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Türkiye İMSAD is building sustainable growth vision of construction materials industry and its understanding of economic growth that produces social and economic value together with all its stakeholders.

We are proud to share the first sustainability report of construction materials industry, Türkiye İMSAD 2013 Sustainability Report with our stakeholders. With the report prepared within the scope of Global Reporting Initiative (GRI) G4 Guideline, we sign a first not only in Turkey but also in the whole world. We aim to light the way to all other associations sharing the same passion with us with our report prepared within GRI G4 Guideline for construction materials industry.

Social, economic and environmental pressures, rapidly changing regulations, customers with raised awareness, non-governmental organizations, investors and demands and expectations of other stakeholders, exposes companies to risks and dangers more than ever in this world where information spreads fast and globally. While our members are struggling to integrate a sustainable management approach to all business processes, Türkiye İMSAD is proactively analyzing the most primary issues, trends and developments in line with the development of the industry and the expectations of its stakeholders. Within this framework we proudly monitor the efforts of our members in product, process or business model development, risk management, sustainable development and profitability on the road to leadership in sustainability and aim to lead our industry in spreading similar practices to the whole industry.

On our journey to leadership in sustainability, singular solutions are replaced with participatory and transforming change in the industry under a global vision.

We, at Türkiye İMSAD, we build our sustainability approach and priorities for the future of the construction materials industry under five main areas. We build our industry-wide approach over a foundation where use of energy and natural resources is decreased, carbon emissions are minimized, economic and social value we provide to the industry is geometrically increased, an ever improving innovation is adapted, efficiency in material used is increased while waste is decreased and where all our stakeholders are on our side in this sustainable transformation.

We are aware that risks await us on the road to our goals but we believe well managed risk can turn into opportunities. As an institution aiming to correct practice of the stages of “design, material, production, application and inspection” and development of new laws, regulations and standards that will enable us to compete with the global economy, we are sure that we will transform the risks on our industry into opportunities. We also believe that, when designed well, urban renewal which is highly relevant to our country where earthquake is a serious risk and subpar housing stock is widespread; and is projected to be the driving force of our economy in 20 years, will provide a sizeable leverage for the sustainability of our industry. Within this framework, we, Türkiye İMSAD, invites our industry to cooperate for our country and wish that effort in this goal shall shed light to a sustainable future.

Gazing into the future, we see the footprints of development and change. We will continue our mission to lead with strength and confidence stemming from our goal and will march together towards greater goals together, as we have done in the past.

Dündar Yetişener
Türkiye İMSAD, Chairman of Board of Directors
Our greatest desire is to carry the construction material industry, which is the industry with the highest export potential, to sustainability goals with support from you, our stakeholders, in line with the sustainable development goals of Turkey.

Currently, the problems that seriously threaten sustainable economic development have environmental, social and economic dimensions. Acting under the understanding and responsibility that these problems create major risks for construction materials industry as well, establishing and actualizing our sustainability strategy has become a business goal for us as Türkiye İMSAD. We will develop our sustainability approach with support from you, our dear stakeholders, as we have laid the foundations during the preparation of this first sustainability report. Within the framework of our sustainability practices formed under five headings, we care about energy efficiency for struggle against climate change, support renewable energy initiatives along with reduction of natural resource use and warehouse gas emissions, and stress the importance of innovation as an association that creates economic and social value for the society.

We would like to thank all our stakeholders who supported Türkiye İMSAD with their invaluable contributions to the preparation of the first sustainability report. We firmly believe that the impact of this report, a reflection of the sustainable development vision of Türkiye İMSAD and sustainability efforts of its members will develop and grow with participation of our stakeholders.

Hakan Gürdal  
Türkiye İMSAD, Chairman of Sustainability Committee
Our Reporting Approach

We have prepared our first sustainability report in order to share the importance attached to sustainability by Türkiye İMSAD and to bring the sector to sustainable future. Our report presents the performances of Türkiye İMSAD and its members in the environmental, social and economic fields in a transparent, accountable and clear manner. The best practices carried out by Türkiye İMSAD members within the framework of sustainability are included in the report so that they serve as a model for sustainability of the construction material industry. The examples of best practice in the report were selected by an independent jury in two stages within the framework of sustainability criteria.

One of the report of Global Reporting Initiative named “Sustainability Topics for Sectors: What do stakeholders want to know?” has been used to determine sustainability issues specific to the industry. Sustainability issues to determine the content of the report have been graded according to the priorities of Türkiye İMSAD and its stakeholders and sustainability issues with high importance for both sides have been identified as “material topics”. In determination of material aspects, a detailed stakeholder assessment and engagement fieldwork has been conducted covering all members and stakeholders of Türkiye İMSAD. Material topics identified in line with the expectations and ideas of the stakeholders and the vision of Türkiye İMSAD laid the foundation of the report.
Defining Material Topics in 5 Steps

Defining and Mapping Stakeholders ➔ Identifying Sustainability Topics ➔ Stakeholder Assessment Fieldwork ➔ Türkiye İMSAD Materiality Workshop ➔ Materiality Matrix

Defining Material Topics

Materiality matrix establishes an important framework in developing a successful report content meeting the expectations and demands of the stakeholders by identifying strategic priorities that lay the foundation for the Türkiye İMSAD’s sustainability report.

Material issues of Türkiye İMSAD has been determined in 5 steps.

1. Identifying and Mapping Stakeholders

Stakeholders of Türkiye İMSAD have been identified in groups and mapped. This study, undertaken to manage and improve stakeholder relations and to develop association structuring that creates values over stakeholders, has been an important evaluation tool for Türkiye İMSAD. On the Stakeholders Map, stakeholders have been analyzed with respect to interest fields of all internal and external stakeholders, their influence in Türkiye İMSAD and their expectations and demands from Türkiye İMSAD as well as their potential to create shared values.

1. Türkiye İMSAD Stakeholder Groups

Chambers of Trade and Industry
Academic Institutions
Public Institutions and Organizations
Private Sector
Associations and Institutions
Türkiye İMSAD is a member of

Suppliers
Non-governmental Organizations
Member Companies
Member Associations
Corporations Türkiye İMSAD cooperates with
Participant Members
Employees

Stakeholders with which Türkiye İMSAD make deep interviews and focus group meetings have been identified. For prioritization, weight and roles of the stakeholders compared to other actors have been considered according to the stakeholders map and these stakeholders have been defined as primary stakeholders. Those outside the primary stakeholders have been defined as secondary stakeholders.
2. Identifying Sustainability Topics

Sustainability topics affected by and affecting construction materials industry have been identified using “Sustainability Topics for Sectors: What do stakeholders want to know?” report and G4 Guideline of Global Reporting Initiative (GRI). Aspects such as “Urban Transformation and Innovation” not included in those reports have been added since these are projected to be included in the material sustainability issues of the industry. Basically 24 sustainability topics have been defined and sub-aspects to these topics have also been added into the assessment.

3. Stakeholder Assessment Fieldwork*

Stakeholder engagement is considered as a crucial component for sustainability and success of an organization. Stakeholder assessment and engagement is a method used to achieve desired results around a specific goal by an organization with its stakeholders. Türkiye İMSAD conducted a stakeholder assessment fieldwork in line with globally accepted AA1000SE Standard in November 2013 in order to obtain an important input to its Sustainability Report.

