

Swiss Cleantech in the

# CONSTRUCTION SECTOR IN CHILE



OFFICIAL PROGRAMM



IN COOPERATION WITH



### 1ST PLACE IN LATIN AMERICA

WEF Competitiveness Ranking (since 1998)

**> 200 SWISS COMPANIES IN CHILE**  
with more than 30.000 direct jobs

**FREE TRADE AGREEMENT**  
Chile-EFTA since 2004

**INVESTMENT PROTECTION AGREEMENT**  
Chile-Switzerland since 2002

**DOUBLE TAXATION AGREEMENT**  
Chile-Switzerland from 2011

### CHILE: AN OPEN AND COMPETITIVE MARKET

In 2010, Chile became the first South American country to join the Organization for Economic Co-operation and Development (OECD) and has a per capita income of USD 25.000 (PPP), the second highest in Latin America. The country has ratified **Free Trade Agreements with 65 markets**, including Switzerland, allowing it access to 88% of the world's GDP under privileged tariff conditions.

As a growing country, Chile has a high need for public and private infrastructure, so there are important opportunities in this area. **The Chilean government announced an ambitious USD 34 billion program to boost infrastructure projects through 2021.** The focus will be on highways, hospitals, reservoirs and airports, but also on improving energy distribution, railroads, tunnels, roads and the metro network.

Chile, because of its political and economic stability **and the clarity of its business environment**, appears attractive to companies investing for the first time in Latin America. However, by the end of 2019 and for the first time in decades, this stability was shaken by the protests, looting and riots that occurred. Afterwards, the crisis caused by the COVID-19 pandemic has hit Chile hard. Both events have prompted reforms and a constitutional review that, if successful, should improve social coexistence and reduce the economic gap in the country. In addition, the government has taken a series of measures to reactivate and stimulate the economy, including a plan for significant investment in the construction sector.

Bilateral relations between Switzerland and Chile are close. Looking at foreign trade, Swiss exports reached CHF 369 million in 2019. Products of Swiss origin are recognized for their high quality standards.



Source: Federal Customs Administration, 2019

## THE CONSTRUCTION INDUSTRY IN CHILE

In Chile, the main sectors in the construction field are two: **Housing and Infrastructure**. The first refers to all buildings designed to accommodate individuals or families for housing purposes. The second refers to the set of elements or services that are considered necessary for the operation of a region or city, enabling a society to live in a dignified, decent and appropriate manner, such as transportation, energy, health and telecommunications, among others.

The construction industry in Chile is one of the most important sectors of the country's economy, with a size of USD 18 billion per year. Nowadays, it accounts for 7,5% of the Gross Domestic Product. In addition, with respect to employment participation, 8,7% of the country's labor force currently works in the construction industry.

Furthermore, it is worth noting that 63,5% of total construction investment in Chile corresponds to housing, non-residential construction and engineering works, while the remaining 36,5% is machinery and equipment.

## HOUSING

Building for housing purposes

## INFRASTRUCTURE

Transport, energy, health, telecommunications

## MARKET SIZE

USD 18 billion

## 7,5% OF GDP

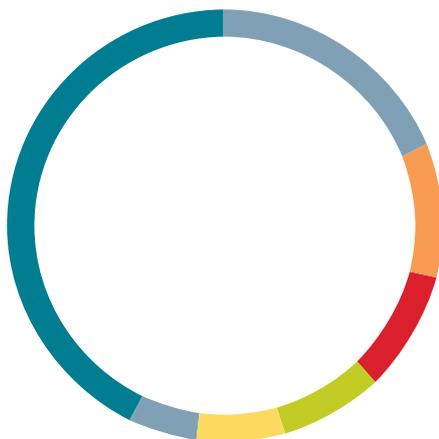
2019



PARTICIPATION IN GROSS DOMESTIC PRODUCT

Personal services	14%
Manufacturing	11%
Business Services	11%
Mining	10%
Trade	10%
<b>Construction</b>	<b>8%</b>
Others	37%

