based on an agreement signed between the Government of Chile, the Government of the Netherlands and FAO with a long-term perspective.
- **Proposals for a National Forestry Policy:** This proposal in book form is the result of CIFAG³⁸ / FAO / Facility "Proposals for the development of a National Forest Policy (NFP) for Chile" project, developed during 2007 and 2008
- **National Forestry Strategy:** This document has its genesis in resolution No 1.338 of the Ordinary Session No 542 Forest Institute, corresponding to May 23, 2011, a body (INFOR) chaired by the Minister of Agriculture.
- **Chile Empowers Sustainable Forestry Council:** was created by Decree of the Ministry of Agriculture on 2011, in order to advise the Minister of Agriculture to facilitate decision-making on actions of the authorities and bodies of the Ministry related to forestry issues and to encourage communication between the Ministry and the different actors sector

2.7 Institutional frameworks for land use change governance (Details on page 36 Annex III)

The Ministry of Agriculture and his institutions is historically responsible for agricultural and forestry developments in Chile. A strong institutional framework has been a good long term basis to make things happen pushed by adequate legal tools.

The two institutions related to forest task are:

CONAF (National Forestry Corporation) and the INFOR (Forest Institute)

CONAF was founded in 1970 and is focused on:

- Forest legislation and administration,
- National Protected Wild Areas System administration,
- Small and Medium Forest Owners Programmes management,
- Forest Fires Prevention and Control, Forest Pest and Diseases Control

CONAF's offices are well represented all over the country in all regions controlling land use, prohibiting the replacement of native forest for agriculture and promoting afforestation on degraded soils.

INFOR was founded in 1961 and is focused on research, development and innovation, providing:

- Forest Ecosystems Inventory and Monitoring,
- Forest Economics and Policy,
- Native and exotic ecosystems silviculture and forest management,
- Wood Industry and Technology.

³⁸ CIFAG: Colegio de Ingenieros Forestales A.G. (Forestry Engineers Association AG)

Its five offices spread over the areas of greatest forest interest being located from north to south in the cities of La Serena, Santiago , Concepción , Valdivia and Coyhaique.

INFOR delivers technological and market management knowledge which allow a territorial land approach integrated forest and agricultural use.

Institutions related to agriculture and livestock area are:

SAG (Agriculture and Livestock Service), INDAP (National Institute for Agricultural Development), CNR (National Irrigation Commission), ODEPA (Office for Agricultural Planning) , FIA (Foundation for Agrarian Innovation), INIA (National Institute of Agricultural Research, CIREN (Information Center of natural resources) , FUCOA (Foundation of Communications, Training and Agro Culture) Agro, ACHIPIA (Chilean Agency for food safety and quality), AGROSEGUROS (insurance for agriculture with state subsidy): (Details attached)

2.8 Financial strategies, programs and instruments

National economic policy is based on an open economy with a growing system of social protection, being financial strategies consistent with these guidelines.

Agriculture with related production and commercial aspects is in private hands so that their investment and operating funds are obtained in the capital market which is diverse, competitive, open and private. Most of investment and operation funding which are considering market values are directly obtained from different private banks, regulated by a state depending organization (“superintendencia de bancos”). Another funding source, but being minor, is foreign investment which is regulated by State Decree.

Because family farming such as smallholder’s agriculture has low capacity to private banking access, they are assisted technically and financially by INDAP³⁹ (an institution of the Ministry of Agriculture) who gives them more favorable and more accessible credit conditions. Another financing possibility for them is coming from the State Bank, but conditions are not very different from private bank credits.

There are state instruments to promote economic, social and environmental externalities in specific areas (afforestation, recovering of degraded soils and irrigation programs).

In summary from 1974 to 2013 there was an afforestation incentive (75% - 90% of the estimated cost), that helped to establish 60% of the existing plantations. First with Radiata pine and later with *Eucalyptus* species, leading to massive private investment to establish a modern industry, producing high quality products sold all over the world. During a second phase incentives were focused on smallholders (paying 90 % of the estimated cost), which is expected to be included in a new forest law. For these proposal environmental issues such as services, partnerships, training, multipurpose and agroforestry could be relevant elements.

On the agricultural side, incentives for soil improvement and productivity considering treatments to reduce or eliminate erosion remain until today, like incentives to improve irrigation, which has produced efficiency in water use and infrastructure modernization. Both instruments are assumed

³⁹ INDAP: Instituto nacional de desarrollo agropecuario (see chapter 2.7)

to be maintained over the medium or long term following the objective to convert Chile in a food power.

3. ANALYSIS OF POSITIVE TRENDS: KEY CONTRIBUTING FACTORS

- **Chile**

During the last 25 years a positive trend had been an annual growth rate of 8,7 % per annum for the macroeconomic indicator GDP (Gross domestic product); the service sector representing 57 % of GDP in 1990 and actually 64,8 % is following developing countries trend; the Gross national income per capita grew 7,1 % per annum; exports are continuously growing; unemployment rates have fallen to 6,8% and the tendency is to lower poverty and social inequality.

These trends are due to the fact that the country has solid and reliable institutions, and that development strategies are supported by economic growth with an open and competitive market environment, where the State regulates and enforces social protection.

This development level allows the state and its people have strengths to meet the commitments and requirements of food security, not having problems to food access.

- **Food and agriculture**

Although agriculture share in GDP has decreased (due to the higher growth of the service sector) in nominal monetary terms, the agricultural GDP shows positive trends growing 41 % between 2008 and 2013.

Agriculture's production has proven flexibility enough to adjust to international market conditions (linked directly since there are lower import tariffs) so that areas with the main traditional crops has been changing to the most profitable alternatives. This is how exports oriented to products with the biggest advantages like grapes, wine, fruit and flowers, lowering production of grains, legumes, vegetables and forage crops, among others.

In nominal value terms, agricultural production, crops, livestock, grains, foods together or separately, growth almost three times between 1991 and 2012 .

Currently the country with nearly 18 million people is growing at an annual rate of 1,24 during the last 25 years. Rural population is decreasing from 16,5 % in 1992 to 13,1 in 2012, following the developing countries trend with increasing urban and services development.

Another trend is that medium-sized farms tend to develop in increasingly large areas, making them benefit from of scale economies. This is not happening for the small farms.

To face financial requirements, farmers have to use the competitive capital market, mainly commercial banks. The State Bank assists in better conditions small farmers. The State invests in infrastructure, communications, information, but not in the production itself.

The state has supported agriculture increasing productivity and environmental improvement through two instruments. This had been monetary incentives to improve and recover degraded soils and monetary incentives for irrigation. These two instruments incorporated major areas for

profitable production and improved efficient water use making possible to incorporate areas that had been nonproductive before.

From a productive and social point of view sustainability of family farming is state assisted by INDAP, an institution focused on this subject. INDAP offers technical assistance and financial support programs and training in commercial production and self-sufficiency.

Among the key factors for these developments, are the positive farmer's reactions to produce according to market and exports advantages. Another important factor is productivity gains for each crop, as the result of incorporating national and international technologies, despite low country investment in R & D.

In short, the country shows a develop tendency for products with competitive advantage in large scale production, incorporating technologies, which strengthens and allows sectorial sustainability. The state strongly supports as a subsidiary role.

Chilean agriculture produces in quantity and quality sufficient food to meet national requirements, not appearing availability problems in more than four decades.

- **Forestry development**

Forestry develops increasing natural forests and plantations, that have been established on forestry potential land taking environmental (soil protection) and economic benefits to the country. During the past 25 years, the trend of timber use has concentrated 99% in plantations releasing pressure in timber consumption of native forests.

Plantation forests, which are the protagonists of forestry development, increases in about 1.000.000 ha from 1990 to 2013 reaching 2.414.389 hectares in 2014. These plantations with positive environmental soil impact are established on suitable forestry land, that had been unprotected and under erosion before planted.

Industrial timber harvesting shows a growing trend from 14,2 million m³ in 1990 to 41,0 million in 2013. In 1990 the native forest brought 16,1% of the volume falling to 0,8% in 2013. This indicates that the Chilean economy depends on forestry plantations, giving native forest time to recover with incentives help from the native forest law.

With the plantation resource an export industry was created, which in 1990 exported US \$ 855 million growing to significant US\$ 6.000 million in 2014, becoming a leader in the national economy.

The key factors of this forest development are basically two: A forest development law that subsidizes afforestation costs for about 40 years, securing forest ownership and ensures adequate reforestation, and a private sector that reacts to the favorable conditions (forest incentives, economic policy of the country, abundant land, fast-growing species and stable institutional frame).

4. SUMMARY/CONCLUSION

- **Chile**

Chile is a long narrow country with all kind of climates from the dry dessert in the far north to glaciers reaching sea shore in the south due to the length of 4.200km, the two mountain ranges (coastal and Andes) and the central depression. 75 million hectares is the total area, being 21,1% forests and 4,5% agriculture land reaching competitive production levels.

Economic development: During the last 25 years, GDP (8,7%) and per capita income (7,1%) show a clear growth, with increasing employment and export, reducing drastically poverty levels . These conditions ensure food access, complying Chile its international commitments. Services had been the fastest growing sector reaching 64,8 % of GDP. In absolute terms, the primary agricultural sector is decreasing from 10,7% of GDP in 1990 to 2,7 % in 2014. This trend is similar for agriculture and forestry.

The current Chilean population is nearly 18 million people, growing on a decreasing rate from 1990 to 2014. Rural population accounts for 17,8% in 1990 decreasing to 13,1 % in 2012, due to better opportunities in the cities like in other countries in the world.

R & D: In absolute terms, investment in R & D growths, but in GDP percentage the level is considered low (Year 2013 investment: US \$ 1 billion and 0,39 % of GDP).

- **Relationship between forestry and agriculture**

During the eighteenth and early nineteenth century forests were abundant and were considered inexhaustible. Important part were exploited to supply mining, railways, electric poles and other proper uses for the country development, but there were also extensive fires in order to provide land for agriculture.

Chile is a country of mountainous topography with a long flat Central Valley, where most of the farming activity is concentrated. 72% of Chile's soils are showing a certain erosion level (CIREN, 2010).

During the last 60 years, Chile started a process of forest recovery and soil improvement- This would have generated about 2 million hectares of productive land where agriculture and food production is concentrated and about 2,5 million ha of forest plantations. Remaining lands of low agricultural availability are suitable for afforestation and permanent fruit crops with intensive technologies. These remaining are very limited for agricultural use.

Some forest replacement for agriculture use happens in forest type "esclerófilo"⁴⁰ (Total area of the type: 473.367ha; INFOR⁴¹). This change is due to favorable climatic conditions, what is making possible to establish plantations of fruit trees such as avocados, olives and vineyards adding high level technologies and irrigation (Magdahl, 2014⁴²).

⁴⁰"Esclerófilo" forest: One of Chiles forest types, located between the Region of Valparaiso and Bio Bio with xeromorphic species (perennial, hard leaves), allowing them to withstand the summer drought in the Mediterranean Climate.

⁴¹ INFOR: El sector forestal chileno 2014. Instituto Forestal.

⁴² Magdahl C. (2014): La industria de la palta en Chile. Segundo seminario internacional de paltos. 29.09-01.10.2015. Presentación en PPT.

These fruit crops show economic benefits while contributing to the maintenance of soils, especially in areas devastated by fires. The “esclerófilo” forest is high degraded mainly due to the proximity to areas of high population density demanding energy biomass and food production spaces. Replacement trends in this forest depend on the cost effectiveness of new projects, irrigation capacity and the demands of the society.

On the other hand in south - central Chile massively plantation forest was established on Class 7 soils and occasionally on Class 6, previously used for extensive farming and consequently with different erosion intensities. Because some native forest replacement by plantations after 1994, the FSC agreed with large forestry companies in an area of approximately 40 thousand hectares to restore the native forest, a process that is just beginning.

Incentives for agricultural (Decree in Force of Law and following laws that establish incentive systems for recuperating degraded soils) reached a target of about 10 million hectares between 2005-2008 also pointing to the recovery of soils and productivity, considering erosion decrease or elimination.

These technological advances concentrated in large-scale farming on irrigated lands, discouraging activities on unproductive land, which in many cases just keep survival farming of mostly medium and especially small landowner’s hands. The average age of these owners who are approaching 60 years and the migration of the young generation to town, puts new challenges on how to handle these territorial units. Partnership (associations) and specialist product strategies seem attractive for integrated and rational management for them. To make progress in this area, specific support actions will be required by the state.

- **Relationship between the state and beneficiaries (smallholders)**

The nature of the transfer and information model is the direct and personal contact to forest and agricultural farmers, for which INDAP, SAG and CONAF have professional and extension offices located in all regions, provinces and main communities in the country.

The knowledge generated by institutions such as INIA, INFOR and universities, perform their tests and trials on the farms, what is facilitating extension.

Currently the vision concept is to incorporate the farm as a total, rather than focusing only on each discipline, for which INDAP and CONAF make coordination efforts.

INDAP and CONAF are specially focusing on smallholders, while SAG points to the medium sized owners. The two technological institutes INIA and INFOR consider within its mission the training of professionals of these three institutions, updating knowledge for the extensionists.

CONAF focused extension for the past 25 years to small native forest owners that never had been taking under account before. Especially for eight years (from 1995 on) the program was reinforced with the support of Germany through GTZ, DED, KFW institutions. At present this program continues without international support.

During the existence of plantations incentives focused from 1998 on smallholders, CONAF’s extension programs considered soil recovering and plantation silviculture.

INDAP has various smallholders support programs:

- Investment Development Programme (PDI), which allows access to non-reimbursable financial incentives for co-financing agro- forestry and agricultural investment projects.

- Indigenous Territorial Development Program (PDTI) for indigenous families, communities, associations or groups in fact, to strengthen agriculture, forestry and related activities respecting their worldview and looking for income and life quality improvement.
 - Associative Economic Program (PAE) exists to develop and strengthen business associations to:
 - Improve operational, economic and financial performance.
 - Improve the production processes and / or its transformation.
 - Organizational development.
 - Management and Organizational Support Program (PROGYSO) exist to provide economic incentives to finance skills development and capabilities to support "Organizational Management" and Administration for smallholder organizations on regional and country level.
 - Credit program: there are short and long term versions linked to irrigation and native forest management (linked to the current law for recovery of native forests). These credits are reimbursable, financing partially development and /or production, business and services related to forestry and agriculture, when economically and financially convenient. They are not delivered for speculative or debt repayment purposes.
- **Agriculture**

Agricultural production is increasing and the number of field employed as well, but growing slow, due to high process modernization and increased production scale.

Agricultural land is private. The number of small size farms remains constant, the number of medium size farms decrease and the ones over 2.000 hectares grow, what shows a growing tendency in production scale.