Gathering data and opinions from stakeholders within the scope of the fieldwork has been designed two separate methods; “Active Consulting” and “Passive Consulting”. Data collection process have been prepared and executed in line with the principles of AA1000 Stakeholder Participation Standard (2001) issued by AccountAbility. In this framework, below methods have been used in stakeholder assessment fieldwork:

* Deep / Face to Face Interviews
* Focus Group Meetings
* Online Survey

Output of the field studies have been grouped as follows:
- Perceptions, expectations and opinions of Türkiye İMSAD stakeholders about Türkiye İMSAD
- Their knowledge level on sustainability
- Sustainability issues they prioritize at industry level
- Their willingness to cooperate
- Founding infrastructure for Türkiye İMSAD Sustainability Report
- Strategy and tools to realize development of Türkiye İMSAD with respect to sustainability
- Contribution to determining different communication strategies directed at stakeholders

One of the most important parts of the field study is the determination of the fields that are perceived as material issues by the stakeholders with respect to sustainability. Evaluation is made with consideration to the answers to online surveys along with focus groups and face to face interviews. Statistical assessment of the answers to questions aimed at defining material areas has clarified the priorities of the stakeholders.

Among the material issues, Energy efficiency / Energy Use has been found to be considered a material aspect by a majority. This result is in compliance with the answers given by the stakeholders to the question “What Does the Concept of Sustainability Mean to You?” (Especially with options of High Efficiency and Environment Protection). Stakeholders are aware of potential energy bottleneck, external dependence and consequent current account deficit. Stakeholders have closely related energy issue to both efficiency and innovation.

“Construction industry is among the industries that can prepare an action plan for climate change. Energy efficiency should not be ignored in constructions.”
[Ministry of Environment and Urban Planning]
The rate of stakeholders that attach high importance to urban renewal is very high. Personally discussed stakeholders have brought up their comments and criticism about this process during deep interviews.

“Renovation is the right way. Urban renewal should be managed well. Uncontrolled construction leads to crises and damages economy.”

[Focus Group Meeting, Associations]

Occupational Health and Safety aspect is also regarded as highly important and stakeholders generally assert that occupational accidents are low and safety levels are high during material production processes.

A majority of the stakeholders closely relate environmental management to nature protection. Furthermore natural resource was not limited to material production processes but using traditional natural materials as an alternative to modern materials was also brought up.

“Inclining towards mud bricks, sod houses and present sustainable materials using natural materials is important. We import materials and using local materials is important. Standards pertaining to such materials should be prepared and incentive permits by the public sector should be expedited.”

[Turkish Exporters Assembly]

Viewing the preferences of the stakeholders by assessing High and Medium levels together, the issues with high importance come out as Climate Change, Natural Resources & Water Usage, Education and Training, Employee Efficiency and Satisfaction.

Answers and opinions received reveal that sustained profitability of the industry and general sustainability of the industry seem to be intertwined. Similarly, some of the issues that are voiced are issues regarding other areas (rather that sustainability) that materials industry faces. Among these are standardization, certification, manufacturers that are unfair competition to high quality material manufacturers. Some of the stakeholders are aware that some issues that have to be urgently solved for the industry will also contribute to the solution of different social problems.

“Solving qualified labor deficiency is important also in terms of preventing domestic migration.”

[Istanbul Chamber of Commerce]
Expectations from Türkiye İMSAD

Considering that the most frequent answers to the question “What are your expectations from İMSAD towards its members and stakeholders within the perspective of sustainability?” were “informing stakeholders, creating and raising awareness, serving as a model and making connections” and “reporting on sustainability and reputation of the industry and creating public agenda and awareness”, it is clear that stakeholders consider a tight relation between the sustainability of the industry and Türkiye İMSAD and expects a leading mission from Türkiye İMSAD in this field.

Further prominent recommendations from the stakeholders are:

**Innovation:** A majority of the stakeholders emphasize a close connection between sustainability and innovation. Innovation is considered important for optimization of production processes (use of less energy and raw materials) and efficiency of construction materials during their use.

> “Focusing on sustainability technologies by promoting innovation and lowering product costs with innovation incentives is an important issue.”
> [SEDEFED]

**Traditional materials**

This section, which can be partially located under innovation, suggests Türkiye İMSAD to play an active role in revival of traditional material use and establishing standards on such materials.

**Qualified Labor - Force**

A troubled field which is commonly stated by almost all stakeholders (not limited to construction materials industry) is the lack of qualified labor-force. In this respect, it has been suggested that qualifications of employees in both material production processes and material application processes should be increased and Türkiye İMSAD should lead the process.

**Universities**

Additionally Türkiye İMSAD is suggested to cooperate with architecture faculties in increasing capacity in perception and skills of architects towards sustainable structures.

**Cooperation**

Another commonly stated suggestion is to support sustainability efforts by cooperating with other institutions and NGOs working on sustainability, to announce and promote best practices in sustainability to wider audiences, lobbying for this ends, preparing projects that will create awareness in business world and society and cooperating for efforts that will serve common needs of the industry (such as analysis laboratories).
Factors Affecting the Industry

Stakeholders believe that the industry is affected by parameters such as population increase, decreasing natural resources and increased consumption. In economic parameters, unfair competition and actors of informal economy are considered leading factors.

Support and Cooperation

All stakeholders with whom face to face interviews were conducted have appreciated the leading role Türkiye İMSAD undertakes and have verbally stated that the industry would benefit such leadership. Assessment of online surveys conforms with interviews. The Stakeholders are well informed on Türkiye İMSAD, their perception is positive and their expectations of sustainability from Türkiye İMSAD are high. Concordantly, questions aimed at the perceptions of the stakeholders on sustainability concept as well as their declarations on their level of information regarding sustainability reveals that stakeholders interpret sustainability in line with the approach or Türkiye İMSAD and in line with the basic sustainability principles. Stakeholders are willing to contribute to and cooperate on the initiatives of Türkiye İMSAD on sustainability. Stakeholders that are private enterprises regard this as commercially positive. Public stakeholders stated that scientific based proficient studies presented by organizations such as Türkiye İMSAD will provide a crucial reference in adoption and actualization of sustainability practices in ministries and such senior institutions. In light of these findings it is found that highly aware and willing to cooperate stakeholders will support sustainability initiatives of Türkiye İMSAD and will accelerate the progress Türkiye İMSAD will achieve in this process.

*Stakeholder assessment field study has been conducted by an independent and partial institution.
4. Türkiye İMSAD Materiality Workshop

Following the field study, a “Materiality Workshop” has been held with the participation of Türkiye İMSAD Board of Directors in order to define material sustainability aspects of Türkiye İMSAD. Each sustainability topic has been evaluated under two criteria:

I) Importance of the Topic to the Stakeholders
This section is related to the approach of primary stakeholders of Türkiye İMSAD to sustainability topics and the level of importance they attach to these topics. The importance of each topic to international or local stakeholders and their positive, negative or neutral impact on the stakeholders has been evaluated.

II) Importance of the Topic to Türkiye İMSAD
This section reveals Türkiye İMSAD’s approach to sustainability topics and the importance it attaches to topics according to its corporate strategy. Present and future financial impact of the topic and its impact on activities of the industry and on reputation and brand value of the association / industry have been taken into consideration.