Source: Central Bank of Chile, 2019



PARTICIPATION IN EMPLOYMENT

Trade	19%
Manufacturing	10%
<b>Construction</b>	<b>9%</b>
Agriculture and Fishing	8%
Transport	6%
Tourism and gastronomy	5%
Others	43%

Source: Central Bank of Chile, 2019

### DIVERSE CLIMATE

which requires different building solutions

### CLIMATE CHANGE

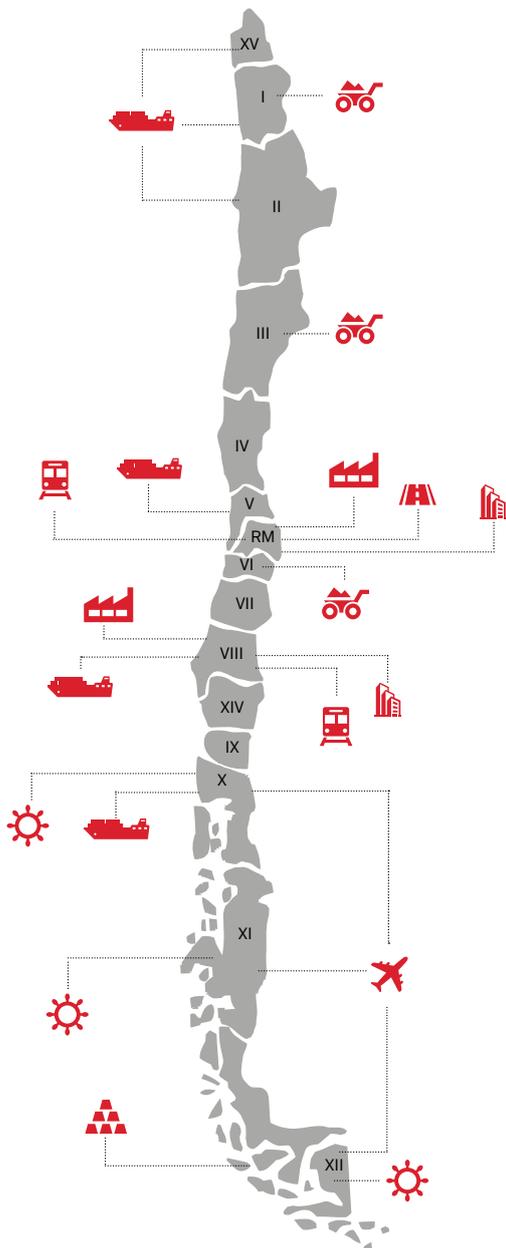
increases the demand for infrastructure adaptation

### MOST SEISMIC COUNTRY ON THE PLANET

has developed high standards in building regulations

### WOOD

should have a more prominent role



### CHARACTERISTICS OF THE CHILEAN CONSTRUCTION

Chile has a diverse climate, given the large extension in terms of latitude, the presence of the Coastal and Andean mountain ranges, the existence of the cold Humboldt Current and the presence of the Pacific Anticyclone and the Polar Front. In the north of Chile there is a lack of rainfall, the central zone is identified with temperate type climates, while in the south there is a cold and rainy climate.

However, if expectations about climate change materialize, Chile could become a highly vulnerable country in the face of this phenomenon. The country already has low-lying coastal areas, arid, and semi-arid forest areas, susceptibility to natural disasters, areas prone to drought and desertification, urban areas with air pollution problems and mountain ecosystems such as the Coastal and Andean mountain ranges.

Chile is the most seismic country in the world, so in terms of buildings, most of the constructions are traditional, that is, reinforced concrete and steel in regulated quantities in order to resist, although there are new technologies to minimize damage to infrastructure, such as seismic isolators and energy dissipators. In addition, extensive engineering studies, including the quality of the soil, ensure that the type of construction must be in accordance with high standards.

In the South of Chile there is an important center for the development of construction using wood, which could be an interesting alternative for the development of technological solutions based on this material.