Investment source: Chile has received large money flows through foreign investment, mainly focused in mining and services and little in agriculture. The main financial resources provider to agriculture had been the banks, tripling from 2005 to 2012 and reaching US \$ 7 billion in 2012.

Agricultural production: Important production changes happened during the last 25 years. While reducing traditional crop like cereals, vegetables, potatoes etc., fruits, vines, flowers and seeds crop increased and production value had a significant growth (cereals three times, crops and agriculture in general 3 times, food 2,5 times).

Main agricultural crops performance: Annual crops show a clear trend of increasing yield. For wheat, barley, maize, potatoes and beets there was a 50 % increase over the last 25 years, with greater intensity since the year 2000. Clear progress in productivity and new varieties and production structures is given by the fruit sector.

• **Agricultural trade**

The country has no special requirements for food imports, being in a favorable food availability status and supply condition, with a little growing food dependency index less then 1%.

International food trade: Between 1990 and 2007 imports and exports showed a stable trend, increasing since 2007 and reaching an import level of 10% and export level of 22%.

Agricultural exports: Considering the top 5 products, grapes and apples are kept since 1990, appearing new items such as wine, cranberries and cherries, displacing beets, peaches and pears.

Agricultural imports: Import categories varied over time. Currently in the top 5 are meat as food and maize and wheat being in important part cattle feeds.

- **Forestry**

Property and land use: Productive forest (plantations and native forest) is in private hands and plantations were mainly establishment in forest soil, adding 1 million hectares during the last 25 years, replacing soils under extensive agricultural use and erosion threatened.

The most important commercial forest resource corresponds today to plantations with exotic species (pine and eucalyptus) that explain about 98 % of the forest economy. These are held by 61% in large and medium enterprises and 39 % in the hands of medium and small owners.

Afforestation and reforestation: Good market conditions and the forest law make that all harvested area is reforested. High rates of afforestation in the past, mainly explained and pushed by the availability of suitable forestry land and especially the existence of subsidies explain the high afforestation rate of the past. Actually without incentives and with a lack of high yield soils, afforestation reaches minimum annual planting levels falling under 7.000 ha.

Forestry investments have been growing, partly originate from the public sector in recognition of afforestation environmental and social externalities (for afforestation incentives, management and soil improvement) and from the private sector (forestry and industrialization). In nominal terms, US \$ 565 million (from 1974 to 2014) state incentive money and US \$ 11,7 billion dollars (from 1990 to 2015) private investment. It is important to see that a state investment that has generated a renewable resource managed by privates, had make possible a private company investment of at least 21 times higher than the incentives, creating a business that currently exports annually about 6 billion US\$.

The timber harvest for industrial use has nearly tripled over the past 25 years, reaching in 2013 41 million m³, in opposite to the native timber, that reduced participation from 16% in 1990 to 0,8 % during the same period. The growing trend will reach a sustainable level of about 50 million m³ per year from 2025 on.

Forestry exports grow nominally from US \$ 855 million in 1990 to US \$ 6,09 billion in 2014, diversifying products and foreign markets. During this period predominate the primary product pulp, with about 50 % of exports, following sawn timber (12%) and boards (9%). A slight upward trend is observed for value-added products, explaining during the last years the remaining 19%.

Forest products imports concentrate in special paper products, valuable timber, furniture and manufacturing, with about US \$ 840 million in 2005 and US\$ 1.500 million in 2013.

- **Policy and instruments**

Chile's forestry and agricultural success (production, productivity and trade) over the past 25 years is explained by well targeted policy instruments to afforestation incentives, plantation management, native forest recovery and soil and irrigation improvement.

An important part of agricultural improvements due to state incentives like the “recuperating degraded soil program” that includes fertilization (US\$ 319 million in five years between 2005 and 2009) and the improvement and shifting to sophisticated irrigation systems, adding low rainfall areas (incentives of US\$ 982 million from 1990 to 2014).

Both instruments focused on improving yield (“recuperating degraded soil program” and “irrigation incentives”, seems to last for long time, incorporating the adjustments that are required, as demonstrated by the dynamics during the last 25 years. The state entity INDAP has been supporting family farming and SAG the medium sized producers.

Forests and their management are regulated by law, including plantations and the native part. Incentives for native forest recovering still fail to impact according to expectations, although the state is working for it.

Over the past 25 years four Action Plan proposals had been designed to fix productive, environmental and social strategies for the forest sector, including different stakeholder and participation intensities.

Currently (2015) a long-term (20 years) state forest policy, requested by the Minister of Agriculture to all stakeholders is being analyzed. This is an unprecedented event and guidelines for future policy instruments and joint work of the public and private forest sector is expected.

- **Other forest influencing factors**

Other factors that may affect forests and related activities are indigenous community’s challenges of regarding ancestral rights over lands occupied by forest plantations and the goods and services they deliver. The state, the companies and all kind of land owners are searching for solutions, which have been faced in first instance by land purchases through the state (CONADI⁴³) and the guidelines of international certificates FSC⁴⁴ and CERTFOR⁴⁵.

For forestry, natural disasters have been minor during the last 25 years, existing threat of volcanic eruptions and forest fires, being caused normally these last by humans.

Water supply in drought affected areas had become an issue for fast growing plantations.

⁴³ CONADI: Corporación nacional de desarrollo indígena (National Indigenous Development Corporation). www.conadi.cl

⁴⁴ FSC: Forest Stewardship Council. www.fsc.org

⁴⁵ CERTFOR: Sistema Chileno de Certificación de Manejo Forestal Sustentable (PEFC). www.certfor.org

LAND USE IN CHILE
(Source: INFOR, 2003 y 2014⁴⁶)

| Total land use 2014 | | Area variations 2002-2014 | | |
|-----------------------------------|------------|---------------------------|------------|------------|
| | | 2002 | 2014 | Variations |
| Total área (ha) | 75.665.534 | | | 2002/2014 |
| Land use | % | Ha | ha | % |
| Areas without vegetation | 33,1 | 24.618.700 | 25.033.560 | 1,7 |
| Prairies and shrubbery | 28,2 | 20.665.000 | 21.302.659 | 3,1 |
| Forest | 21,1 | 15.467.997 | 15.930.978 | 3,0 |
| Agricultural áreas | 4,5 | 3.765.000 | 3.398.691 | -9,7 |
| Urban and industrial | 0,3 | 218.200 | 259.864 | 19,1 |
| Wetlands | 4,7 | 4.497.300 | 3.583.560 | -20,3 |
| Snow , glaciers , water and other | 5,1 | 6.433.537 | 6.156.222 | -4,3 |

FOREST AREA CHANGES (ha)

(Source: INFOR 1997⁴⁷, 2014⁴⁸)

| Year | 1997 | 2014 |
|---------------|------------|------------|
| Total | 13.443.315 | 15.930.978 |
| Native forest | 13.443.315 | 13.516.589 |
| Plantations | 1.881.925 | 2.414.389 |

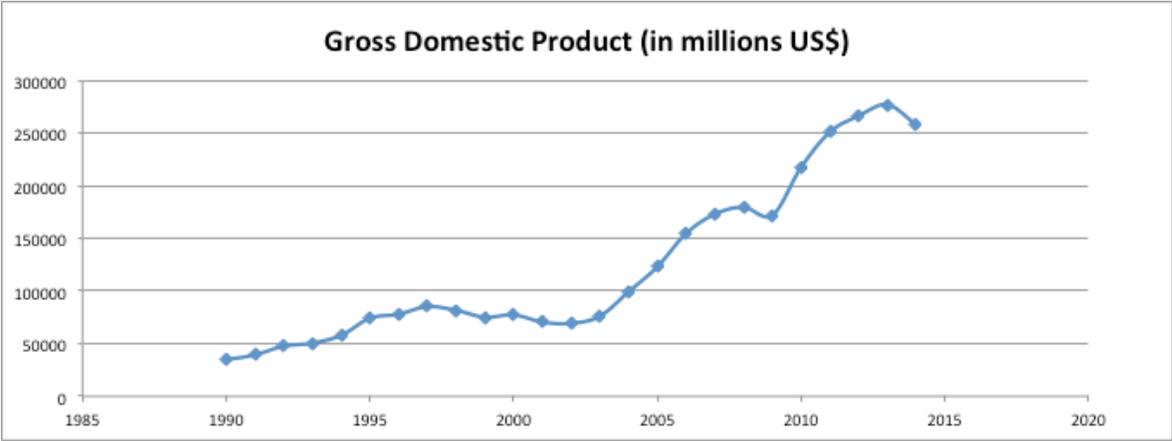
⁴⁶ INFOR, 2013, 2014: El sector forestal chileno.

⁴⁷ INFOR, 1997. Estadísticas Forestales 1997. Boletín Estadístico 61, Santiago, Chile.

⁴⁸ INFOR, 2014. Anuario Forestal 2014. Boletín Estadístico 144. Santiago, Chile.
<http://wef.infor.cl/publicaciones/anuario/2014/Anuario2014.pdf>

Secondary Forest

A significant native forest surface increase is recorded in the twentieth century through mainly secondary forests of Nothofagus, who have returned to cover large areas, after been burned during the nineteenth century and early twentieth. An increase compared to the situation one hundred years ago of about five million hectares is estimated (about 3,5 million ha secondary native forest and about 2,5 million ha plantation forest). A certain level of degradation related to rural poverty in some sectors is currently registered, indicating INFOR’s records 168.000 ha for forest type Roble - Rauli - Coihue (Mujica , 2015⁴⁹) .



Source: FAOSTAT, 2015 ⁵⁰

GROSS DOMESTIC PRODUCT (in millions of US\$)

EVOLUTION GROSS DOMESTIC PRODUCT

| Evolution Gross Domestic Product | | | | |
|-------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|
| Annual growth rate (%) | | | | |
| Source: http://faostat3.fao.org/download/M/MK/E | | | | |
| Year | 1990-2000 | 2000-2010 | 2010-2014 | 1990-2014 |
| GDP | 8,4 | 10,9 | 4,3 | 8,7 |

⁴⁹ MUJICA, R. 2015: La degradación forestal del país. Presentación en el marco del seminario sobre degradación del 20.08.2015 en el ex congreso nacional; organizado por INFOR.

⁵⁰ <http://faostat3.fao.org/download/M/MK/E>

SECTOR GDP COMPOSITION (1990-2014); (Source ODEPA, 2015 ⁵¹)

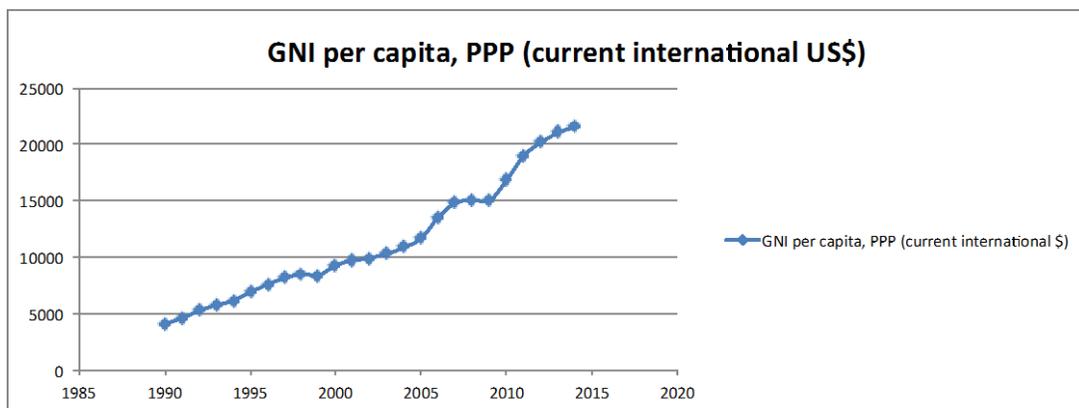
| Composition GDP by Sector of Origen (%) 1990, 1995, 2000, 2005, 2010, 2014 | | | | | | |
|-----------------------------------------------------------------------------------|------|------|------|------|------|------|
| Sector | 1990 | 1995 | 2000 | 2005 | 2010 | 2014 |
| Agriculture and forestry (1) | 10,7 | 9,5 | 6,8 | 2,7 | 2,6 | 2,7 |
| Fishing | 1,2 | 1,5 | 1,3 | 0,5 | 0,4 | 0,3 |
| Mining | 8,9 | 7,8 | 8,1 | 16,1 | 13,5 | 11,2 |
| Manufacturing Industry | 14,8 | 13,6 | 13,8 | 11,7 | 10,5 | 11,3 |
| Construction | 5,3 | 5,2 | 7,9 | 7,0 | 6,8 | 8,0 |
| Services | 57,1 | 60,0 | 59,3 | 58,2 | 63,2 | 64,8 |

(1) primary sector

EVOLUTION GROSS NATIONAL INCOME

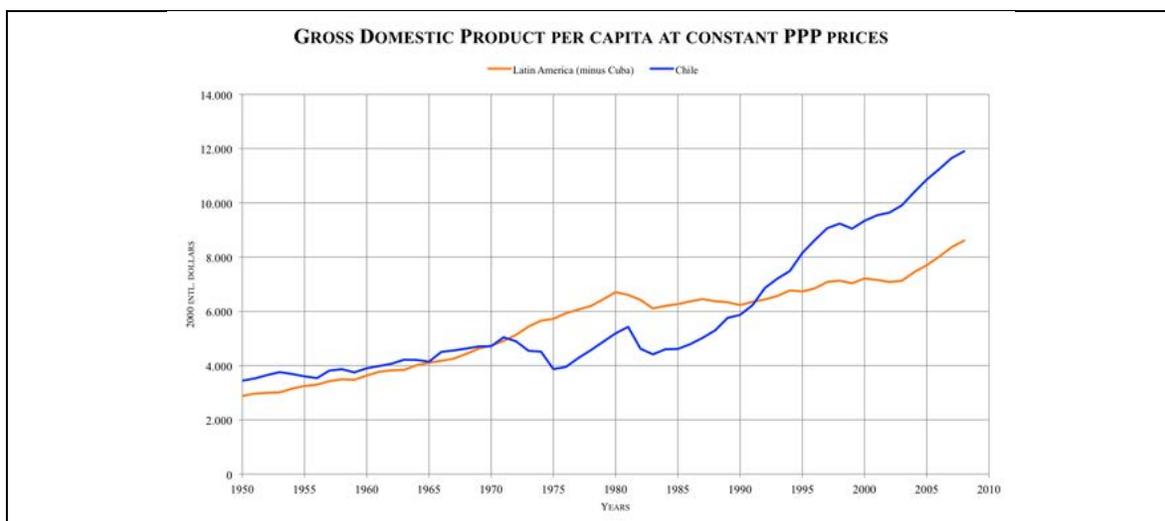
| Evolution Gross National Income | | | | |
|-------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|
| Annual growth rate (%) | | | | |
| Source: http://faostat3.fao.org/download/M/MK/E | | | | |
| | 1990-2000 | 2000-2010 | 2010-2014 | 1990-2014 |
| GNI | 8,4 | 6,1 | 6,3 | 7,1 |