The prominent topics in the workshop were: innovation, employment, urban transformation, usage of natural resources, energy, education and economic value created. The importance of stakeholder participation in urban transformation and the vital importance of planning in this issue have been stressed.

“We should raise awareness in the consumers by creating value joined under a roof”
Türkiye İMSAD Board of Directors
5. Materiality Matrix

Following the stakeholder assessment and participation filed study and prioritization workshop conducted by top management of Türkiye İMSAD, a "Materiality Matrix" has been prepared. Environmental, social and economic sustainable issues that are flagged as high priority have been defined. The intersection of high priority issues of Türkiye İMSAD and its stakeholders have been designated “Priority Issues Area” for Türkiye İMSAD. These are defined as Energy Use / Efficiency, Warehouse Gas Emission, Use of Natural Resources and Water, Waste Management, Created Economic Value, Employment, Training and Education, Creating Value for Society, Urban Renewal and Innovation and these have been grouped into five topics.
Environmental Sustainability Topics
Materiality Matrix

Economic Sustainability Topics
Materiality Matrix
Coverage of defined material aspects have been evaluated separately for each aspect. Indicators under energy usage, greenhouse gas emissions and usage of water and natural resources have been placed under Türkiye İMSAD company members due to their impact on these topics. Türkiye İMSAD participation to data input on issues related to company members is at 33% level.

Türkiye İMSAD Sustainability Report covers 2013 (January 1st, December 31st 2013). Some indicators have been compared to 2012 and 2011 data.

Feel free to e-mail info@imsad.org for your suggestions, comments and questions.
Energy and Carbon

Potential energy crisis threatening Turkey, external dependence in energy reaching 90% and reflection this level to current account deficit stands before us as one of the most vital problems of the industry. Rapid population growth and urbanization is also expected to contribute to the demand for energy. Türkiye İMSAD is aware that construction materials industry has high energy demand and thus regards energy and carbon management. It creates awareness in energy efficiency, greenhouse gas reduction and energy use while encouraging the sector to take steps towards these goals.

The goals of Türkiye İMSAD with this respect are;
• Efficiency in production and transportation of construction materials,
• Increasing material quality through innovation, increasing efficiency,
• Reduction of energy use and greenhouse gas emission.

Through these goals it is aimed to minimize the impact on environment while reducing the production costs and risks, considering the high fuel prices and supply risk of diminishing fossil fuels.

Energy Consumption

Energy consumption of Türkiye İMSAD members, consisting of carbon intensive industries such as cement, glass and ceramic, has risen by 3.4% compared to reverence year 2011.

Energy Consumption of Türkiye İMSAD Members

Total Energy Consumption, TJ

* For one member company, data of 2012 were used for both 2012 and 2013, since 2013 data was not present.
Türkiye İMSAD members have switched to renewable, clean energy sources in line with their aim to reduce energy consumption. Waste heat recovery projects lead the effort.
In order to ensure sustainable production and consumption of energy, using energy efficiently and changing the energy source from non-renewable to renewable sources should be aimed.

Aiming to save on fossil fuels while reducing greenhouse gas emissions that cause global warming, with waste heat recovery project ÇİMSA has signed a project with Japanese giant Marubeni Corp. in 2010 for producing electric energy in Çimsa Mersin Factory Production Lines 1 and 2. Starting investment in 2011 “Electric Production from Waste Gas Project” has been completed and commissioned in April, 2012. Total investment cost for the project is $22.5 billion. With this project it is aimed to produce electric energy from waste gases by product of Production Lines 1&2 which will cover the 50% of the energy requirement of the same lines. Commissioned in April, the project produced 32 million kWh/yr energy by the end of the year, while reducing CO2 emission by 15,850 tons. Throughout 2013 the production rose to 49 million kWh/yr and CO2 emission fell by 24,508 tons.
Trakya Yenişehir Cam San. A.Ş. is an affiliate of Trakya Cam San A.Ş. producing glass, coated glass and laminated glass in Bursa-Yenişehir OIZ. With 6 MW installed turbine power, the facility produces 3.5 to 5 MW power depending on capacity use. According to actual results obtained from the project it is projected for the investment to return in two years. In the annual competition held under Energy Efficiency Project in Industry Project (SANVER 2013) by the Ministry of Energy and Natural Resources, Renewable Energy General Directorate Trakya Yenişehir Glass Factory has been awarded “The Most Successful Industrial Facility” award in Projects for Increasing Energy Efficiency in Industry (SEVAP) category.

Greenhouse Gas Emissions

28% of Türkiye İMSAD company members calculate greenhouse gas emissions in accordance with international standards.

Although the concept of Greenhouse Gases Management is a new concept for Turkish companies, a portion of construction materials manufacturers have started working on the subject voluntarily. 28% of Türkiye İMSAD member companies calculate greenhouse gas emissions according to international standards and three more companies will start working on the subject in 2014.
Within the scope of Regulation on Monitoring Greenhouse Gases Emissions issued in April 2012, some construction materials manufacturers, especially those engaged in heavy energy consumption will be obliged to calculate greenhouse gas emissions, issue, verify and regularly report monitoring plans. Greenhouse gas emissions for 2015 are to be reported by 2016. An overview of greenhouse gas emissions of companies it is seen that despite an increase in energy consumption, CO2 equivalent (CO2e) emissions are observed to decline. It points out for a switch to low emission fuels.

### Energy Consumptions and CO$_2$e Emissions of The Members of Türkiye İMSAD

Energy Consumption (TJ) and CO$_2$e emissions, thousand tons

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Energy Consumption (TJ)</th>
<th>Total CO$_2$e Emissions (thousand tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>80.571</td>
<td>16.221</td>
</tr>
<tr>
<td>2012</td>
<td>82.811</td>
<td>16.164</td>
</tr>
<tr>
<td>2013</td>
<td>83.308</td>
<td>16.026</td>
</tr>
</tbody>
</table>

Greenhouse Gas Emissions of Türkiye İMSAD member companies have fallen by **1.2%** while there is an increase in energy consumption by **3.4%** compared to 2011.

A significant number of companies in the sector aim to reduce CO2e emissions with energy efficiency, alternative fuels and inputs. The number of companies obtaining ISO 14064 certification in order to ensure sustainability of greenhouse gas emissions is being increased.
**Total CO₂e emissions of Türkiye İMSAD members**

*In calculation of CO₂ emissions, emissions of a company arising from its processes are calculated approximately and it is proportional to the company’s emissions arising from energy consumption.*

**Direct CO₂e emmission of Türkiye İMSAD members**
Indirect CO\textsubscript{2}e emmission of Türkiye İMSAD members

CO\textsubscript{2} equivalent of greenhouse gas emissions of the energy drawn from the power network through renewable energy sources and waste heat recovery is given in table below.