### LEGEND

-  Mining
-  Ports
-  Industry
-  Road Infrastructure
-  Trains
-  Housing
-  Natural Resources
-  Thermal Comfort
-  Tourism

## INNOVATION IN CONSTRUCTION

It is important to highlight Chile in the field of innovation and development of new technologies. In fact, Chile is one of the countries with the most Green Buildings in Latin America. Important developments in the Cleantech area can be observed in the country, in areas such as solar energy, wind energy, thermal comfort and thermal generation, among others. The following is a list of projects executed in Chile to date:

## SOLAR PARKS

(EXCEEDING 100 MW OF INSTALLED CAPACITY)

Name	Gross Power (MW)	Region
El Romero Solar	196	Atacama
El Bolero	146	Antofagasta
Luz del Norte	141	Atacama
Finies Terrae	138	Antofagasta
Conejo Solar	104	Antofagasta
Quilapilun	103	Region Metropolitana
Amanecer Solar	101	Atacama
El Pelicano	100	Coquimbo

Source: Revista Electricidad, 2017

## LARGEST WIND FARMS IN CHILE

Name	Gross Power (MW)	Region
San Juan	193	Atacama
El Arrayán	115	Coquimbo
Sierra Gorda	112	Antofagasta
Los Cururos	109	Coquimbo
Taltal	99	Antofagasta
Talinay Oriente	90	Coquimbo
Valle de los Vientos	90	Antofagasta
Renaico	88	La Araucanía
San Pedro II	65	Los Lagos
Talinay Poniente	60	Coquimbo

Source: Diario Sustentable, 2017

## NATIONAL PLAN FOR SMART CITIES

The government is encouraging the evolution of construction towards *Smart Cities*, which includes both the development of management technologies and the services for citizens and businesses. In general, activities are mainly related to energy and the environment (smart environment), transportation and mobility (smart mobility), housing and buildings (smart buildings), and commerce and industry (smart economy). The basis of a *Smart City* is an efficient and future-oriented infrastructure that gives people and companies access to the "digital world".

## "CONSTRUCTION 4.0"

mainly seeks the automation of processes as well as the use of materials in harmony with the environment.

## THE COUNTRY WITH THE HIGHEST RADIATION IN THE WORLD

Considering the potential that exists in the north of the country, Chile could be a leader in the use of renewable energies and an example for the world. Although in the south the radiation is not so high, the capacity to generate energy from the sun is not low, as it is similar to countries like Switzerland.

## ENERGY EFFICIENCY LAW

Energy Efficiency Bill that seeks to increase energy security, reduce global emissions and local pollutants, increase productivity and competitiveness of the economy, as well as contribute to the sustainable development of the country.

## SANTIAGO 1ST PLACE SMART CITY IN LATIN AMERICA

and 66th place in the world.

Source: IESE Business School, 2018

# THE SUMMARY OF CLEANTECH OPPORTUNITIES

## CLEANTECH CUBE

The official database of the Swiss Federation of Cleantech opportunities worldwide

## EMBASSY OF SWITZERLAND S-GE CLEANTECH PROGRAM CHILEAN-SWISS CHAMBER OF COMMERCE

Market Analysis

Search for partners, distributors, customers

Fairs, Fact Finding Missions

Events & Networking

## TECHNOLOGY AND INNOVATION CENTERS

IDIEM Research and Development Center

Institute of Construction

Technological Center for Innovation in Construction

Innovation Group in Construction with Concrete

Interdisciplinary Center for Productivity and Sustainable Construction



## LARGEST CONSTRUCTION COMPANIES IN CHILE

by revenues, 2018

### Compañía

Sidgu Koppers	39%
Salfacorp	17%
Besalco	11%
Echeverría izquierdo	8%
Socovesa	8%
Ingevec	4%
Moller y Pérez-Cotapos	4%
Paz Corp	3%
Claro Vicuña Valenzuela	2%
Brotec	2%