⁵¹ <http://www.odepa.cl/pib-por-clase-de-actividad-economica/>



Source: FAOSTAT, 2015 ⁵²

GNI PER CAPITA (current international US\$)

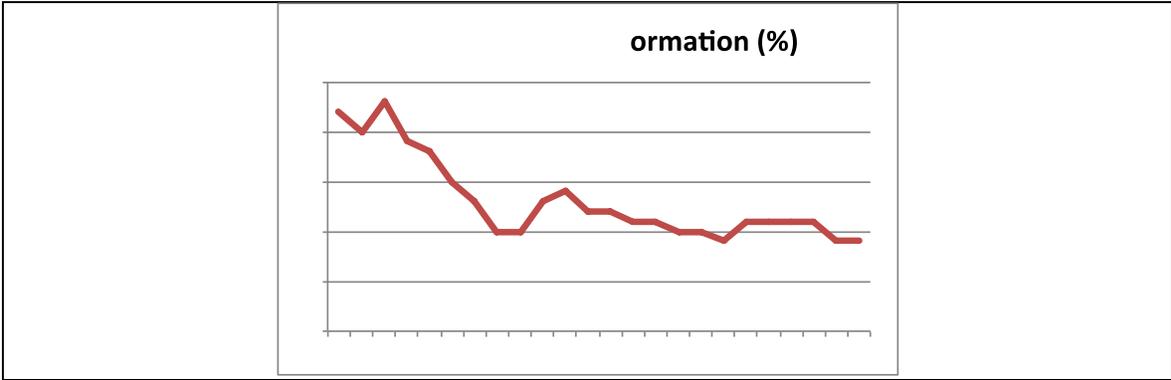


GROSS DOMESTIC PRODUCT PER CAPITA

(Source: FAOSTAT, 2015 ⁵³)

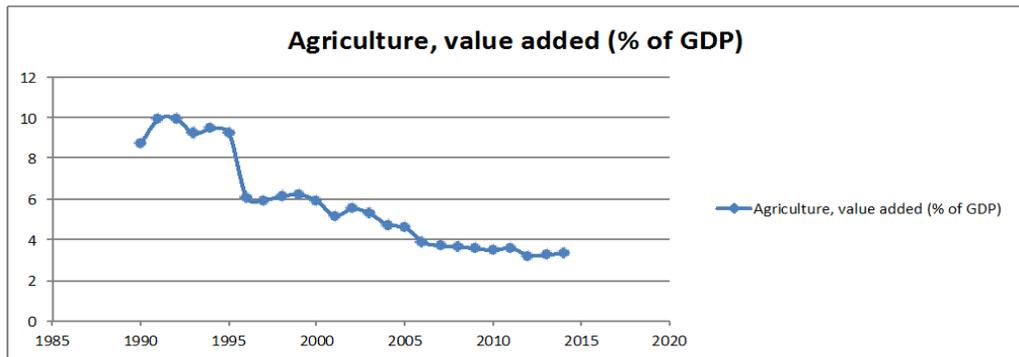
⁵² <http://faostat3.fao.org/download/M/MK/E>

⁵³ <http://faostat3.fao.org/download/M/MK/E>



GROSS FIXED CAPITAL FORMATION

(Source: INE, 2014⁵⁴)

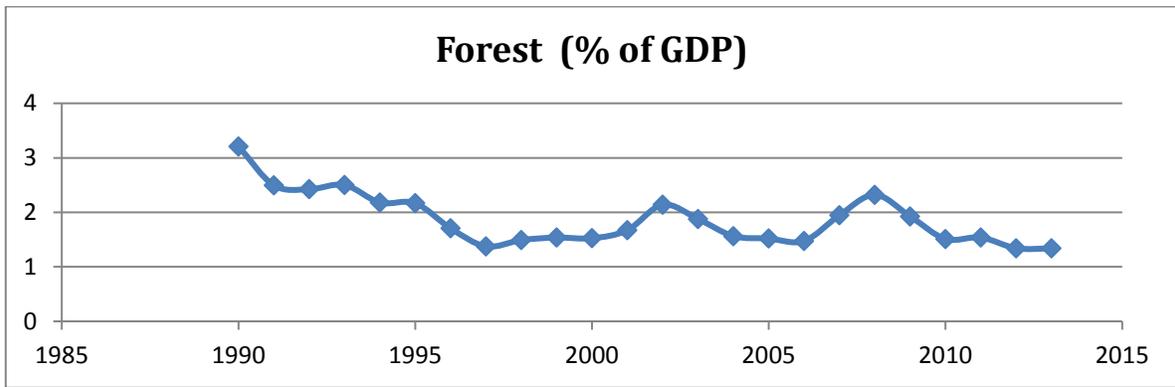


Source: FAOSTAT, 2015⁵⁵

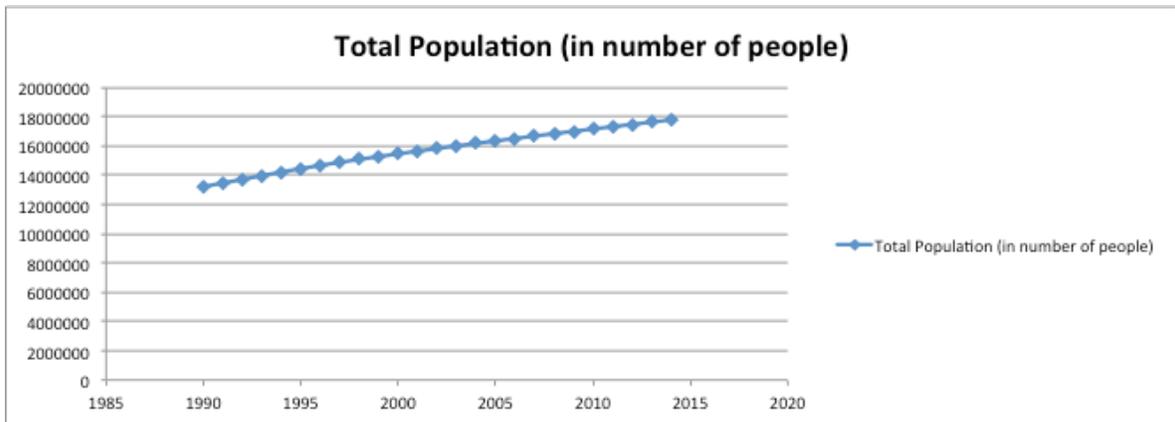
AGRICULTURE, VALUE ADDED (% of GDP)

⁵⁴ INE, Chile, 2007: Structural changes of Chilean agriculture: Intercensal Analysis 1976, 1997 y 2007

⁵⁵ <http://faostat3.fao.org/download/M/MK/E>



FOREST RENTS (% of GDP) ⁵⁶



Source: World Bank, 2014 ⁵⁷

TOTAL POPULATION (in number of people)

TOTAL POPULATION (in number of people)

⁵⁶ <http://data.worldbank.org/indicator/NY.GDP.FRST.RT.ZS>

⁵⁷ <http://data.worldbank.org/indicator/SP.POP.TOTL>.

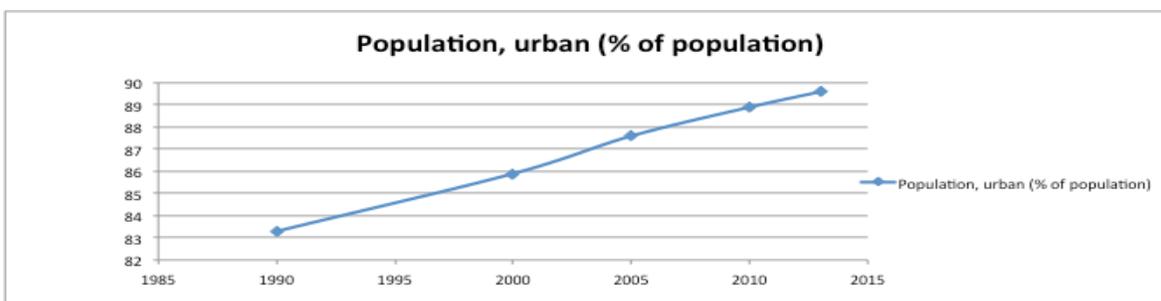
| Total Population (in number of people) | |
|---------------------------------------------------------------------------------------------------------------|----------|
| http://data.worldbank.org/indicator/SP.POP.TOTL | |
| Year | Value |
| 1990 | 13213930 |
| 1995 | 14440103 |
| 2000 | 15454402 |
| 2005 | 16337749 |
| 2010 | 17150760 |
| 2014 | 17772871 |

EVOLUTION TOTAL POPULATION

| Evolution Total Population | | | | |
|-------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|
| Annual growth rate (%) | | | | |
| Source: http://faostat3.fao.org/download/M/MK/E | | | | |
| | 1990-2000 | 2000-2010 | 2010-2014 | 1990-2014 |
| (%) | 1,58 | 1,05 | 0,89 | 1,24 |

URBAN POPULATION

| Population, urban (% of population) | |
|--------------------------------------------|-------|
| Source: UNDESA (2013b) | |
| Year | Value |
| 1990 | 83,3 |
| 2000 | 85,9 |
| 2005 | 87,6 |
| 2010 | 88,9 |
| 2013 | 89,6 |



URBAN POPULATION

(Source: UN DESA, 2013⁵⁸)

POPULATION: TOTAL, URBAN AND RURAL (in number of people)

| Population, total, urban, rural (in number of people) | | | | |
|----------------------------------------------------------------|------------|------------|------------|------------|
| Source: INE-CELADE, 2014⁵⁹ | | | | |
| Population | Censo 1982 | Censo 1992 | Censo 2002 | 2012* |
| Total | 11.329.736 | 13.348.401 | 15.116.435 | 17.464.814 |
| Urban | 9.316.127 | 11.140.405 | 13.090.113 | 15.176.923 |
| Rural | 2.013.609 | 2.207.996 | 2.026.322 | 2.287.891 |
| Population, total, urban, rural (% of total population) | | | | |
| Urban (%) | 82,2 | 83,5 | 86,6 | 86,9 |
| Rural (%) | 17,8 | 16,5 | 13,4 | 13,1 |

* estimate

⁵⁸ United Nations Department of Economic and Social Affairs (DESA) <http://www.un.org/en/development/desa/what-we-do.html> and Source: UNDESA (2013b). World Urbanisation Prospects, 2011 Revisions. Correspondence on urban population. <http://esa.un.org/unpd/wup/index.htm>

⁵⁹ Instituto Nacional de Estadísticas (INE) Comisión Económica para América Latina y el Caribe (CEPAL) División de Población Centro Latinoamericano y Caribeño de Demografía (CELADE), 2014. CHILE: Proyecciones y Estimaciones de Población.Total/País1950-2050. 103p http://www.ine.cl/canales/chile_estadistico/demografia_y_vitales/proyecciones/Informes/MicrosoftWordInforP_T.pdf

NATIONAL AND AGRICULTURE LABOUR in thousands

(Source ODEPA-INE, 2014⁶⁰)

| Year | National labor | Agriculture labor | % |
|-------|----------------|-------------------|------|
| 1.996 | 5.517 | 783 | 14,2 |
| 2.000 | 6.377 | 803 | 12,6 |
| 2.005 | 6.914 | 803 | 11,6 |
| 2.010 | 7.382 | 827 | 11,2 |
| 2.014 | 8.439 | 681 | 8,1 |

AGRICULTURAL HOLDINGS BY SIZE

(Source INE, 1976, 1997, 2007⁶¹)

| SIZE OF HOLDINGS (ha) / YEAR | 1976 | 1997 | 2007 |
|--------------------------------|-------------------|-------------------|-------------------|
| Less than 100 | 3.377.951 | 3.919.383 | 3.322.197 |
| % | 11,7 | 14,8 | 11,1 |
| Between 101 and 1000 | 6.181.396 | 4.966.939 | 4.275.792 |
| % | 21,5 | 18,7 | 14,3 |
| Between 1001 and 2000 | 1.954.506 | 1.629.572 | 1.440.758 |
| % | 6,8 | 6,1 | 4,8 |
| 2.000 and more | 17.245.308 | 15.986.470 | 20.742.944 |
| % | 60,0 | 60,3 | 69,6 |
| TOTAL | 28.759.161 | 26.502.364 | 29.781.691 |

⁶⁰<http://apps.odepa.cl/menu/AgroEconomicas.action;jsessionid=CFF6659434CAD8EEC631AF1AEFAF0D61?rubro=empleo&reporte=>

⁶¹ INE, 1976, 1997, 2007: Census data

OWNERSHIP (%);

(Source: INE, 2009⁶²)

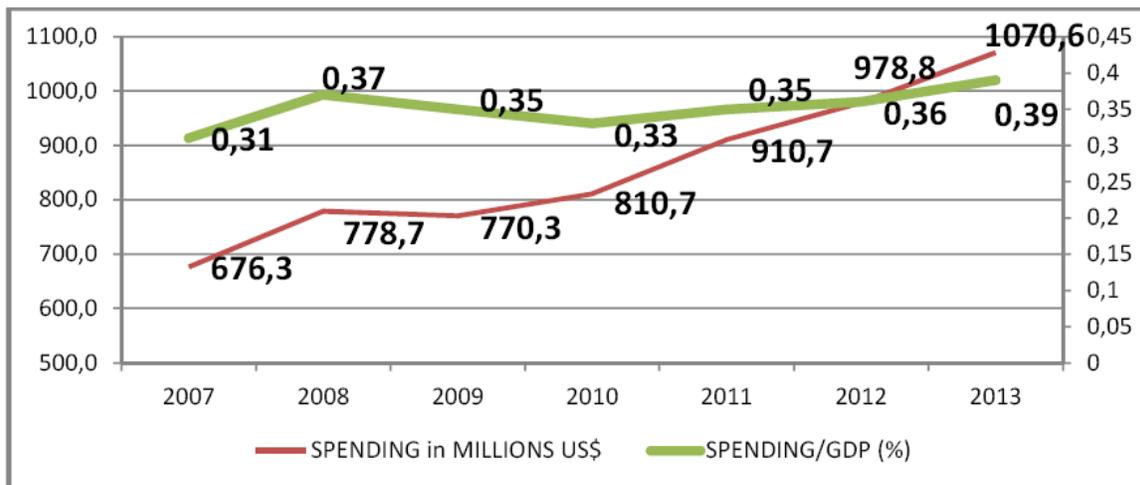
| TENURE | 1976 | 1997 | 2007 |
|---------|------|------|------|
| Own | 57 | 76 | 62 |
| Not own | 34 | 12 | 13 |
| Mixed | 9 | 12 | 25 |