Reduction of CO\textsubscript{2}e Emission through Renewable Energy/Heat Recovery for Türkiye İMSAD Members

Difference
### Emission Factors

<table>
<thead>
<tr>
<th>Emission Factors</th>
<th>Unit</th>
<th>CO₂</th>
<th>CH₄</th>
<th>N₂O</th>
<th>CO₂e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal (Lignite)</td>
<td>kg CO₂e/TJ</td>
<td>101.000</td>
<td>210</td>
<td>465</td>
<td>101.675</td>
</tr>
<tr>
<td>Petroleum Coke</td>
<td>kg CO₂e/TJ</td>
<td>92.800</td>
<td>63</td>
<td>186</td>
<td>93.049</td>
</tr>
<tr>
<td>Fuel-oil</td>
<td>kg CO₂e/TJ</td>
<td>74.100</td>
<td>63</td>
<td>1.860</td>
<td>76.023</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>kg CO₂e/m³</td>
<td>1.9365</td>
<td>0.0007</td>
<td>0.0011</td>
<td>1.938</td>
</tr>
<tr>
<td>LPG</td>
<td>kg CO₂e/kg</td>
<td>2.8777</td>
<td>0.0010</td>
<td>0.0014</td>
<td>2.880</td>
</tr>
<tr>
<td>LNG</td>
<td>kg CO₂e/m³</td>
<td>2.3619</td>
<td>0.0023</td>
<td>0.0068</td>
<td>2.371</td>
</tr>
<tr>
<td>Diesel</td>
<td>kg CO₂e/litre</td>
<td>2.6248</td>
<td>0.0022</td>
<td>0.0066</td>
<td>2.634</td>
</tr>
<tr>
<td>Gasoline</td>
<td>kg CO₂e/litre</td>
<td>2.2164</td>
<td>0.0026</td>
<td>0.0565</td>
<td>2.275</td>
</tr>
<tr>
<td>Electricity (network)</td>
<td>kg CO₂e/kWh</td>
<td>0.5299</td>
<td>0.0002</td>
<td>0.0016</td>
<td>0.532</td>
</tr>
</tbody>
</table>

### Energy Density

Since Türkiye İMSAD members come from various industries such as cement, ceramics, glass, paint, chemicals, construction materials and mechanical materials, produced goods and their properties vary widely. Therefore, in order to monitor the changes in energy density, ratio of total energy consumed and the rate of total greenhouse gas emissions over turnover (total sales value from balance sheet values of production) is used for calculating energy density.

### Energy Densities of Türkiye İMSAD members

<table>
<thead>
<tr>
<th>Year</th>
<th>TJ / million $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>18.68</td>
</tr>
<tr>
<td>2012</td>
<td>18.93</td>
</tr>
<tr>
<td>2013</td>
<td>17.95</td>
</tr>
</tbody>
</table>
Energy Efficiency

During the production of the majority of construction materials, high amounts of energy are used. Apart from the pressures arising from climate change, diminishing energy sources, and increasing prices, the industry has pushed to reduce primary energy sources while replacing them with alternative energy sources. In construction materials production, using more efficient equipment that uses less energy, crushing, burning, and grinding process optimization studies, along with energy recovery investments, and decrease in energy use became vital.

Türkiye İMSAD members aim to minimize emissions stemming from energy use with modern production processes that consume less energy. Therefore, 44% of Türkiye İMSAD members have adopted ISO 50001 energy management system with three more to join in 2014. 28% of the companies that have energy directors, have energy management units.
44% of Türkiye İMSAD members conform with ISO 50001 EYS

28% of Türkiye İMSAD members have energy management unit

Ecotech Plaster – Betek

Traditional heat insulation plasters contain 25-30% Portland cement and 4.5 kg/m² are applied over heat insulation plates. Ecotech plaster differs ecologically from traditional heat insulation plasters in two ways: first, it requires 30-35% less cement after application. Additionally, since its high filling capacity requires 30-35% less dry materials, it decreases greenhouse gas emissions caused by transportation. With 3 kg/m² use and its 30% cement ingredient in weight, Ecotech plaster has 830 kg CO₂e carbon footprint per kg only through cement. Ecotech plasters can also provide up to 35% greenhouse gas emission caused by transportation, thanks to its lightweight.
Lift and Slide Systems

Only by using Hebe-Schiebe system instead of sliding systems currently used in Turkey, will provide energy saving equal to $213.6 millions each year, when used in each new building in Turkey. Air leak value in standard sliding joinery and old woodwork joinery are 3 m³/mh while the same value is 0.3 m³/mh in Hebe-Schiebe system, which is equal to fixed window systems. This will provide more savings in heating in winters and cooling in summers thanks to a decrease in heat loss by infiltration. It is a 100% domestic and renewable product and it utilizes calcium-zinc as stabilizer instead of lead, which is harmful for environment.

Façade Meeting Rail Project

In order to guarantee air and water performance of windows by providing deflection within required limits against increased wind speeds and by meeting requirements of statics stemming from increased size, façade meeting rail and façade double door mounting profiles have been constructed. Both visual deformity and additional cost of traditional box or anchorage profile solutions have been removed with the new solution.

Greenhouse gas emissions are calculated in compliance with the methodology of GHG protocol by WRI. Reference year was chosen as 2011 for which reliable and complete data is accessible. For each company it is assumed that establishment borders are handled with control approach and greenhouse gas emissions arising from all controlled operations are included in the greenhouse gas inventory. Activity limits are defined as scope 1 (direct) and scope 2 (indirect) emissions. CO₂ equivalent value consisting of CO₂, CH₄ and N₂O emissions are used in calculations. Global Warming Potential (GWP) coefficients are from Intergovernmental Panel on Climate Change sources. IPCC emission factor values are from cement industry specific WBCSD Cement Sustainability Initiative emission factors. Network Electricity emission is calculated using 2011 TEIAS data. Lower heating values and TEP circulation values of energy sources used are from “Regulation on Increasing Efficiency in Use of Energy and Energy Sources” Annex-2 Lower Heating Values and Petroleum Equivalent Conversion Coefficients Table issued in official Journal dated October 2011 no: 28097.
Builder of the first green building in Europe to obtain Leed Gold Certificate in Tuzla saves energy, protects environment and provides comfortable living space to its employees with its environment friendly facility. Facility saves 24% on energy and 50% on water. With up to 80% of the energy for lighting provided by solar energy significant power saving is achieved while hot water requirement is met with solar energy system installed on the roof. 85% of the living spaces in the building receive direct sunlight and 92% have external view. Additionally, thanks to air conditioning with high yield filters, 30% more fresh air is provided to the building according to American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards. Air quality of high-density areas such as meeting rooms and mess hall is controlled with CO₂ sensors.

30% of the construction costs of the green building project of WILO Turkey consist of recycled materials. Thus natural resources are preserved and 93% of the waste from the construction is forwarded to recycling centres for reuse.
We Limit the Use of Natural Resources
We Limit the Use of Natural Resources

Construction materials industry consumes natural resources intensively. Adopting sustainable natural resource use is the first step towards reducing the footprint that the industry leaves on nature together with high production costs. According to the definition of Construction Materials Directive of EU issued in 1989, sustainable materials are renewable, more durable, safe in use and fire hazards, serviceable, not detrimental to human health, free of hazardous substances, providing energy saving and heat insulation, protecting against noise pollution and recyclable to raw materials. Türkiye İMSAD approaches sensitively to the issue of responsible consumption of natural resources and conducts studies to make construction material production sustainable. As such practices become popular in our country construction materials sector will obtain high quality while safely transforming with innovation. Thanks to standards and inspection mechanisms, another problem of the construction industry, namely low quality materials will be eliminated and buildings more resistant to natural disasters will be possible to build. Additionally, recycling of construction materials will be an important step in cost savings. With recycling of waste, especially from urban transformation projects, raw materials for infrastructure constructions will be obtained. In this respect, Türkiye İMSAD plays an important role in adoption of sustainability principles by the entirety of construction materials industry. Starting from this vision, Türkiye İMSAD has founded a sustainability committee in 2011. Sustainability committee meets each month to creation of environment energy efficiency, climate change policies, building partnerships and raising awareness on sustainability.
By issuing “Safe Structures Road Map -1” report, Türkiye İMSAD has taken an important first step in establishing the desired sustainable system in Turkey, developing construction culture and safe buildings. The aim of the report prepared by a wide study group consisting of construction material manufacturers, industrial societies, universities and academicians is to correct practice of design, material, production and inspection stages and to complete the missing laws, regulations and standards.