Source: CLA50, 2019

## CONSTRUCTION SUPPORT FUNDS

CORFO SSAF Construction Challenge

SERCOTEC

## RELATED PUBLIC ORGANIZATIONS

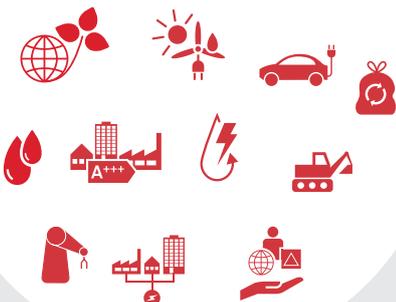
Ministry of Public Works

Ministry of Housing and Urban Planning

Ministry of Energy

Ministry of the Environment

## CLEANTECH INNOVATION



## MAGAZINES AND PUBLICATIONS

EMB Construcción Magazine

En Concreto Magazine, CCHC

Revista de la Construcción, Catholic University of Chile

EMB Construcción

Ingenieros Magazine - College of Engineers of Chile

# IN CONSTRUCTION IN CHILE

**FREE TRADE AGREEMENT**  
Switzerland (EFTA) and Chile have a free trade agreement since 2004.

## SWISS COMPANIES IN THE CONSTRUCTION INDUSTRY

ABB
BKS
EBP
Geobrugg
Geotest
Leica Geosystems
Lombardi
Marti
Pöyry
Schindler
Securiton
Sika
UAV Sensefly
Etc.

## TRADE ASSOCIATIONS

Chilean Chamber of Construction
College of Architects
College of Engineers
College of Civil Constructors and Construction Engineers
Chilean Glass and Aluminum Association
Chilean Institute of Steel Corporation
Association of Architects' Offices
Association of Structural Civil Engineers of Chile.
Chilean Institute of Cement and Concrete

## KEY PROJECTS

San Antonio Mega Port, incl. logistic centers and access roads
EFE: modernization of infrastructure and new train lines
Agua Negra Binational Tunnel
Expansion of Santiago's subway network
Américo Vespucio Oriente Highway (tunnel)

## UNIVERSITIES AND TECHNICAL TRAINING CENTERS WITH A FOCUS ON CONSTRUCTION

Pontifical Catholic University of Chile
University of Chile
University of Concepción
University Santiago de Chile
University of La Serena
University of Atacama
Metopolitan Technological University

## FAIRS AND EXHIBITIONS

ExpoEdifica
Construction Week by the Chilean Chamber of Construction
Expo Construcción Industrializada
Expo Ferretera
Expo Frío Calor 2020

**SWISS PAVILION**  
Participation in fairs and exhibitions organized by S-GE.

## OPPORTUNITIES FOR SWISS CLEANTECH COMPANIES

The following is a list of Cleantech opportunities that are needed in the construction industry in Chile.



### Air and environment

- Reduction of dust emissions during construction
- Dust filtration in enclosed areas



### Water and Wastewater

- Industrial wastewater treatment
- Efficient use of water resources
- Reduction of water pollution



### Recycling and waste

- Use of recycled materials for construction
- Construction material recycling
- Treatment of industrial and domestic waste
- Building with green walls
- Recycling of disused materials



### Site recovery

- Rehabilitation of contaminated sites during construction
- Landscape planning and rehabilitation to eliminate negative impact on the landscape after construction is completed



### Energy production and transport

- Innovative solutions for production of photovoltaic and wind energy in houses and buildings
- Transport of energy



### Energy efficiency

- Efficient lighting (LED technology)
- Construction with high efficiency equipment (motors, transformers)
- Solar collectors for water heating and energy systems
- Radiation / thermal comfort



### Mobility

- Use of energy-efficient cars, trucks and buses (electric drive, reduction of pollution from combustion engines)



### Prevention of natural and personal risks

- Workplace safety
- Disaster risk reduction (e.g., against earthquakes)
- Air quality control / gas detection

## FUTURE INVESTMENTS IN CONSTRUCTION IN CHILE

Chile is a trade liberal country, which attracts and allows for foreign investment. In 2020, the Chilean government launched the Infrastructure Plan for Mobility 2050 which aims at modernizing and updating the 1997 National Plan. In the long term this targets to promote and accelerate public infrastructure projects and will provide 50 billion USD over the next 30 years. This will support the goal of doubling the growth of the GDP. The investment will be distributed among roads (68%), trains (14%), ports (10%) and airports (8%).