AGRICULTURAL CAPITAL STOCK

| SOFA2012 Agricultural capital stock, total (Million constant 2005 US\$) = FAOSTAT Net Capital Stock (constant 2005 prices) | |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Source: http://faostat3.fao.org/download/I/CS/E | |
| Year | Value |
| 1990 | 19.023,46 |
| 1991 | 19.363,33 |

⁶² INE, 2009 Structural Changes of the Chilean agriculture . Intercensal Analysis

| | |
|------|-----------|
| 1992 | 19.704,71 |
| 1993 | 20.166,35 |
| 1994 | 20.661,08 |
| 1995 | 21.379,47 |
| 1996 | 21.614,07 |
| 1997 | 22.367,58 |
| 1998 | 22.366,66 |
| 1999 | 22.378,19 |
| 2000 | 22.307,60 |
| 2001 | 22.534,58 |
| 2002 | 22.405,57 |
| 2003 | 22.191,86 |
| 2004 | 22.350,33 |
| 2005 | 22.357,15 |
| 2006 | 22.327,31 |
| 2007 | 22.031,01 |



INVESTED IN R&D (MILLIONS US\$ AND % OF GNP) (Source: MINECOM, 2014)²⁶

OFFICIAL DEVELOPMENT ASSISTANCE

| Official development assistance | |
|---------------------------------------------------------------------------------------------------------------------------------------|-------|
| Source SOFA 2012 (http://www.fao.org/docrep/017/i3028e/i3028e.pdf) | |
| (Million constant 2005 US\$) | |
| Year | Value |
| 1990 | 0 |
| 2000 | 3 |

FOREIGN INVESTMENT STATUTE (D.L. 600) –BY SUB-SECTOR 1990 – 2012

| FOREIGN INVESTMENT STATUTE (D.L. 600) - MATERIALIZED INVESTMENT BY SUB-SECTOR 1990 - 2012 | | | | | | |
|--------------------------------------------------------------------------------------------------|--------|--------|--------|-------|--------|--------|
| (in nominal US\$ thousand) | | | | | | |
| Source: Foreign Investment Committee. Provisional figures as of December 31, 2012 | | | | | | |
| Sub-sector /period | 1990 | 1995 | 2000 | 2005 | 2010 | 2012 |
| Agriculture and farming | 8.868 | 9.832 | 23.303 | 1.156 | 5.960 | 50.000 |
| Forestry and logging | 14.581 | 53.913 | 4.253 | 7.030 | 13.326 | 17.164 |
| Fishing and aquaculture | 5.725 | 43.113 | 92.470 | 0 | 0 | 0 |

PUBLIC SPENDING ON AGRICULTURAL R&D

| Public spending on agricultural R&D | |
|------------------------------------------------------------------------------------------------------------|-------|
| SOFA 2012 Public expenditures on agricultural research and development (Million constant 2005 PPP dollars) | |
| Year | Value |
| 1990 | 75 |
| 2000 | 117 |
| Latest year | 98 |

AVERAGE ANNUAL FOREIGN DIRECT INVESTMENT TO AGRICULTURE

| Average annual foreign direct investment inflows to agriculture (Million current US\$) | |
|-----------------------------------------------------------------------------------------------|-------|
| Source SOFA 2012 | |
| Year | Value |
| 2005-06 | 14 |
| 2007-08 | 107 |
| 2013 | 202 |

BANK CREDIT TO AGRICULTURE

(Source: ODEPA, 2014⁶³)

⁶³ ODEPA, 2014. Financiamiento Agrícola. 11p

| Year | Value (\$US Million) |
|------|----------------------|
| 2005 | 2.551 |
| 2006 | 2.656 |
| 2007 | 3.046 |
| 2008 | 4.013 |
| 2009 | 4.551 |
| 2010 | 5.037 |
| 2011 | 5.752 |
| 2012 | 7.284 |

CHANGE IN MAIN TYPE OF AGRICULTURAL PRODUCTION

| Change in main type of agricultural production (hectares) | | | | | | |
|---------------------------------------------------------------------------------------------------------|------------------|---------|---------|------------|---------|---------|
| Source: INE, 2010. Cambios Estructurales en la Agricultura Chilena. Análisis Intercensal 1976-1997-2007 | | | | | | |
| Crops | Years (hectares) | | | Change (%) | | |
| | 1975/76 | 1996/97 | 2006/07 | 1975/76 | 1996/97 | 2006/07 |
| Cereals | 842.485 | 646.982 | 479.404 | -43,1 | -23,2 | -25,9 |
| Legumes and tubers | 211.505 | 127.029 | 70.899 | -66,5 | -39,9 | -44,2 |
| Industrial crops | 126.331 | 70.264 | 69.972 | -44,6 | -44,4 | -0,4 |
| Vegetables | 102.694 | 111.642 | 95.551 | -7 | 8,7 | -14,4 |
| Flowers | 941 | 1.471 | 2.124 | 125,8 | 56,3 | 44,5 |
| Forage plants | 631.561 | 608.115 | 510.371 | -19,2 | -3,7 | -16,1 |

| | | | | | | |
|----------------------|---------|---------|---------|-------|-------|------|
| Fruits | 89.488 | 233.973 | 324.294 | 262,4 | 161,5 | 38,6 |
| Vineyards and grapes | 106.321 | 81.256 | 128.946 | 21,3 | -23,6 | 58,7 |
| Nurseries | - | 2.339 | 2.298 | - | - | -1,7 |
| Seeds | - | 29.620 | 42.402 | - | - | 43,2 |

GROSS PRODUCTION VALUE (current million US\$)

| Gross Production Value (current million US\$) | | | | | | |
|---------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|------------------|------------------|--------------|
| Source: FAOSTAT http://faostat3.fao.org/download/Q/QV/E | | | | | | |
| Year | Cereals, Total | Crops | Livestock | Agriculture | Food | Non Food |
| 1991 | 480,06 | 2.127,97 | 1.205,25 | 3.333,21 | 3.321,48 | 18,78 |
| 1992 | 491,21 | 2387,09 | 1404,98 | 3792,07 | 3776,16 | 27,22 |
| 1993 | 422,41 | 2231,25 | 1450,62 | 3681,87 | 3660,79 | 29,22 |
| 1994 | 467,3 | 2501,97 | 1585,15 | 4087,12 | 4067,39 | 39,11 |
| 1995 | 537,03 | 3223,24 | 1838,6 | 5061,84 | 5043,4 | 35,29 |
| 1996 | 575,62 | 2870,52 | 1866,4 | 4736,92 | 4718,62 | 39,06 |
| 1997 | 557,96 | 3504,91 | 2020,15 | 5525,06 | 5504,65 | 38,87 |
| 1998 | 546,89 | 3092,22 | 1889,07 | 4981,28 | 4959,62 | 40,5 |
| 1999 | 375,34 | 2288,64 | 1641,23 | 3929,87 | 3909,1 | 32,34 |
| 2000 | 416,01 | 2.450,94 | 1.636,90 | 4.087,84 | 4.070,17 | 36,46 |
| 2001 | 441,43 | 1989,32 | 1563,35 | 3552,67 | 3542,31 | 24,04 |
| 2002 | 490,76 | 2299,94 | 1521,4 | 3821,35 | 3812,53 | 24,42 |
| 2003 | 568,84 | 2221,34 | 1627,11 | 3848,45 | 3837,78 | 26,64 |
| 2004 | 631,1 | 2554,07 | 2044,82 | 4598,89 | 4584,36 | 40,8 |
| 2005 | 625,97 | 3087,27 | 2415,09 | 5502,36 | 5485,4 | 42,95 |
| 2006 | 637,51 | 3356,55 | 2775,71 | 6132,26 | 6116,83 | 52,33 |
| 2007 | 666,67 | 3596,21 | 3192,42 | 6788,63 | 6772,65 | 60,07 |
| 2008 | 1052,11 | 4271,58 | 3320,53 | 7592,11 | 7578,75 | 59,04 |
| 2009 | 749,89 | 3790,71 | 2868,22 | 6658,93 | 6647,93 | 48,05 |
| 2010 | 879,87 | 3389,18 | 3521,28 | 6910,46 | 6892,48 | 58,64 |
| 2011 | 1090,19 | 5228,86 | 3837,65 | 9066,51 | 9047,42 | 65,33 |
| 2012 | 1.021,14 | 6.058,19 | 4179,58 | 10.237,77 | 10.216,53 | 69,57 |

YIELDS IN MAJOR CROPS (1990-2013)

(Source: INE, 2001,2014: Anuario de Estadísticas Agropecuarias)

| Yield (qqm/ha) | | | | | |
|----------------|-------|------|------|---------|------------|
| Year | Wheat | Oat | Corn | Potatos | Sugar beet |
| 1990 | 34,1 | 27 | 83,9 | 142,2 | 628 |
| 1991 | 33,8 | 28,7 | 84,9 | 164 | 691,2 |
| 1992 | 33,5 | 29,7 | 84,9 | 145,9 | 650,2 |
| 1993 | 35,2 | 30,5 | 89,4 | 153,8 | 634,1 |
| 1994 | 35,2 | 31 | 91 | 152,2 | 702,7 |
| 1995 | 33,3 | 24,7 | 94,5 | 138,9 | 621,3 |
| 1996 | 39,2 | 32,2 | 90,5 | 161,7 | 576,8 |
| 1997 | 43,8 | 33,4 | 94 | 140,5 | 560,1 |

| | | | | | |
|------|------|------|-------|-------|-------|
| 1998 | 35,3 | 25,3 | 85,2 | 164,5 | 576,3 |
| 1999 | 38,1 | 28 | 94,1 | 164,8 | 632,5 |
| 2000 | 43 | 38,4 | 94,3 | 191,7 | 621,3 |
| 2001 | 42,7 | 44,6 | 105,9 | 212,4 | 673 |
| 2002 | 43,2 | 46,6 | 108,6 | 195,3 | 719,7 |
| 2003 | 45,7 | 43,9 | 110,7 | 192,1 | 774,1 |
| 2004 | 44,1 | 46,6 | 112,3 | 200,6 | 827,1 |
| 2005 | 44,6 | 48,2 | 111,8 | 220,2 | 795 |
| 2006 | 47,9 | 41,8 | 108,3 | 154,2 | 781,5 |
| 2007 | 45,7 | 39,2 | 101,4 | 172,6 | 813,8 |
| 2008 | 40,8 | 34 | 104,9 | 205 | 810 |
| 2009 | 57,7 | 50,2 | 110,8 | 213 | 873,5 |
| 2010 | 58,1 | 53,4 | 120 | 213 | 964,2 |
| 2011 | 59,1 | 44,7 | 128,2 | 263,3 | 935,6 |
| 2012 | 57,3 | 53,6 | 132,7 | 233,8 | 935,6 |
| 2013 | 58,7 | 44,7 | 120,8 | 216,8 | 944,7 |

EXPORT QUANTITY (top five items)

| Export Quantity (top 5 items) | | | | | | | |
|---------------------------------------------------------------------------------------------------------------|----------------|---------------------|----------------|---------------------|----------------|-------------|----------------|
| Source: FAOSTAT http://faostat3.fao.org/download/T/TP/E | | | | | | | |
| 1990 | | 2000 | | 2012 | | 2014 | |
| Item | Value (tonnes) | Item | Value (tonnes) | Item | Value (tonnes) | Item | Value (tonnes) |
| Grapes | 471.181 | Grapes | 676.474 | Grapes | 812.566 | Grapes | 731.827 |
| Apples | 314.305 | Apples | 414.868 | Apples | 761.984 | Wine | 413.569 |
| Pears | 89.842 | Wine | 150.380 | Wine | 401.841 | Apples | 819.951 |
| Beet pulp | 76.025 | Fruit, prepared nes | 136.645 | Fruit, prepared nes | 356.983 | Blueberries | 83.855 |
| Peaches and nectarines | 66.331 | Pears | 135.415 | Kiwi fruit | 218.375 | Cherries | 106.218 |

Source: figures 2014, ODEPA⁶⁴

EXPORT VALUE (top five items)

| Export Value (top 5 items) | | | | | | | |
|---------------------------------------------------------------------------------------------------------------|------------------|------|------------------|------|------------------|------|------------------|
| Source: FAOSTAT http://faostat3.fao.org/download/T/TP/E | | | | | | | |
| 1990 | | 2000 | | 2012 | | 2014 | |
| Item | Value (1000\$US) | Item | Value (1000\$US) | Item | Value (1000\$US) | Item | Value (1000\$US) |

⁶⁴ <http://www.odepa.cl/series-anuales-por-producto-de-exportaciones-importaciones/>

| | | | | | | | |
|-----------------|---------|---------------------|---------|---------------------|-----------|-------------|-----------|
| Grapes | 352.777 | Wine | 434.662 | Wine | 1.337.715 | Grapes | 1.496.950 |
| Apples | 107.473 | Grapes | 523.545 | Grapes | 1.455.887 | Wine | 1.422.018 |
| Crude materials | 74.081 | Crude materials | 205.818 | Apples | 728.912 | Apples | 754.865 |
| Wine | 51.578 | Apples | 181.705 | Fruit, prepared nes | 616.542 | Blueberries | 524.706 |
| Tomatoes, paste | 49.107 | Fruit, prepared nes | 131.563 | Crude materials | 525.315 | Cherries | 573.580 |

Source: figures 2014, ODEPA ⁶⁵

IMPORT QUANTITY (top five items)

| Import quantity (top 5 items) | | | | | |
|---------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|
| Source: FAOSTAT http://faostat3.fao.org/download/T/TP/E | | | | | |
| 1990 | | 2000 | | 2012 | |
| Item | Value (tonnes) | Item | Value (tonnes) | Item | Value (tonnes) |
| Sugar refined | 111.686 | Maize | 1.220.044 | Wheat | 910.962 |
| Maize | 89.784 | Cake, soybeans | 501.005 | Maize | 875.742 |
| Oil, soybean | 73.674 | Wheat | 499.923 | Food wastes | 616.037 |
| Cake, soybeans | 64.493 | Sugar refined | 207.942 | Sorghum | 597.180 |
| Bananas | 63.411 | Bananas | 192.527 | Cake, soybeans | 575.358 |

IMPORT VALUE (top five items)