On the other hand Safe Structures Road Map -1 Report mentions the reasons some of the buildings are not safe along with inspection, construction law and regulations. Various suggestions were made in issues important for building safety such as heat, water, noise and fire insulation, as well as natural resource use and energy savings. Innovation and R&D within the Framework of Urban Transformation in Construction Materials Industry Report states the need for innovative construction materials for the building stock that will be demolished and rebuilt or reinforced within the scope of urban transformation. In order to analyze this need and to make suggestions, Türkiye İMSAD has conducted “Innovation and R&D within the Framework of Urban Transformation in Construction Materials Industry” with support of İstanbul Development Agency. Possible impact of urban transformation on construction materials industry has been analysed and innovative products were assessed. “R&D in Construction Materials Industry within the Framework of Urban Transformation” project was completed in March 2013. Türkiye İMSAD Environment Friendly Material Technical Committee conducts studies in issues such as environment, global warming, ecology, energy use and efficiency, toxic compounds, waste and recycling. In order to assist members on environment friendly buildings materials, related regulations and obtaining an EPD document, projects containing training activities are planned for 2014.
Within the framework of 2030 European Construction Technology Platform Vision, Türkiye İMSAD, have defined the elements that trigger innovation activities in the construction materials industry. These include mainly use of alternative raw materials, waste management and recycling along with actualizing product based innovations. The survey in “Innovation and R&D within the Framework of Urban Transformation in Construction Materials Industry” reveals that the trends and expectations in construction material industry are developing towards preserving environment. European Commission in its action plan “European Innovation Partnership” emphasizes development of waste disposal methods, processing techniques, construction of heat insulation and better plumbing systems.

Construction materials industry contains a wide variety of raw materials. Türkiye İMSAD members reflect this diversity. Although it’s not possible to compare rates and methods of reductions and return rates of natural resources since different raw materials are used, the diversity of its members enabled a wide variety of successfully implemented projects as examples of best practices within Türkiye İMSAD.

Using Waste as Resources

Akçansa uses its wastes in three cement factories as alternative raw materials and fuel within permits and licenses. Thanks to the 10.5 billion dollar sewage sludge, refuse derived fuel and worn out tire systems investments, 100.000 tons of waste has been reused as energy source in 2013. 45,000 tons of domestic sewage sludge is used annually as alternative to fossil fuels preventing use of 17.000 tons of coal annually. 35% to 40% ash produced during incineration processes, causes zero waste. Sewage sludge is generally disposed in regular storage fields. Methane gas is formed during storage. CO2 effect of the use of sewage sludge, which is considered biomass, is assumed to be neutral within the project. Natural resources are replaced with alternative raw materials and minerals such as grit, pyrite ash, marble waste, backing sand, iron and by - pass dust, exide layer, gypsum shards, iron and blast furnace slag and excavation soil. Each year 408.018 tons of alternative raw materials corresponding to 4% of total raw materials is reused in production. Thanks to this practice natural resources are used responsibly, waste is managed efficiently and greenhouse gas emissions resulting from production processes are decreased.
Despite the diversity of materials and natural resources used in the industry, water still holds a great place in activities of the majority of construction material manufacturers. Furthermore, it is the most basic natural resource used in the industry that employs a wide variety of raw materials.

The climate change and increasing water demand arising from population growth threaten water reserves. This threat emphasizes awareness for responsible water use in all industries. Companies determine and monitor the amount of total water used in production processes, facilities and offices and try to enhance these amounts with various methods. Small efforts in recycling or reuse cause major changes in water savings. Türkiye IMSAD attaches importance to water use and struggles to reshape sustainability awareness in construction materials production with this understanding.

The fact that technologies that purifies and reuses the water used in production are used in the industry indicates that the importance attached to water and natural resources is rising.
Water usage data of Türkiye İMSAD members shows that the total volume of water withdrawal is 9.078.787 m³. 39.3% of this volume is treated and 7.5% is reused.

Türkiye İMSAD Members Water Data Table

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Volume of Surface Water Withdrawal (m³)</td>
<td>1.364.449</td>
<td>1.257.633</td>
<td>1.492.050</td>
</tr>
<tr>
<td>Total Volume of Groundwater Withdrawal (m³)</td>
<td>4.272.911</td>
<td>6.386.989</td>
<td>5.300.958</td>
</tr>
<tr>
<td>Total Volume of Rain Water Collected (m³)</td>
<td>5.245</td>
<td>428.245</td>
<td>3.225</td>
</tr>
<tr>
<td>Total Volume of Reused Water (m³)</td>
<td>532.017</td>
<td>619.781</td>
<td>681.753</td>
</tr>
<tr>
<td>Total Volume of Treated Water (m³)</td>
<td>3.036.601</td>
<td>2.779.255</td>
<td>3.567.400</td>
</tr>
<tr>
<td>Total Volume of Water Withdrawn from Municipal Resources (m³)</td>
<td>1.260.468</td>
<td>1.261.497</td>
<td>1.247.222</td>
</tr>
<tr>
<td>Volume of Total Water Withdrawal (m³)</td>
<td>7.832.979</td>
<td>10.308.137</td>
<td>9.078.787</td>
</tr>
<tr>
<td>Ratio of Total Treated Water to Total Water Withdrawal (%)</td>
<td>38,8</td>
<td>27,0</td>
<td>39,3</td>
</tr>
<tr>
<td>Ratio of Total Reused Water to Total Water Withdrawal (%)</td>
<td>6,8</td>
<td>6,0</td>
<td>7,5</td>
</tr>
</tbody>
</table>
Condensing boilers were designed to be suitable for air testing instead of water under same conditions in Turkey. This removed the necessity of water use in production. Thanks to the test stand we commissioned in 2011, in production of Nitromix boilers we have saved 3,000 tons of water. Additionally we are aiming annual 15,000 tons of water savings with this system as it is projected for this system to be commissioned for all products.
Blue Life is a Holistic Sustainability Management System that contains measuring, reporting and improvement steps regarding properties of sustainability such as production, product development, waste and raw materials while improving the capacity of other departments not included in the environmental system such as design, sales, marketing, HR and all other departments. The system was commissioned in 2010 in all locations for 2,500 employees. Leading the industry with ISO management systems together with quality and efficiency projects, EYAP has taken a holistic step from efficiency to sustainability. In addition to Blue Life approach, lean production 6sigma and TPM projects are developed in our facilities.