Below is the detailed information on critical infrastructure investment until 2027:

## INFRASTRUCTURE PLAN FOR MOBILITY 2050

Total investment of 50 billion USD

Different sectors:

Routes (68%)

Trains (14%)

Ports (10%)

Airports (8%)

## CRITICAL INFRASTRUCTURE FOR DEVELOPMENT

(ESTIMATED INVESTMENT IN MILLIONS OF USD)

Sector	2018-2022	2022-2027
Water Resources	9.127	18.254
Energy	6.619	8.959
Telecommunications	12.317	24.838
Interurban roads	10.722	20.343
Urban roads	39.348	60.776
Airports	1.177	1.659
Ports	989	5.242
Railways	1.309	4.893
Logistics	624	1.785
Public Spaces	320	640
Health	4.789	10.448
Prisons	877	975
Education	2.249	15.693
<b>TOTAL</b>	<b>90.467</b>	<b>174.505</b>

Source: Chilean Chamber of Construction, 2018



## THE KEY PROJECTS IN THE COMING YEARS

### San Antonio Mega Port

One of the largest infrastructure projects planned is the San Antonio large-scale port (3,4 billion USD). This mega-project not only involves the construction of a port, but also the expansion of the region's transport capacity with the corresponding roads, railways and logistics terminals, which would result in additional investments of around 1,6 billion USD. Construction of the port is scheduled to begin in 2022 and to continue in stages until 2040.

### Modernization of infrastructure and new train lines

A number of new railway lines, as well as the modernization of existing track systems and rolling stock are expected to give new impetus to Chile's regions. The so-called "Chile on Rails" plan aims to invest more than 5 billion USD in 27 railway projects by 2027, which will massively expand passenger and freight rail transport.

### Water supply

Chile is one of the countries most exposed to climate change and is already facing water shortages. To counteract this, various projects are planned in the water sector, including the construction of dams, reservoirs, desalination plants, wastewater recycling systems, efficient irrigation systems and the use of pumping systems. The investment volume is expected to be between 5 and 6 billion USD.

### Tunnel projects

Other important projects are the extension of the Santiago Metro and the three major tunnel construction projects between Chile and Argentina, i.e. the Agua Negra and Las Leñas tunnels and the construction of a railway line between Santiago and Valparaiso.

## PUBLIC TENDER IN CHILE

At the beginning of the 1990s, Chile opened its doors to international markets and to opportunities for investment in public infrastructure through the Concession System, generating a partnership between the State and the private sector (Public-Private Partnership) that has allowed the development of important transformations in road and airport connectivity.