⁶⁵ <http://www.odepa.cl/series-anuales-por-producto-de-exportaciones-importaciones/>

| Import value (top 5 items) | | | | | |
|---------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------|-----------------------------|--------------------------------------------|-----------------------------|
| Source: FAOSTAT http://faostat3.fao.org/download/T/TP/E | | | | | |
| 1990 | | 2000 | | 2012 | |
| <i>Item</i> | <i>Value (1000\$US)</i> | <i>Item</i> | <i>Value (1000\$US)</i> | <i>Item</i> | <i>Value (1000\$US)</i> |
| Sugar refined | 48.396 | Meat, cattle, boneless (beef & veal) | 172.220 | Meat, cattle, boneless (beef & veal) | 837.167 |
| Cotton lint | 38.303 | Maize | 136.425 | Food wastes | 353.668 |
| Oil, soybean | 35.820 | Cake, soybeans | 80.110 | Fat, nes, prepared | 329.845 |
| Bananas | 16.146 | Wheat | 68.589 | Maize | 288.884 |
| Crude materials | 15.040 | Fat, nes, prepared | 61.000 | Wheat | 282.690 |

FOOD IMPORT DEPENDENCY RATIO

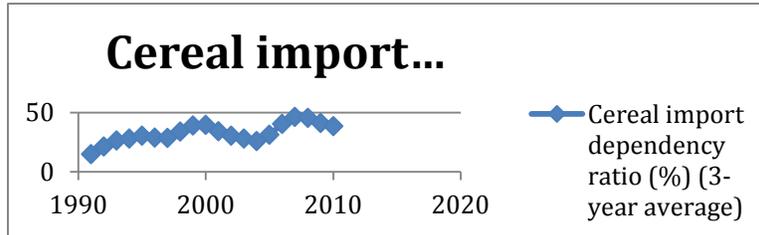
Share of food in total Agricultural trade in terms of import and export

Source <http://faostat.fao.org/site/612/default.aspx#ancor>

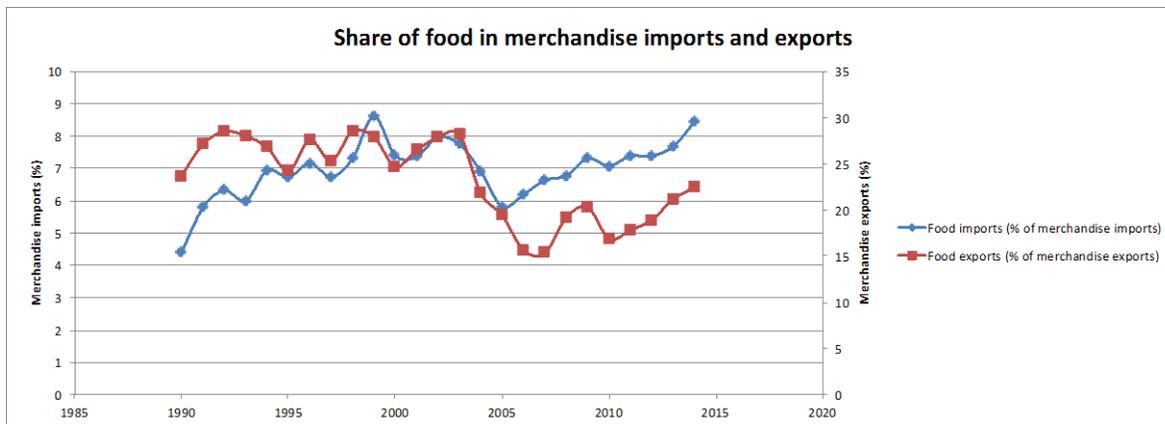
| Year | Import \$US | Export \$US | Production Millions \$US | % Export | % Import |
|------|----------------|----------------|-----------------------------|----------|----------|
| 1990 | 7.272.100 | 8.580.300 | ... | | |
| 1991 | 7.685.800 | 9.048.400 | 3.321 | 0,27 | 0,23 |
| 1992 | 9.670.200 | 10.125.500 | 3.776 | 0,27 | 0,26 |
| 1993 | 10.868.800 | 9.415.000 | 3.661 | 0,26 | 0,30 |
| 1994 | 11.500.900 | 11.643.500 | 4.067 | 0,29 | 0,28 |
| 1995 | 15.348.300 | 16.446.500 | 5.043 | 0,33 | 0,30 |
| 1996 | 17.823.500 | 15.546.100 | 4.719 | 0,33 | 0,38 |
| 1997 | 19.663.400 | 16.654.100 | 5.505 | 0,30 | 0,36 |
| 1998 | 18.779.000 | 15.077.200 | 4.960 | 0,30 | 0,38 |
| 1999 | 15.805.200 | 17.170.100 | 3.909 | 0,44 | 0,40 |
| 2000 | 18.445.400 | 19.210.200 | 4.070 | 0,47 | 0,45 |
| 2001 | 17.783.500 | 18.271.800 | 3.542 | 0,52 | 0,50 |
| 2002 | 17.179.900 | 18.179.800 | 3.813 | 0,48 | 0,45 |
| 2003 | 19.325.900 | 21.664.200 | 3.838 | 0,56 | 0,50 |
| 2004 | 24.871.200 | 32.520.300 | 4.584 | 0,71 | 0,54 |
| 2005 | 32.636.600 | 41.297.100 | 5.485 | 0,75 | 0,59 |
| 2006 | 38.409.100 | 58.116.400 | 6.117 | 0,95 | 0,63 |
| 2007 | 47.124.800 | 67.643.800 | 6.773 | 1,00 | 0,70 |
| 2008 | 62.023.910 | 66.258.820 | 7.537 | 0,88 | 0,82 |
| 2009 | 42.805.543 | 55.462.671 | 7.878 | 0,70 | 0,54 |
| 2010 | 59.287.517 | 71.108.529 | 9.098 | 0,78 | 0,65 |
| 2011 | 75.229.776 | 81.455.246 | 11.094 | 0,73 | 0,68 |

| | | | | | |
|------|------------|------------|--------|------|------|
| 2012 | 80.073.379 | 77.965.379 | 11.811 | 0,66 | 0,68 |
|------|------------|------------|--------|------|------|

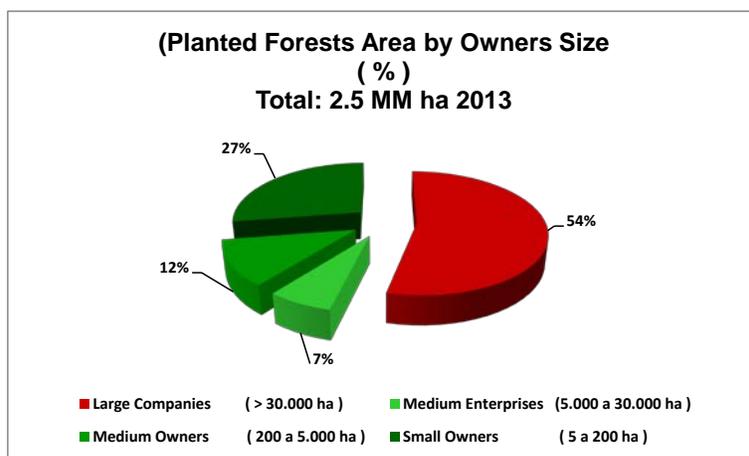
(*) Import dependency ratio (IDR) is defined as: $IDR = \frac{\text{imports} \times 100}{(\text{production} + \text{imports} - \text{exports})}$. The complement of this ratio to 100 would represent that part of the domestic food supply that has been produced in the country itself.



CEREAL IMPORT DEPENDENCY RATIO (Source: FAOSTAT)

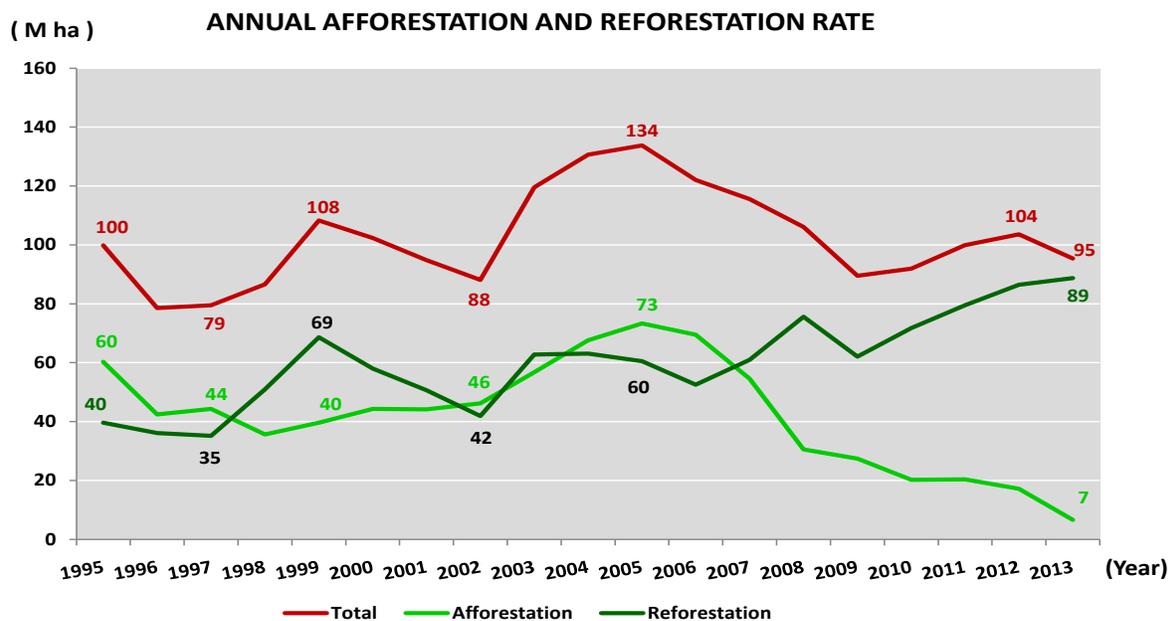


SHARE OF FOOD IN MERCHANDISE IMPORTS AND EXPORTS (Source: FAOSTAT)



Source: Grosse and Barros, 2013⁶⁶

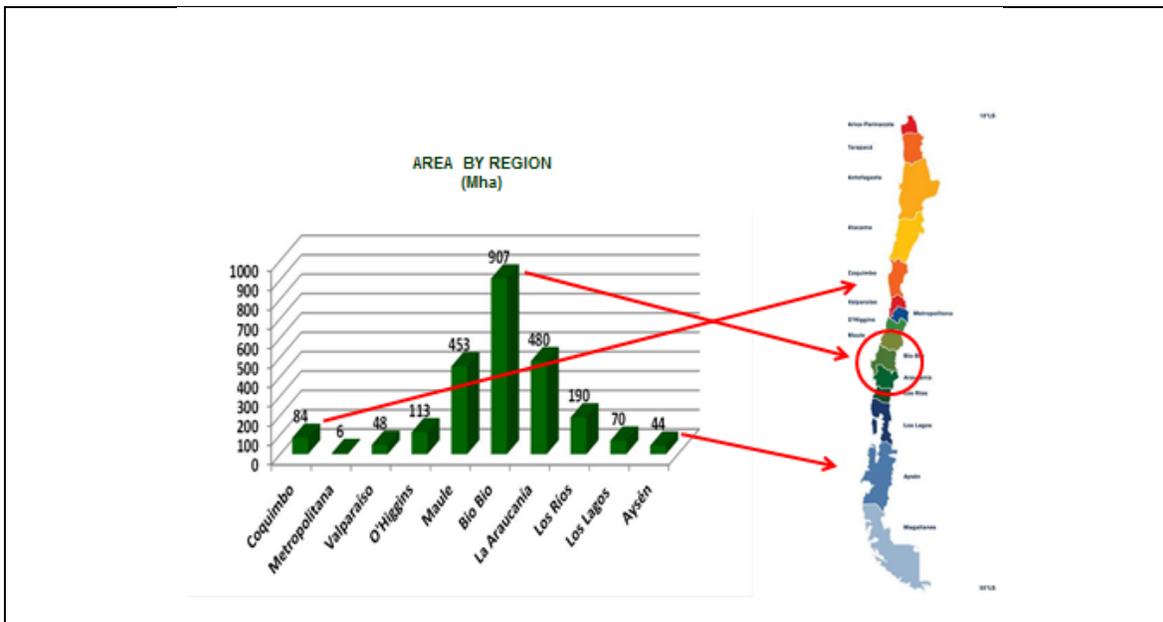
PLANTED FOREST AREA BY OWNERS SIZE



ANNUAL AFFORESTATION AND REFORESTATION (Source: INFOR, 2015⁶⁷)

⁶⁶ Grosse, Hans and Barros, Santiago (2013): RESULTADOS DE UNA POLITICA ESTATAL ESTABLE DE FOMENTO FORESTAL. EL CASO CHILENO Instituto forestal. Ciencia e Investigación Forestal INFOR Chile Volumen 19 N° 1 Abril 2013.