- First brand worldwide to obtain Environmental Product Declaration for ceramic medical tools.
- First brand in Turkey to produce FSC certified bathroom furniture.
- First brand in Turkey to initiate Environmental Product Declaration works for bathroom furniture.
- First and only armature manufacturer in Turkey with Environmental Product Declaration.
- Direct contact with end users by obtaining European Water Label for the first time in industry.

Production and consumption processes rapidly increase in order to meet rising demands. This requires heavy use of natural resources. Additionally, waste, produced by increasing consumption trends, threatens environment and human health due to their sheer amount and hazardous characteristics. Taking an active role in increasing awareness across industry, Türkiye IMSAD members aim to prevent waste from becoming a threat to environment and human health. Türkiye IMSAD takes part in shaping environment awareness within the industry and displays for environment while sensitively conducting studies on waste management.
Process waste from our plaster factory is recycled into the system. This reduces natural resource use with annual 700 tons being reduced at the source.

Trimming dust from our drywall factory is returned during the process, decreasing waste production by approximately 20% and chemical use by 650 tons.

In our drywall factory we reduced the use of limestone by 4.5%, natural gas use by 3.6% and water use by 4.3%. Production Efficiency increased by 1%.

Studies in our factories revealed decrease in electric power consumption by 14.5%, natural gas consumption by 4.5 and CO₂ emission by 2.3%
Innovation

Sustainability is among the leading triggers of technology and innovation in construction materials industry. Inspecting the growth and development of the industry under the perspective of sustainability, it is observed that the defining element shaping the industry is changing and developing in this period. Construction material industry adapts to and supports this process in two aspects. First is to develop and manufacture sustainable buildings and construction material required for these buildings and the second is to perform production in environment friendly processes in compliance with sustainability principles. And this requires technology and innovation activities in production technology.

The fact that 30% of the energy is consumed by the buildings in Turkey suggests that construction materials should be more innovative to reduce energy consumption.

Among the primary objectives of the energy Efficiency Strategy Document issued in 2012 reducing energy density and energy losses strike out. Additionally, construction materials industry serves the strategic goal of reducing energy requirements and carbon emissions of buildings and popularizing sustainable and environment friendly buildings using renewable energy sources through the innovative and environment friendly products. This goal overlaps with the goal of The Ministry of Energy and Natural Resources as stated in its 2010 - 2023 strategy document as reducing energy dependencies of buildings consuming high energy and reducing their carbon emissions while also increasing the number of environment friendly buildings relying on renewable energy sources.
From this perspective, Türkiye İMSAD has conducted the project “Innovation and R&D in Construction Materials Industry within the Framework of Urban Transformation” in 2013, with support from Istanbul Development Agency in order to determine possible effects of urban transformation and related public regulations on the construction and construction materials industry. The project aims to provide suggestions and stimulate innovation by measuring technology and innovation activities of construction materials industry. The primary performance criteria defined by the European Construction Technologies Platform has been in determining priority fields of technology and innovation activities in construction materials industry, guide. Priority fields of the industry in innovation are defined within the 2030 vision.

A majority of Türkiye İMSAD members allocate a significant amount of budgets for R&D each year. Member companies of Türkiye İMSAD, conduct R&D within themselves, under partnerships with scientific institutions, with awareness for the importance of innovation. The products thus developed are patented and international certificates are obtained. It is projected that products and systems developed for different purposes in different fields will light the way for developing sustainable practices in the industry through cost and energy savings, ease of use, product life or using environment friendly materials and/or decreasing the footprint.

Ceramic Sanitary Ware Turns into Tiles

Eczacıbaşı Yapı Gereçleri started using waste sludge, the output of its ceramic medical tools treatment facility as alternative raw material for floor tile production in a project started in 2010.

All the waste sludge used for alternative raw material production before the commissioning of the project was recycled in ceramic sanitary ware facilities. With this project, for the first time in Turkey a system that can be called industrial mutualism (reciprocally beneficial in industry) has been established achieving thus, 7,200 tons (600 tons each month) of raw materials saving annually. Each ton being priced at TL 60 this project provides annual TL 432 thousand. Furthermore the project saves 25 tons of carbon each year.
The Paint That Keeps Your Building Cool!

Jotun has developed Jotashield Extreme, the new generation of external paints, which reduces energy consumption and thus providing savings in cooling costs. In a test approved by independent testing institutions, Jotashield Extreme has been proven to reflect infrared ray twice more, compared to standard paints. This enables the internal ambient temperature of the building to be 5°C, lower and surface to be 20°C cooler.

Complex construction projects, which are currently on the rise, have high air conditioning expenses and energy consumptions, once they are commissioned. Jotashield Extreme provides decrease in power consumption and cooling costs with its double heat reflection properties. Jotashield Extreme is a house paint that has 100% pure acrylic binding agents. With high performance against the harshest climate conditions, it provides protection for ten years. This in turn provides long-term solutions due to longer painting frequencies with cost advantages. It is an environment friendly product both for having low Volatile Organic Compounds and by decreasing cooling costs and “Urban Heat Island Effect” with its heat reflection properties. It does not contain harmful components such as lead, mercury, chrome and cadmium.

Reflective value of standard paint compared to Jotashield Extreme

Reflective value of standard paint compared to Jotashield Extreme.

Amount of energy required to cool building facing west

The chart shows the amount of Near Infrared (NIR) reflected by a standard paint system compared to a Jotashield Extreme painted on a test wall.

The energy saved is enough to power 1,380 (18 Watt) energy saving lamps for 1 hour.

Sustainability and Insulation with Mineral Wool

Glass wool and rock wool (mineral wools) produced by Izocam are among the safest products known on earth. 80% of their production employs natural minerals such as sand, basalt and recycled glass. Through the life of the building (50 years) mineral wools provide energy saving and emission reduction up to 100 times the energy use and greenhouse gas emission during the construction. Izocam glass wool and rock wool products are health-wise safe have EUCEB certificates along with their compliance to national and international standards. Through management of waste and recycled products, the use of primary raw materials is decreased. Upon the completion the life cycle of the building, Izocam products can be easily dismantled and all materials can be extricated and used for recycling. With accurate product thickness selection and correct application Izocam improves comfort by providing homogeneous temperatures on the internal walls of the building. Noise pollution, one of the causes of complaints, can be prevented and acoustic comfort can be achieved with Izocam products. Other benefits include fire safety and savings on energy use.
Prefabrik Yapı A.Ş. provides living space to future generations with its portable, aesthetic, safe and economic solution, Zero Carbon Emitting Mars Containers within the scope of ecological and sustainable buildings. All energy requirements of the Mars Container are covered by photovoltaic panels placed on its roof at angle of 28° without any need for external source. The buildings employing light steel production technique require little energy for heating or cooling. The container requires a total of 2456.6 kWh energy of which 546.9 kWh is used for cooling, 860 kWh for heating, 453.8 kWh for lighting and 595.9 kWh for equipment. Photovoltaic panels produce 2900kWh power annually and provide more energy supply than the demand. Class A value interval for Mars containers are 0 - 39 and EP value is 19.37. Using 118% renewable energy, Mars containers emit zero carbon. Having environment friendly raw materials, production and use, Mars Containers come in house and office options.