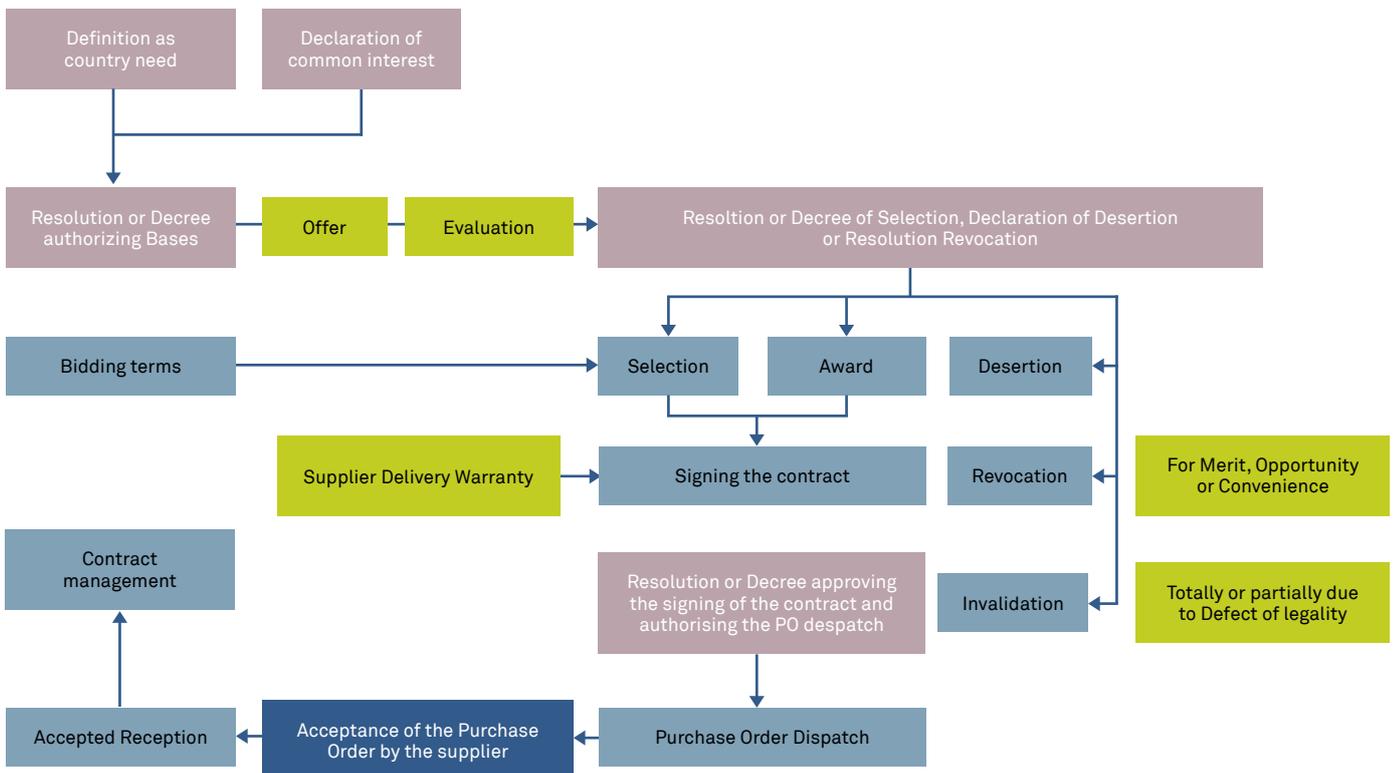
Historically, the development and conservation of public infrastructure in Chile was carried out as a fiscal investment by the Ministry of Public Works (MOP), through its different departments and divisions. With this new partnership, for the first time the private sector was involved in the investment process, operation and maintenance of infrastructure with specific standards, in exchange for direct charging of user fees or activation of subsidies.

To apply for different projects, Chile has the following online platforms:

### Portal

Ministry of Public Works	<a href="http://www.registro.mop.cl">www.registro.mop.cl</a>
ChileCompra	<a href="http://www.mercadopublico.cl">www.mercadopublico.cl</a>
Santiago Metro	<a href="http://www.metro.cl/licitaciones">www.metro.cl/licitaciones</a>
State Railways	<a href="http://www.efe.cl/licitaciones">www.efe.cl/licitaciones</a>
Copper Corporation	<a href="http://www.codelco.com">www.codelco.com</a>
National Mining Company	<a href="http://www.enami.cl">www.enami.cl</a>
National Oil Company	<a href="http://www.enap.cl">www.enap.cl</a>
Aguas Andinas	<a href="http://www.aguasandinas.cl">www.aguasandinas.cl</a>

## STEPS TO FOLLOW IN A PUBLIC TENDER



Source: Ministry of Finance - ChileCompra Department. User Service Division.

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