⁶⁷ INFOR, 2015: El sector forestal chileno 2014. En www.infor.cl



PLANTATIONS BY REGIONS (Source: INFOR, 2013⁶⁸)

CONTRIBUCION OF FORESTRY INCENTIVES (Source: CONAF, 2015⁶⁹)

| CONTRIBUCION OF FORESTRY INCENTIVES (1974-2014) - in US\$ Nominal | Phase I | Phase II | AMOUNT |
|----------------------------------------------------------------------|-----------------------|-------------------------|-------------|
| | 1974-1997 D.L. 701 | 1998-2014 LEY 19.561 | |
| Area planted (ha) | 952.122 | 527.165 | 1.479.287 |
| Area planted (ha) in PPF | 47.606 | 199.366 | 246.72 |
| PPF % | 5 | 38 | |
| Amount invested (US\$) | 175.005.835 | 390.519.704 | 565.525.539 |

⁶⁸ INFOR: El sector forestal chileno 2013. Instituto Forestal

⁶⁹ CONAF, 2015: Gerencia de Desarrollo y Fomento de CONAF.

| | | | |
|-------------------------------------------------------------|-----------|-------------|-------------|
| Amount invested (US\$) in PPF | 8.750.292 | 188.180.312 | 196.930.604 |
| PPF % | 5 | 48 | |
| PPF: Small landowner. | | | |
| Net plantation area (Dec. 2013): 2.447,592 ha | | | |
| Area used for forestry plantations (Dec 2013): 3,000,000 ha | | | |

PRIVATE INVESTMENT IN FORESTRY DEVELOPMENT; IN THOUSANDS OF US \$ NOMINAL

(Source : CORMA , 2015⁷⁰)

| SECTOR/PERIOD | 1990-1999 | 2000-2009 | 2010-2011 | 2012-2015* |
|------------------------------|--------------|--------------|------------|--------------|
| Aforestation | 380 | 270 | 43 | 66 |
| Pulp and paper | 3.150 | 3.470 | 298 | 2.446 |
| Sawmills and remanufacturing | 300 | 313 | 133 | 3 |
| Boards and plywood | 185 | 536 | 55 | 429 |
| Others | 120 | 243 | 78 | 70 |
| TOTAL | 4.135 | 4.832 | 608 | 3.014 |

*Estimated projection

CONSUMPTION OF MAJOR FOREST PRODUCTS

Consumption = production + imports – export (Source: INFOR, 2014⁷¹)

⁷⁰ CORMA 2015: Presidencia

⁷¹ INFOR, 2014: Anuario Forestal 2014. Boletín Estadístico 144, 159p.

| YEAR | Sawn timber | Pulp | News paper | Boards | Chips | Poles |
|------|--------------------------|-------------|-------------|--------------------------|--------------------------|--------------------------|
| | Thousands m ³ | thousands t | thousands t | thousands m ³ | Thousands m ³ | Thousands m ³ |
| 1990 | 1.621 | 225 | 56 | 169 | 2.157 | |
| 1991 | 1.758 | 449 | 60 | 157 | 2.157 | |
| 1992 | 1.810 | 471 | 55 | 239 | 1.280 | |
| 1993 | 1.961 | 461 | 46 | 271 | 2.876 | |
| 1994 | 2.027 | 370 | 52 | 318 | 2.450 | |
| 1995 | 2.130 | 499 | 77 | 381 | 2.786 | |
| 1996 | 2.432 | 497 | 84 | 405 | 2.947 | |
| 1997 | 2.599 | 506 | 61 | 460 | 3.018 | |
| 1998 | 2.485 | 473 | 68 | 445 | 3.101 | |
| 1999 | 2.707 | 543 | 73 | 377 | 344 | |
| 2000 | 2.804 | 775 | 74 | 450 | 3.507 | 158 |
| 2001 | 2.684 | 517 | 112 | 456 | 3.347 | 152 |
| 2002 | 2.750 | 565 | 56 | 537 | 3.519 | 172 |
| 2003 | 2.884 | 664 | 116 | 551 | 4.102 | 123 |
| 2004 | 3.215 | 808 | 27 | 691 | 4.498 | 162 |
| 2005 | 3.319 | 635 | 114 | 703 | 4.765 | 192 |
| 2006 | 3.769 | 919 | 74 | 844 | 4.617 | 163 |
| 2007 | 3.116 | 828 | 77 | 715 | 5.353 | 161 |
| 2008 | 2.991 | 928 | 71 | 757 | 4.943 | 114 |
| 2009 | 2.851 | 695 | 61 | 632 | 4.570 | 126 |
| 2010 | 3.286 | 744 | 67 | 894 | 4.752 | 175 |
| 2011 | 3.334 | 893 | 70 | 792 | 5.172 | 226 |
| 2012 | 3.566 | 777 | 87 | 980 | 5.529 | 199 |
| 2013 | 3.853 | 622 | 75 | 1053 | 6.150 | 249 |

Growth rates (% annual period)

| | | | | | | |
|-----------|-----|------|------|------|-----|-----|
| 2000/1990 | 5,6 | 13,2 | 2,8 | 10,3 | 5,0 | ... |
| 2010/2000 | 1,6 | -0,4 | -1,0 | 7,1 | 3,1 | 1,0 |
| 2013/1990 | 3,8 | 4,5 | 1,3 | 8,3 | 4,7 | ... |
| 2013/2000 | 2,5 | -1,7 | 0,1 | 6,8 | 4,4 | 3,6 |

HARVESTED INDUSTRIAL TIMBER - NATIVE WOODS VS. PLANTATION (Thousands of m³)

Source INFOR 2014⁷²

| YEAR | NATIVE | TOTAL | % NATIVE |
|------|--------|--------|----------|
| 1990 | 2.289 | 14.259 | 16,1 |
| 1995 | 3.967 | 21.401 | 18,5 |
| 2000 | 1.476 | 24.437 | 6,0 |
| 2005 | 649 | 32.657 | 2,0 |
| 2010 | 425 | 34.560 | 1,2 |
| 2013 | 315 | 41.040 | 0,8 |

CHILE FOREST PRODUCTS EXPORT TRENDS

⁷² INFOR, 2014: Anuario Forestal 2014. Boletín Estadístico 144, 159p.
<http://wef.infor.cl/publicaciones/anuario/2014/Anuario2014.pdf>

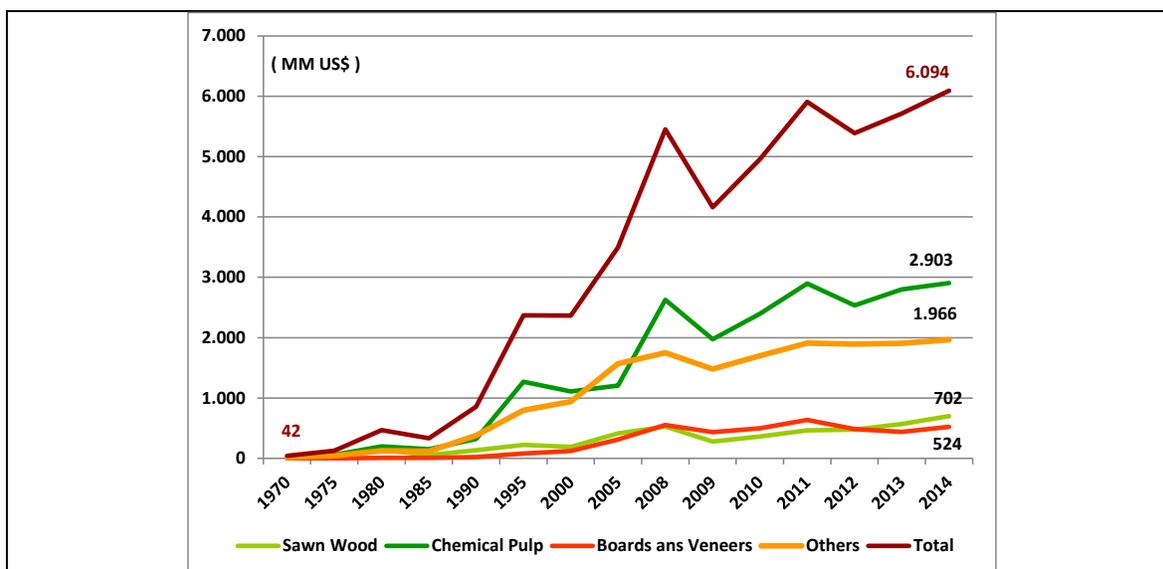
| Trends in Export of Forest Products in the country | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|----------------------|---------------|-------------|---------------|-----------------|---------------|--------------------|---------------|
| source: http://wef.infor.cl/consultas_linea/consultaenlinea.php?opcion=2&subopcion=1 | | | | | | | | | | |
| Año | Sawnwood (C) | | Chemical Wood Pulp © | | Wood boards | | Papel periodico | | Chips (Eucalyptus) | |
| | {1000\$US} | {1000m3} | {1000\$US} | {1000 tonnes} | {1000\$US} | {1000 tonnes} | {1000\$US} | {1000 tonnes} | {1000\$US} | {1000 tonnes} |
| 1990 | 124.494 | 1.002 | 444.383 | 1.584 | 1.895 | 78 | 63.861 | 115 | 35.263 | 575 |
| 1991 | 130.756 | 984 | 407.460 | 1.571 | 24.916 | 98 | 67.688 | 115 | 54.863 | 920 |
| 1992 | 102.864 | 799 | 535.706 | 1.793 | 23.619 | 82 | 56.813 | 112 | 52.098 | 861 |
| 1993 | 126.688 | 707 | 518.278 | 1.888 | 4.633 | 142 | 68.787 | 143 | 35.338 | 526 |
| 1994 | 145.905 | 931 | 761.691 | 2.280 | 68.574 | 168 | 77.183 | 151 | 63.232 | 1.007 |
| 1995 | 209.897 | 1.202 | 1.308.471 | 2.589 | 67.367 | 172 | 111.305 | 136 | 64.438 | 881 |
| 1996 | 174.672 | 1.062 | 806.349 | 2.444 | 75.426 | 207 | 98.038 | 138 | 59.086 | 772 |
| 1997 | 205.751 | 1.219 | 791.416 | 2.567 | 83.917 | 231 | 76.601 | 146 | 50.349 | 756 |
| 1998 | 162.762 | 1.143 | 732.635 | 2.587 | 67.550 | 188 | 69.116 | 117 | 68.645 | 990 |
| 1999 | 156.679 | 1.177 | 785.873 | 2.758 | 96.228 | 247 | 85.994 | 164 | 90.252 | 1.452 |
| 2000 | 171.985 | 1.269 | 1.070.894 | 2.767 | 106.093 | 275 | 104.144 | 183 | 103.680 | 1.892 |
| 2001 | 167.959 | 1.342 | 860.802 | 3.104 | 130.533 | 343 | 110.467 | 176 | 128.466 | 2.396 |
| 2002 | 199.098 | 1.553 | 832.737 | 3.238 | 156.964 | 411 | 88.780 | 219 | 117.016 | 2.353 |
| 2003 | 266.304 | 2.061 | 962.849 | 3.743 | 180.935 | 485 | 93.017 | 229 | 128.240 | 2.791 |
| 2004 | 324.261 | 2.309 | 1.263.716 | 4.250 | 221.527 | 482 | 118.397 | 247 | 135.555 | 2.645 |
| 2005 | 401.370 | 2.562 | 1.257.163 | 4.445 | 293.943 | 571 | 133.376 | 248 | 158.036 | 2.820 |
| 2006 | 391.719 | 2.367 | 1.346.842 | 4.203 | 324.662 | 587 | 160.458 | 261 | 186.671 | 3.227 |
| 2007 | 553.587 | 2.782 | 1.968.602 | 5.007 | 389.035 | 683 | 143.240 | 232 | 215.197 | 3.479 |
| 2008 | 515.413 | 2.635 | 1.935.228 | 4.844 | 533.770 | 871 | 150.734 | 220 | 326.284 | 4.436 |
| 2009 | 273.254 | 1.691 | 1.430.735 | 4.128 | 418.626 | 786 | 138.477 | 232 | 275.469 | 3.798 |
| 2010 | 358.614 | 1.772 | 1.695.800 | 3.626 | 488.769 | 785 | 123.414 | 207 | 332.566 | 4.664 |
| 2011 | 459.492 | 2.073 | 2.115.739 | 4.233 | 618.131 | 976 | 142.245 | 212 | 404.253 | 5.138 |
| 2012 | 478.788 | 2.181 | 1.858.362 | 4.483 | 489.420 | 716 | 108.268 | 161 | 368.291 | 4.395 |
| 2013 | 572.021 | 2.483 | 2.106.455 | 4.954 | 477.013 | 668 | 64.803 | 97 | 313.256 | 3.902 |
| 2014 | 704.270 | 2.871 | 2.450.125 | 5.449 | 560.101 | 770 | 36.511 | 54 | 307.742 | 4.130 |

FOREST IMPORTS

| Import quantity (top 5 items) FAOSTAT | | | | | |
|-------------------------------------------------------------------------------------------------------|----------------|------------------------|----------------|------------------------|----------------|
| Source: http://faostat3.fao.org/download/F/FO/E | | | | | |
| 1990 | | 2000 | | 2014 | |
| Item | Value (tonnes) | Item | Value (tonnes) | Item | Value (tonnes) |
| Printing+Writing Paper | 43.000 | Other Paper+Paperboard | 161.000 | Other Paper+Paperboard | 308.250 |

| | | | | | |
|-------------------------|--------|-------------------------|---------|-------------------------|---------|
| Other Paper+Paperboard | 30.000 | Wrapg+Packg Paper+Board | 161.000 | Printing+Writing Paper | 299.647 |
| Wrapg+Packg Paper+Board | 30.000 | Case Materials | 100.390 | Wrapg+Packg Paper+Board | 297.318 |
| Ind Rwd Wir (C) | 4.770 | Printing+Writing Paper | 96.872 | Case Materials | 218.958 |
| / | / | Coated Papers | 94.200 | Uncoated Woodfree | 153.869 |

| Import value (top 5 items) FAOSTAT | | | | | |
|-------------------------------------------------------------------------------------------------------|------------------|-------------------------|------------------|-------------------------|------------------|
| Source: http://faostat3.fao.org/download/F/FO/E | | | | | |
| 1990 | | 2000 | | 2014 | |
| Item | Value (1000\$US) | Item | Value (1000\$US) | Item | Value (1000\$US) |
| Printing+Writing Paper | 43.000 | Other Paper+Paperboard | 100.181 | Printing+Writing Paper | 311.918 |
| Other Paper+Paperboard | 34.000 | Wrapg+Packg Paper+Board | 100.181 | Other Paper+Paperboard | 270.579 |
| Wrapg+Packg Paper+Board | 34.000 | Printing+Writing Paper | 92.602 | Wrapg+Packg Paper+Board | 245.569 |
| Ind Rwd Wir (C) | 158 | Coated Papers | 90.300 | Uncoated Woodfree | 157.672 |
| / | / | Case Materials | 68.855 | Coated Papers | 147.774 |



Source INFOR, 2015⁷³

FOREST PRODUCT EXPORTS

ACTUAL EROSION IN THOUSANDS OF HECTARES BY CENTRAL REGIONS REGION

(Source: CIREN, 2010)⁷⁴

| REGION/EROSION | Without | Low | Moderate | Severe | Very severe | No apparent | Others | Eroded | TOTAL |
|----------------|--------------|------------|--------------|--------------|-------------|-------------|--------------|--------------|--------------|
| Valparaiso | 162 | 244 | 325 | 258 | 80 | 163 | 368 | 907 | 1.600 |
| Metropolitana | 354 | 93 | 189 | 213 | 187 | 68 | 435 | 683 | 1.541 |
| O'Higgins | 331 | 96 | 454 | 197 | 115 | 126 | 320 | 861 | 1.638 |
| Maule | 656 | 349 | 416 | 378 | 336 | 453 | 446 | 1.479 | 3.034 |
| TOTAL | 1.503 | 782 | 1.384 | 1.046 | 718 | 810 | 1.569 | 3.930 | 7.813 |

⁷³ INFOR, 2015: El sector forestal chileno 2014. In www.infor.cl

⁷⁴ CIREN (2010): Determinación de la erosión actual y potencial d los suelos de Chile. Publicación 139. Registro de propiedad intelectual 199.974; ISBN: 978-956-7153-91-6. 285p.