Temperable Solar Low-E coated heat and sun control glass

Isicam Konfor T is the insulation glass brand of Trakya Cam made by using temperable, heat and sun controlling coated glass TRC Coolplus T series glass. Thanks to Solar Low-E coated glass in contains, TRC Coolplus T keeps the heat inside in winter, decreasing heat loss up to 50% compared to double glass and saves on fuel costs. In the summer, it reduces sun heat by 40% compared to standard double glass, saving from cooling costs. While providing heat and sun control with single installation, it does not compromise from opacity and natural sunlight. Thanks to its low reflection coating, it provides opaque view from both sides. TRC Coolplus T is obtained by applying a thin layer of metal / metal oxide layer over normal glass with off-line coating technology. Its temperability covers the need for safety in living spaces. Heat and sun controlling TRC Coolplus T is produced in compliance with “TS EN 1096 Glass – Coated Glass used in buildings” standards and also has TSE product certificate and bear CE logo.
Economic Value Creation
Economic Value Creation

Construction industry, the leading sector of Turkish economy takes its place in the international markets with its competitive power. Construction industry has three main members consisting of designers, contractors and construction materials. Since its foundation in 1984, the leading organization of construction materials industry, Türkiye İMSAD aims sustainable development both in its industry and in Turkey. Therefore it aims to contribute to formation and implementation of rules in construction industry and to raise consciousness in society. Türkiye İMSAD continues to assume an active role in construction materials industry that creates value, provides employment and contributes to economic growth and development in Turkey.

Average employment in construction industry has been 1.68 million people in 2011. In 2012 this figure was 1.65 million. In 2013 this figure has risen to an all-time high with 1.78 million people. Construction industry provides 7% of the total employment. Taking families into account, this employment directly affects 7.5% of the population.

Employment Figures in Construction Industry Through Years

<table>
<thead>
<tr>
<th>Year</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1.68 million people</td>
</tr>
<tr>
<td>2012</td>
<td>1.65 million people</td>
</tr>
<tr>
<td>2013</td>
<td>1.78 million people</td>
</tr>
</tbody>
</table>
Turkish construction materials industry contributes **17%** of added value created in total manufacturing industry.

Turkish construction materials industry is the leading exporter with **$19.7 billion** in 2011, **$21.1 billion** in 2012 and **$21.3 billion** in 2013. Total share of the industry in overall exports is **14%**.

**Export Values of Construction Industry Through Years**

**Export of Construction Industry (billion $)**

- **2011**: $19.7 billion
- **2012**: $21.1 billion
- **2013**: $21.3 billion

Additionally, construction materials industry provides a very high net contribution to current account. It has provided net contributions of **$10.9 billion**, **$12.6 billion** and **$10.9 billion** dollars in to current accounts in 2011, 2012 and 2013 respectively.

The aim of Türkiye IMSAD for 2015 is **$40 billion** and **$100 billion** for 2023.

**Domestic Market Size of Construction Industry Through Years**

**Domestic Market Size Construction Materials (billion $)**

- **2011**: $51.8 billion
- **2012**: $52.5 billion
- **2013**: $54.8 billion
The size of the domestic construction materials market has reached $51.8 billion and $52.5 billion in 2011 and 2012 respectively. The domestic market has reached $54.8 billion in 2013. Of this market $48.5 billion is new buildings market and $6.3 billion is renewal market. Renewal market has a share of approximately 11-12%.

Türkiye İMSAD keeps a finger on the economic pulse industry with Türkiye İMSAD Economy Meetings where sector specific economic data is announced and leaders of the industry participate and enrich the shared common information.

International Summit for Quality in Construction is organized each year to contribute to the development and sustainability of the construction industry. The Summit, where contemporary topics from around the globe that will shape the industry are discussed, is one of the largest activities of the construction industry bringing together all the industry and stakeholders. It is being held Carbon Neutral since 2011.

Monthly Economic Reports, which Türkiye İMSAD regularly shares with its members, is important in monitoring monthly assessment of the industry, sharing statistical data with all employees and stakeholders of the industry and creating awareness.

Another study, initiated in 2013, İMSAD Construction Materials Industry Index aims to closely monitor developments and expectations in the construction materials industry which has a significant role in Turkish economy and production, investment, employment and export fields in manufacturing industry and to reorganize these in indexes. Furthermore it shares these developments and expectations with industry delegates, then with all stakeholders of the industry, economy management and finally with public to create a guiding, continuous and organized data set for all actors inside or out of the industry.
### Türkiye İMSAD Distributed Economic Value

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>Membership fees, economy meetings, website advertisement, magazine, conference and sponsorship + 2012 transfer</td>
<td>2.360.000 TL</td>
</tr>
<tr>
<td>Operating costs</td>
<td>Operational Expenses</td>
<td>1.250.000 TL</td>
</tr>
<tr>
<td>Employee wages and other benefits provided</td>
<td>Employee wages (Wage, Insurance, Commuting Fees, Meals, Additional Taxes - Gross)</td>
<td>670.000 TL</td>
</tr>
<tr>
<td>Payments to providers of capital</td>
<td>All financial payments to those providing capital to the institution - The balance of funds distributed to its personnel</td>
<td>-</td>
</tr>
<tr>
<td>Payments to government</td>
<td>Gross taxes payable to the Government</td>
<td>13.000 TL</td>
</tr>
<tr>
<td>Community investments</td>
<td>Social responsibility - Social responsibility projects (Public spots, Development agency, Development Agency Projects, EU Fund)</td>
<td>200.000 TL</td>
</tr>
<tr>
<td>Economic value retained</td>
<td></td>
<td>227.000 TL</td>
</tr>
</tbody>
</table>
The Value We Add To Society
The Value We Add To Society

Global economic and social development is only possible with a holistic point of view and only by people-oriented development approach. The goal stated in the Tenth Development Plan, increasing the wealth of Turkish people, increasing standards of living, improving basic rights and freedoms and thus creating a peaceful living space is only possible with approach that focuses on sustainability. With this approach, Türkiye İMSAD works as an association creating social value while paving the way towards sustainable economic growth vision in construction materials industry.

Urban Transformation

Urban Transformation and Building Safety Committee, which is closely related to the agenda of the country, has been founded within Türkiye İMSAD acting with the vision to increase the quality of the industry and add value to society. Urban Transformation and Building Safety Committee has issued Safe Buildings Road Map-1 Report issued by a large task force consisting of companies producing construction materials, industry associations, universities and academicians for safety of materials used in buildings, reinforcement of buildings and construction of modern, robust and safe against natural disasters. This report can be regarded as a guide for the development of the industry. This report also aims to assist in practicing and inspecting processed called safe building chain to other companies in the industry and has been shared with the industry and the public in the 5th International Summit for Quality in Construction on December 5th, 2013. Türkiye İMSAD is also working to found a non-governmental platform consisting of the representatives of universities, ministries, professional institutions, NGOs and chambers for drafting a National Building Regulation.

Safe Buildings Training Center

With Safe Buildings Training Center projected to start in 2014, Türkiye İMSAD aims to create awareness in children of ages 6 to 13 and students of occupational high schools and academies. The center will also house departments related to energy efficiency.
Construction materials industry has a significant employment potential for blue collar and white collar employees alike. In this respect Türkiye İMSAD heeds and aims to actualize the principles of International Labor Organization (ILO) that includes principle rights and declarations on labor. These principles are:

- Basic rights on business life
- Abolishment of all kinds of forced or mandatory labor
- Freedom of organization
- Collective bargaining
- Equality of opportunity treatment
- Prohibition of discrimination
- Minimum labor age, efficiently prevention of child labor.