ANNEX II: DESCRIPTION OF FORESTRY LEGISLATION AND AGRICULTURAL POLICY INSTRUMENTS

Description of Forestry Legislation

- **D.L. 701 of 1974. It fixes a legal regime for the forestry soils or preferably suitable for afforestation and it establishes norms of encouragement on the matter:**
 - For 20 years and for all types of owners.
 - Non expropriation of the land (APF).
 - Subsidies for afforestation or dune stabilization of 75% of these direct costs, on APF (only adequate for forestry) soils.
 - Regulates any type of intervention of forests and obliges a prior management plan.
 - Makes reforestation mandatory.
 - Subsidies for annual administration expenses.

- **Law N° 19.561 of 1998. Modifies DL. N° 701;**
 - Keep state incentives for afforestation.
 - For one time for each area and for 15 years.
 - Focused on small and medium forest owners.
 - Incorporates incentives for recuperation of degraded soils.
 - Indigenous persons and communities may receive a bonus when the land has been object to previous bonuses if the harvest were done by persons other than the indigenous persons.

- **Law N° 20.488 of 2011. Prorogates validity of D.L 701 and increases afforestation incentives**
 - Keeps state incentives for afforestation.
 - For one time for each area and for 3 years.
 - There is a bonus scheme for large, medium and small landowners, using as a reference 50%, 75% and 90% of the estimate cost for CONAF (Corporación Nacional Forestal - National Forest Service).
 - Incorporates incentives for the recuperation of degraded soils.
 - Indigenous persons and communities may receive a bonus when the land has been object to previous bonuses if the harvest were done by persons other than the indigenous persons.

- **Law N° 20.283 of 2008. For Recuperation of the Native Forest and Forestry Encouragement:**
 - Objectives: Protection, recuperation and improvement of native forests, with the purpose of ensuring forest sustainability and the environmental policy.
 - A conservation fund is included for this, as is recuperation and sustainable management for the native forest, which is annual and competitive, about 8 MM US\$ (4 MM US\$ for small landowners and 4 MM US\$ for other applicants), for timber projects, non-timber and for conservation presented by forest owners.
 - Norms:
 - Enforceability of Management Plan prior to any intervention.
 - Harvest shall respect the water quality, avoid deterioration of soils and ensure conservation of biological diversity.
 - Prohibits cutting and destruction of native trees and bushes within a distance of 500 meters from glaciers.
 - Prohibits individuals from cutting and destroying native vegetable species classified in any conservation category that is endangered, vulnerable and/or rare or in which there is not enough information regarding its species.
 - Enforceability of reforestation after felling in a native forest, which may be obtained by artificial restocking, natural regeneration or a combination of both.
 - Activities to be reclaimed:
 - Activities that favor regeneration, recuperation or protection of *xerophytic formations* of high ecological value or conserved native forests. Up to US\$ 400/ha.
 - Silvicultural activities aimed at the collection of non-timber forestry products. Up to US\$ 400/ha.
 - Silvicultural activities aimed at managing and recuperating native forests for timber production purposes. Up to US\$ 800/ha.
 - Elaboration of Forestry Management Plans designed following the sorting criterion. Up to US\$ 24/ha.

- Forest Research: Yearly Public funds for applying to research projects referring to native forest and ecosystems (about 1,8 MMUS\$/year).

- **Legislation of the Environment:**

Law Nº 19.300 of 1994 and modified in the year 2010 of General Basis of the Environment:

It seeks ensuring the constitutional right to live in a pollution free environment.

- Projects susceptible to causing impact on the environment shall be subject to the Environment Impact Assessment System (SEIA).
 - In case of forestry:
 - Developments or forestry harvests in fragile soil, in lands covered by native forests.
 - Cellulose industries, pulp and paper, chipping plants, elaborated with wood and sawmills (All industrial dimensions (defined by law)).
 - Mandatory management plans and included within them measures of:
 - -Water supply maintenance
 - -Soil conservation
 - -Keeping landscape value
 - -Protection of endangered species.
 - Obliges the State to administer a National System of Protected Wild Areas, which shall also include parks and marine reserves.
 - Allows the voluntary creation of protected wild areas of private property.

Description of Agricultural Policy Instruments

Soil productivity

The program:

The purpose of the program is to increase social and technical productivity, supporting the adoption of production systems, recovering sustainability on degraded soils.

The program is justified based on arguments as follows:

The purpose of the program is to help farmers adopt sustainable production systems, recovering degraded soils. The program justifies on the following prospects:

- Grasslands increases 3-5 times forage production (biomass or dry matter) and livestock production by 200-400 %, preserving soil.
- Erosion losses were reduced in 4 to 6 times.

The state incentives vary between 50-80 % of net costs associated inputs, labor and technical advice required for the execution of each subject.

○ **Target Population**

The target population covered by the program is the private farmers working with degraded soils. Potentially the program may reaches 24,2 million hectares between Metropolitana and Los Lagos region (the most important agricultural areas; Figure 15), considering 228.742 farmers (for Phosphate fertilization on 6.584.497 hectares), 128 .507 farmers (for Calcareous Amendments , on 4.348.718 hectares), 127.669 farmers (for Soil Conservation on 3.100.120 hectares) and 106.225 farmers (for planting and regenerating prairies on 2.250.597 hectares .

SURFACE AND NUMBER OF OWNERS FOR THE TARGET POPULATION

(Source : Gaymer *et al.* 2009)

| <i>phosphate</i> fertilization | | <i>calcareous</i> amendments | | soil conservation | | seeding and regenerating | |
|--------------------------------|------------|------------------------------|------------|-------------------|------------|--------------------------|------------|
| Ha | Num. Prop. | Ha | Num. Prop. | ha | Num. Prop. | Ha | Num. Prop. |
| 6.584.497 | 228.742 | 4.348.718 | 128.507 | 3.100.120 | 127.669 | 2.250.597 | 106.225 |



CHILE REGIONS AND THE MAIN AGRICULTURAL AND FOREST AREA

○ Program practices:

- Practice 1: Phosphate fertilization to correct deficit.
- Practice 2: Conservation practices to prevent soil loss by using methods such as zero or minimum tillage, incorporation of crop residues, use of contour lines, contour tillage, and establishment of forest cover on soils with severe erosion etc.
- Practice 3: Calcareous amendments to stimulate nutrient incorporation, like calcium carbonate, in order to reduce or neutralize acidity and aluminum toxicity.
- Practice 4: Prairie plantings and regenerating permanent vegetation cover on degraded soils.

Between 2005 and 2008 the program served annually between 8-11% of the potential population, totaling 39% in four years. It is concluded that supporting small property is essential because without subsidy, program practices wouldn't be applied in opposite to what would happen on bigger farms.

COVERAGE ACHIEVED FOR THE YEARS 2005 to 2008

(Source : Gaymer et al., 2009)

| Year | Number of farmers | | | Hectares | | |
|--------------|-------------------|----------------|------------|------------------|----------------|------------|
| | Potential | Real | Coverage % | Potential | Real | Coverage % |
| 2005 | 353.106 | 36.166 | 10 | 2.420.000 | 228.231 | 9 |
| 2006 | 353.106 | 37.284 | 11 | 2.420.000 | 228.721 | 10 |
| 2007 | 353.106 | 36.096 | 10 | 2.420.000 | 239.160 | 10 |
| 2008 | 353.106 | 28.269 | 8 | 2.420.000 | 153.019 | 6 |
| TOTAL | 1.412.424 | 137.815 | 39 | 9.680.000 | 849.131 | 35 |

The incentives for recuperating degraded soils have fluctuated for instance between 59 and 67 million annual USD between the years 2005 and 2009, where two thirds of the parts have been channeled through INDAP through medium-sized agricultural owners (Table 35).

INCENTIVES FOR RECUPERATING DEGRADED SOILS

(Source: Gaymer et al. 2009)⁷⁵

| YEAR | TOTAL | Budget | Budget |
|------|--------------|--------|--------|
| | US\$ nominal | SAG% | INDAP% |
| 2005 | 66.828.510 | 33,1 | 66,9 |
| 2006 | 66.101.216 | 36,0 | 64 |
| 2007 | 64.394.355 | 35,2 | 64,8 |
| 2008 | 59.026.382 | 35,0 | 65 |
| 2009 | 63.894.817 | 3,3 | 66,7 |

Decree in Force of Law 235, published on 11.15.1999 that establishes incentive systems for recuperating degraded soils.

⁷⁵ Gaymer M., Arenas, D., Salgado E., Valdebenito G. (2009): Informe final de evaluación; programa de suelos degradados; MINAGRI; INDAP, SAG. 201p.

- An incentive system is established for a period of 10 years. Its objective is to stimulate the realization of practices destined to the recuperation of degraded soils. These are due to a lack of phosphorus, excess of acidity, levels of erosion, deterioration of vegetative cover or for having other physical, chemical or structural limitations for its use. They cannot be used efficiently or in a sustainable way in agricultural production.
- By farm it is understood any location whose land is preferably aimed at agricultural or forestry production, or that it be economically susceptible to said productions in a predominant way.
- The incentive system shall constitute a tax rebate of the net costs of management practices and recuperation of soils, such as phosphate fertilization for correction, the increase of production potential of poor soils, adding limestone amendments, cleaning, enabling and leveling soils, recuperation and establishment of permanent vegetative covers, exclusion of use of protection areas, soil stabilization, means of regulation, salinity control and control of de-certification processes of soils and others that pursue the same objective.
- Incentives shall be granted to small landowners through the Institute for Agricultural Development (INDAP) and Chile's Agricultural Inspection Service (SAG) to non-small producers through public tenders (see chapter 2.7).

Law 20.412 published on 02.09.2010 which establishes that an incentive system for agri-environment sustainability of agricultural soils.

- An incentive system is established for a period of 12 years to contribute to the sustainability of the soil, whose objectives are the recovery of the productive potential of maintaining the level of improvement achieved and degraded agricultural soils.
- Applies in agricultural soils and land whose surface is preferably intended for agricultural production, regardless of their location. Those productive units composed of a role or higher are considered in this definition, and the real property or real rights to such property owners to which they are indigenous communities, assigns individual joys and holders of other rights of use in accordance with Law No. 19.253.
- For sustainability refers to the ability of the soil to maintain its key physical chemical conditions necessary to sustain agricultural production processes.
- Recovery of degraded agricultural soils: those measures to repair or chemical, physical or biological deficit that has a particular soil to bring the minimum technical level to deal adequately and sustainably the production process.
- Management plan: a detailed description of the activities through which the producer undertakes to achieve the objectives of raising the current condition of the soil, ensuring environmental sustainability.
- Small and medium sized farmers and members of indigenous communities are considered.

- The incentive system will consist of a state bonus of the net costs of the subsidized activities described and defined in this law. The incentives will be awarded through the Institute of Agricultural Development (INDAP) and the Agricultural and Livestock Service (SAG) through public tenders. In the case of practices aimed at the recuperation of agricultural land, open to all farmers covered by this law. Concerning those practices aimed at maintaining agricultural land may only apply small farmers. They are credited:

- Incorporation of phosphorous based fertilizers.
- Incorporation of essential chemical elements.
- Establishment of vegetative cover on uncovered soils or STIs When coverage is deteriorated.
- Use of soil intervention methods, the rotation of Among Others cultures, oriented to avoid STIs loss and erosion and to please STIs conservation.
- Elimination, cleaning or confinement of chemical or physical impediments.

- **Irrigation**

The program

The irrigated area in Chile reached the year 2007 1.108.559 hectares (www.censoagropecuario.cl), exceeding 41.690 ha (3.9%) the previous figure of 1997. 62 % of this area is concentrated in the regions of Maule (305.529ha), O'Higgins (213.176ha) and Bío-Bío (168.596ha) (Apey , 2012⁷⁶).

The most notable changes are recorded in increasing irrigation efficiency through the implementation of micro irrigation that reaches nearly 187.000 ha, while the traditional irrigation falls into more than 168 thousand hectares. In the central regions, where low rainfall caused by climate change is more noticeable, the major changes were carried out.

TECHNOLOGY CHANGES OF IRRIGATED AREAS BETWEEN 1997 AND 2007

(Source : Apey , 2012)

⁷⁶ Apey A (2012): Cambios territoriales y tecnológicos en el riego agrícola en Chile entre los años 1997 y 2007. Gobierno de Chile | Ministerio de Agricultura | Odepa. www.odepa.gob.cl

| REGION | number of properties | Traditional irrigation | mechanized irrigation | Micro-irrigation | Total irrigation |
|--------------------|----------------------|------------------------|-----------------------|------------------|------------------|
| | | Difference 2007/1997 | | | |
| Arica y Parinacota | 567 | 3.464,0 | 24,2 | 847,3 | 4.691,8 |
| Tarapacá | - 38 | 546,1 | 22,1 | 77,8 | - 390,6 |
| Antofagasta | 135 | 610,7 | 27,5 | - 31,3 | - 614,5 |
| Atacama | 841 | 652,3 | 3,4 | 4.718,8 | 5.374,5 |
| Coquimbo | 3.700 | 3.513,8 | 725,4 | 22.055,1 | 26.294,2 |
| Valparaiso | 615 | 13.463,2 | -691,3 | 32.077,7 | 17.923,2 |
| Metropolitana | - 1.191 | 36.207,7 | -2095,5 | 31.639,8 | - 6.663,4 |
| O'Higgins | - 2.149 | 45.245,9 | -251,2 | 50.022,4 | 4.525,3 |
| Maule | 4.664 | 56.042,7 | 2243,3 | 34.254,7 | - 19.544,7 |
| Bío-Bío | 2.514 | 33.258,3 | 15131,9 | 5.914,1 | - 12.212,3 |
| La Araucanía | 7.071 | 10.668,4 | 6073,8 | 3.809,5 | - 785,0 |
| Los Ríos | 1.227 | 11,8 | 2835,8 | 900,3 | 3.724,3 |
| Los Lagos | 273 | 57,1 | 761,2 | 1.070,3 | 1.888,6 |
| Aysén | - 215 | 1.239,5 | 1487,9 | 233,4 | - 523,8 |
| Magallanes | 323 | 1.940,1 | 338 | 16,2 | 18.001,8 |
| TOTAL | 18.337 | 167.687,8 | 26636,6 | 187.606,1 | 41.689,5 |

Significant is the increase in irrigated areas in dry zones (central-north Chile) between Copiapó valley and Aconcagua River and in the coastal mountain range which have been planted with fruit trees and vineyards (Apey, 2012). Adding Valparaiso, Metropolitan and O'Higgins regions an area of 67.747,3 ha is reached. Some of these plantations are located in soils classified by its heavy slopes between classes VI and VII, in areas classified as forest type "esclerófilo". Some of these areas lost their forest cover due to fires, which gave the option to agricultural use with fruit trees and vineyards.

Irrigation infrastructure investments over the past 25 years had been significant, reaching US\$ 1,567 billion and growing significantly every five year period. Of the total 62,7 % are subsidies.

**FIVE-YEAR PERIODS (1990-2014) IRRIGATION INVESTMENT IN US\$
(TOTAL PROJECT COSTS AND SUBSIDIZED AMOUNT
(Source: CNR⁷⁷)**

| PERIOD/CONDITION | Subsidies | Total project cost |
|------------------|--------------------|----------------------|
| 1990-1994 | 49.754.064 | 99.847.121 |
| 1995-1999 | 105.071.259 | 187.660.410 |
| 2000-2004 | 159.617.854 | 248.681.557 |
| 2005-2009 | 271.385.436 | 417.635.436 |
| 2010-2014 | 396.507.043 | 612.967.289 |
| TOTAL | 982.335.657 | 1.566.791.814 |

⁷⁷ CNR: COMISIÓN NACIONAL DE RIEGO; www.cnr.cl

Law 18.450 published on 10.30.1985. Its latest version is dated 11.21.2013. It approves norms for the encouragement of private investment in irrigation and drainage works.

The State, through the National Irrigation Commission (Comisión Nacional de Riego - CNR), shall subsidize the cost of research (studies), construction and rehabilitation of irrigation or draining works, as well as for integrated projects of irrigation or draining that incorporate the concept of multipurpose use; investment in equipment and mechanical irrigation or generation elements; and, in general, any irrigation works or other directly associated uses to the subsidized works, habilitation and connection, whose projects be chosen and approved by means established within this law.

Law 20.284 published on 09.30.2008. Modifies law 18.450 allowing for tenant farmers to apply for irrigation projects.

Law 20.401 published on 12.04.2009. Modifies law 18.450 specifying new objectives.

Article 1 is replaced by specifying that the State, through the National Irrigation Commission, will discount the cost of studies, construction and rehabilitation of irrigation and drainage works and investments in equipment and elements of mechanical irrigation or power generation, always that run to increase the irrigated area, improve water supply deficit in irrigated areas as improving the quality and efficiency of irrigation water application or enable agricultural soils with poor drainage and in general, all work start irrigation or other uses directly associated with reclaimed irrigation works, empowerment and connection, whose projects are selected and approved in the manner provided in this law.

Law 20.705 published on 11.21.2013. It modifies law 18.450, with the purpose of encouragement of private investment in irrigation or drainage works. It's including integrated projects and multiuse, whose cost exceeds 30.000 UF⁷⁸.

Article 1 is replaced by specifying that the State, through the National Irrigation Commission, will discount the cost of studies, construction and rehabilitation of irrigation and drainage, as well as comprehensive irrigation and drainage projects that incorporate the concept of

⁷⁸ (1 UF: US\$36,28 at 10 October 2015; UF 30.000 = US\$ 1.123.382)

multipurpose use; investments in equipment and mechanical elements generation or irrigation; and, in general, all the work of putting into irrigation or other uses directly related to the bonus works, empowerment and connection, whose projects are selected and approved in the manner provided in this law. The projects costing no more than 30.000 UF may apply for the maximum bonus set out in Articles 1 and 3 of this law, as applicable. Similarly, projects costing more than the amount mentioned above may apply to the aforementioned maximum bonus, in the part that does not exceed 30.000 UF. For each of the other incremental sections located above 30.000 UF, the maximum bonus that may apply will diminish in accordance with the provisions of the regulations.

Projects costing more than 15.000 UF must first obtain favorable recommendation of the Ministry of Social Development. Competitions for the bonus projects valued at more than 15.000 and less than 250.000 UF ⁵¹ are governed by a special procedure laid down in the regulations. "

Summary Action plans

FORESTRY ACTION PLAN (PAF): It takes place between 1990 and 1994 based on an agreement signed between the Government of Chile, the Government of the Netherlands and FAO with a long-term perspective. It considers the participation of public and private institutions, NGOs, rural communities, trade associations, universities and experts, and was widely publicized. Its restriction is that it was not considered an element of state policy, but only as an orientation in the strategies of state forestry agency, CONAF. Despite this restriction, there is no doubt about its usefulness for the actions undertaken by the state later (www.infor.cl in library; www.fao.org/forestry/14832-022ca778caac39f375ad0653b49b6a860.pdf; the following paragraphs have been cited from the latter).

- Strengthen and expand the participation of forestry in national economic growth.
- Improve the contribution of forestry to the conservation of the environment and mitigation of pollutants and other adverse impacts.
- Guide the sectoral task for the prosperity of rural communities affected by poverty and located in forest areas.

To achieve these broad objectives, the PAF proposes a series of specific objectives:

1. Ensure that the use of forests and shrub formations and flora and associated wildlife, takes the concept of "sustainable yield".
2. To promote full use of land for forests through afforestation.
3. To promote the constant and diversified forest development, large, medium and small industries, and also to stimulate development, in order to add greater value to production.
4. To encourage the greening of the country, considering the protection of soils, water, and to the maintenance of biological diversity.
5. To promote the effective inclusion of forestry in rural development, as a tool to overcome poverty and marginalization, through mechanisms of financial and technical assistance and others.
6. To encourage improvement in quality, capacity and condition of human resources through education; training and safeguarding of their rights.

Moreover, the PAF said that the institutional framework, including policy, structure and organization of state agencies and forest legislation required modernizing and adapting to the challenges facing the sector.

To achieve these objectives, the PAF makes a number of specific proposals regarding: (i) the resources, production and forestry exports, designed to increase the quantity and quality of both native and planted forest resources; to modernize SMEs and boost export a second phase, with higher value-added products; (ii) the preservation and conservation of forest ecosystems, where it is proposed to encourage research on native forests, in order to get more information about their location, growth, health and productivity; complete SNASPE (Sistema nacional de áreas silvestres protegidas – National System of Protected Areas of the State) incorporating ecosystems not represented and strengthen its administration; (iii) rural development, seeking to integrate rural people to forest development and (iv) on forest institutions and the strengthening of forestry research.

PROPOSALS FOR A NATIONAL FORESTRY POLICY: This proposal in book form is the result of CIFAG⁷⁹ / FAO / Facility "Proposals for the development of a National Forest Policy (NFP) for Chile" project, developed during 2007 and 2008, Forestry Engineers Association AG (www.cifag.cl) with a long-term perspective. The expert group making the proposal corresponds to nine non-governmental trade associations represented by the Association of Wood Industries (ASIMAD), the Forestry Engineers Association AG (CIFAG), the National Corporation for Forestry Students (CONECIF), the Chilean Wood Corporation (CORMA), the Confederation of Forest Workers (CTF), the united national union Confederation of medium, small, micro-industry, services and Chile craft (CONUPIA), the United Peasant and Ethnic People Movement of Chile (MUCECH), the National Union of Professionals of the National Forestry Corporation (SINAPROF) and the Chilean Society of Forestry. The dynamics of discussion are carried out in workshops with these previously named institutions.

The main consensuses achieved by the organizations are:

- a) Integration of all subsystems of the sector to redesign a strategy of equitable and sustainable development, based on the realization of its enormous potential, fully incorporating family farming to forestry business, especially in resource use, increasing the competitive advantages of the companies value-added wood by strengthening the sustainability of the Pro-Growth Agenda of micro, small and medium enterprises and contributing to the creation of a suitable environment to attract and develop investment and entrepreneurship.
- b) Strengthening of regional production chains (clusters), favoring in particular the small and medium enterprises, directing its development towards substantially

⁷⁹ CIFAG: Colegio de Ingenieros Forestales A.G. (Forestry Engineers Association AG)

increasing exports of higher value added and to supply the domestic market with a strong position against group chains distribution and imports.

c) Substantive development of conservation and utilization of forest resources and native forest land available in small and medium properties, especially favoring the incorporation of peasant family agriculture forestry business, by decentralizing the management of forest development with emphasis in its contribution to rural development, by investing at regional level prosecutors and private resources generated in forestry.

d) Development of the National System of Protected Areas of the State (SNASPE) to increase your tourist use and its contribution to rural development, along with strengthening its contribution to the national policies of biodiversity conservation.

e) Educational and technological reform in line with the overall sector strategy contained in this proposal.

f) Promotion and dissemination of current and potential contribution of the sector to sustainable development, in public opinion, substantively improve coordination with the development of other sectors of the national economy.

g) Establishment of formal public institutions to develop the "exclusive role of state regulatory policy, regulatory and oversight.

h) Create conditions to protect the forest sector of harmful agents such as forest pests and forest fires.

NATIONAL FORESTRY STRATEGY: This document has its genesis in resolution No 1.338 of the Ordinary Session No 542 Forest Institute, corresponding to May 23, 2011, a body (INFOR) chaired by the Minister of Agriculture and which was discussed on existing demand and iteratively raised by different sectors of the forestry sector on the need for an explicit forestry policy of long-term state. Finally, it was as a guiding document for the sectoral strategy to follow financed by the Fund for Agrarian Innovation (FIA). The committee of experts responsible for generating the document is the executive director of CONAF, INFOR executive director, national technical manager INFOR, President of PYMEMAD AG plus a director, a representative of MUCECH, President of CORMA AG and a representative of ODEPA and a representative of PASO (MUCECH-United Farmers and Ethnic Groups Movement of Chile). There was no campaign disclosure.

The strategic objectives and lines of action are defined:

Objective 1: Develop a culture and forestry awareness in the population, promoting the proper use of the forest.

a) Retrieve the brand "Chile, forest country" through social work and environmental validation of public and private forestry.

b) Incorporate forest development strategies in environmental education policies.

c) Develop a public program of brand valuation.

Expected outcome: Installation of a forest culture practiced as part of the daily life of the country's inhabitants.

Objective 2: To increase and diversify the forest production, promoting the development of alternative models of development.

a) Achieving greater productivity for small forest owners and forest owners lands suitable for forestry.

b) Development and implementation of strategic forest development programs.

c) Explicit redefinition of the scope of the public service in private economic activity in the forestry sector (industry, SMEs and small landowners of native forest and forest land).

Expected outcome: Identification of new models of management and development of instruments aimed at promoting these models, with emphasis on priority areas for forestry development. Increase in the relative share of these new models and actors in the national forest production.

Objective 3: Promote the development of native forests and forest ecosystems:

a) Generate a center of production development from native forests.

b) Develop appropriate to the scale of native forest owners technologies

c) Complement a strategy to promote the management (Native Forest Law)

d) Definition of the role of forestry in the management of the country's biodiversity.

e) To ensure the conservation of native forest resources, regulating its use and exploitation.

f) Increase the contribution of forestry to the protection of water and soil.

g) Develop a national program of biological and productive recovery of native forest resources.

h) Development of public-private partnerships to make significant progress in the connectivity of protected areas alliances.

i) Strengthening the private role in the conservation of natural heritage.

Expected outcome: Achieve a consolidated added value to the forest forestry model.

Objective 4: To promote the development of SMEs and forestry activities that takes place in rural environments.

- a) Definition of new instruments to support forestry.
- b) Implementation of plans, programs and projects with a strong emphasis on social forestry.
- c) Coordinate economic policies towards SMEs forest with the Ministry of Economy,
- d) Definition of priority areas for forest development and design of building flexible instruments, aimed at SMEs forest logging, family farming, native forest owners and landowners in the process of desertification.

Expected outcome: Development and implementation of rural forestry programs making forestry part of policies, plans and programs of rural development and forestry SMEs (PYMES).

CHILE EMPOWERS SUSTAINABLE FORESTRY COUNCIL: was created by Decree of the Ministry of Agriculture on November 28, 2011, which was published in the Official Journal on Monday March 12, 2012, in order to advise the Minister of Agriculture on matters related to the forestry sector in order to facilitate decision-making on the lines of action of the forest agenda of the Ministry, to guide the actions of the authorities and bodies of the Ministry related to forestry issues and to encourage communication between the Ministry and the different actors sector. It worked until the end of 2013. It was chaired by the Minister of Agriculture, participating Undersecretary of Agriculture, the Santiago Climate Exchange, President of the Association of Forestry Engineers for Native Forests AG, a representative of the careers of forestry, the President of the Forest Engineers Association, INFOR Executive Director, President of PYMEMAD, CORMA representative, a representative of the Sustainable Societies Foundation, a representative of the union of the construction, a representative of CONADI, the director of PAST President MUCECH (United Farmers and Ethnic Groups Movement of Chile), an expert counselor and the Executive Director of CONAF. The document was not disclosed.

11 areas of interest were identified:

- a) Keep the afforestation of land suitable for forestry.
- b) Promote the conservation of native forests.
- c) Integrate the native forest to produce goods and services.
- d) Strengthening small and medium forest enterprise.
- e) Improving the road and port infrastructure.

- f) Institutional line with the economic, social and environmental importance of the forestry sector.
- g) Strengthening the System of Protected Wild Areas of the State.
- h) Strengthening Forestry Research and Development.
- i) Promote a wood energy policy based on forest biomass
- j) Positioning of the public sector
- k) Conservation of forest biodiversity conservation issues and overexploited species.

The following theme areas were given priority:

- Institutions in line with the economic, social and environmental importance of the forestry sector.
- Integrate native forest to produce goods and services.
- Strengthening small and medium forest enterprise.
- Strengthening Forestry Research and Development.

INSTITUTIONS RELATED TO AGRICULTURE AND LIVESTOCK AREA

SAG: is the official agency, responsible for supporting the development of agriculture, forestry and livestock, through the protection and improvement of animal and plant health (www.sag.cl).

INDAP: its function is to "promote economic, social and technological development of small farmers and peasants, in order to help increase its business, organizational and commercial capacity, its integration into rural development process and optimize simultaneously the use of productive resources."(www.indap.cl).

CNR: its function is to ensure the increase and improvement of the irrigated area of the country, encouraging private construction and repair of irrigation and drainage and promoting the agricultural development of the producers of the benefited areas (www.cnr.cl).

ODEPA: is the office that conducts studies on the basis of sectoral statistics that are useful for agricultural planning (www.odepa.cl).

FIA is a foundation that promotes a culture of innovation in the agricultural, food and forestry sector, promoting and coordinating innovation initiatives that help improve farmers living conditions all regions of the country (www.fia.cl)

INIA: is the Agricultural Research Institute of Chile with presence in major production areas (www.inia.cl).

CIREN: is a technological institute giving support services to the Ministry of Agriculture, which provides information of renewable natural resources (www.ciren.cl)

FUCOA: delivers communications support for the development of the agrifood and forestry industry in Chile (www.fucoa.cl)

ACHIPIA: is an assisting committee, in order to coordinate, identify, formulate and implement policies, plans, programs and orientations and other activities relating to food safety, coordinating related agencies (www.achipia.cl).

AGROSEGUROS: agency to develop and promote the Agro Insurance, managing a state subsidy for the copayment of agricultural insurance (www.agroseguros.cl).