Turkish construction materials industry is among the industries where production is dense and occupational health and safety should be prioritized. For minimization of risks Türkiye İMSAD conducts risk analyses and assessment works for the purpose of raising consciousness of professionals and its members on occupational health and safety.

Within the scope of Occupational Health and Safety (OHS) policies, member companies define existing risks in their facilities, monitor and assess situations that threaten the health and safety of its employees and take precautions. Apart from OHS systems designed specifically to fields of activity of member companies aiming to prevent occupational diseases and accident minimizing subsequent damages, factories and offices also employ OHSAS 18001, TS 1800 and ISO 14001 management systems as well.
Qualified People, Strong Society

The issue of Qualified People, Strong Society, which is among the development goals of Turkey along with the expectations of Türkiye IMSAD stakeholders, bears significant importance for actualizing development through people approach. The approach of Türkiye IMSAD increasing the social value that places people to the center can be observed within the scope of Qualified People, Strong Society. Türkiye IMSAD supports the spread of best practices in this field.

Kids’ Lab Project

Kids’ Lab Project which started in Turkey in 2011 initially at shopping malls meets its visitors in Istanbul Modern four times a week after March 2013. Activities aim at enabling children of ages 6 to 12 to meet chemistry safely with experiments from life and experience it by seeing and touching. Children visiting Kids’ Lab raise awareness in scientific matters while conducting inactive experiments with non-hazardous materials.

81 Chemistry Labs in 81 Cities

BASF has signed a donation protocol with Ministry of National Education to renovate chemistry labs of 81 high schools with its “81 Chemistry Labs in 81 Cities” project. Continuing successfully since 2011 laboratory decorations and equipment has been renewed by BASF in 81 high schools. The project of BASF is conducted in high schools that have utilized educational opportunities less. Renovating labs of 40 schools by now BASF will complete laboratory renewal and equipping by the end of 2016.
The Value We Add To Society

My First Job is Change in Schools

Dr. (h.c) İbrahim Bodur Kaleseramik Eğitim, Sağlık ve Sosyal Yardımcılık Vakfı (KSV) has helped thousands of youth people with Vocational Courses since 1991. Internship of Ceramic Floor and Wall Tiling Vocational Courses held in around the country has been done in village schools in Anatolia. Thus both trainees have been participants of this social responsibility project in their first jobs and village schools have achieved hygienic conditions. Thanks to the trained artisans who returned to join the cycle, toilets of 27 village schools in 15 cities have been renewed and 2,075 elementary school students have enjoyed healthier environments. In the courses conducted under the protocol between KSV and ministry of National Education, our youth become qualified ceramic artisans compliant to EU criteria. KSV has provided occupation for approximately 4,500 unemployed youth and presented construction industry with approximately 3,800 qualified artisans with development and adaptation courses.

Nuh Çimento Education and Health Foundation

Established with the understanding that supporting the government in education and health carries great importance, Nuh Çimento Education and Health Foundation has been very active since its foundation. Our endeavors is to serve more each year and continue with larger projects our most permanent work in health is Nuh Çimento Oral and Dental Health Center under İzmit State Hospital, built in 1998 in Uzunciftlik which is later transferred to ministry of Health. Another major work is the Burn Unit built and donated to Kocaeli University, Faculty for Medicine Hospital in 2009 to meet a major need of Kocaeli, the heart of Industry. In education, our Foundation has built many educational monuments such as 30. Yıl Nuh Çimento High School, Kocaeli University Faculty of Medicine, Prof. Dr. Baki Komşuoğlu Vocational School, 1988 Nuh Çimento Technical and Industrial Technical and Maritime Anatolian High School in Hereke were built and donated to Ministry of National Education or related authorities. Our foundation provides grants to 700 to 750 university students each academic year.
In light of the vision of Güher and Süher Pekinel, worldwide known piano virtuosos, and with support of Onduline Avrasya, “Young Talents in World Scene” project was started in 2010 to discover young talents of Turkey classical music. Project started as Pekinel sisters in jury selecting students from conservatories in Istanbul, Ankara, Izmir, Antalya, Mersin and Eskisehir. A total of 10 talented students were selected from among the students of piano, violin, cello, flute and clarinet departments. Selected musicians were granted scholarship for training with respectable contemporary pedagogues and musicians in well-known academies in US or Europe or participating graduate courses and competitions. In 2011 scholars proved themselves before audiences in concerts held in Istanbul, Ankara and Izmir and have won several trophies in many international competitions. They are performing as solists in many major orchestras in Turkey and around the world.

Members of Türkiye İMSAD aim to enable implementation and spread of high standards in industry in line with the development of construction materials industry. Raising qualified people bears great importance both for sustainability of construction material production and a steady local production.

In a joint project with county National Education Directorate in 2010 Akçansa Büyükçekmece Factory lodging was reorganized as “Akçansa Vocational Education Center”. Akçansa Vocational Education Center issues journeymen and mastership certificates to over trainees as welders, electricians, lather, barber, electronics and cooking. Thus surrounding companies and enterprises are provided with labor-force. With providing occupation to residents a win-win situation is created.
Ytong Academy

Ytong Academy is a social responsibility project aiming to contribute to the human resource quality in the industry. Academy studies are planned with different contents so as to address students of vocational high schools, universities, architects, engineers and construction foremen. Seminars on topics such as energy efficiency, earthquake and fire safety as well as factory visits and product application training are among the main studies. Within the academy Autoclave Aerated Concrete Applications courses are given in four universities are elective and credited lectures. Free of charge education in the Academy reaches over a thousand professionals and over 3,000 students each year.

Dyo Academy

According to the Occupational Proficiency Institutions (OPI) Law issued in 2012 and OPI Testing and Certification Regulation, construction painter is obliged to document his proficiency in his job. As a result of the work done for this purpose, DYO Boya Fabrikaları San. Ve Tic. A.Ş., DYO Academy Department has been accredited as Accredited Testing Center by Turkish Accreditation Institution (TURKAK) under TS - EN ISO / IEC 17024 general conditions standard for institutions granting Personnel Certification 11UY0023-3 Construction Painter. Certification System is established to be fair, equal, independent and reliable. Sufficiency criteria are determined according to generally accepted International Standards. Within the scope of 11UY0023-3 Construction Painter National Capabilities, Testing and Certification will be provided and proficiency document approved by DYO - Vocational Proficiency Institution - TURKAK will be issued.
Türkiye İMSAD members work fervently on training for supporting R&D, preparing training programs in cooperation with academic institutions and acquiring modern and sustainable production techniques. Most of the Türkiye İMSAD employees are trained in natural resource usage and technical information, mainly on occupational health and safety. Türkiye İMSAD believes that trainings in the sector will provide significant contributions to decreasing employee turnover rate, increasing high quality production, improving health and safety conditions of the industry and raising labor force quality.

Employee turnover rate of company members of Türkiye İMSAD is 13% in 2013.

On the other hand, in the long run, prerequisite of innovative, different and high quality production lies in investment in qualified labor force. Therefore trainings and performance evaluations play a major role in Türkiye İMSAD’s goals as methods that increase motivation and quality.

All Türkiye İMSAD employees are provided with performance and career evaluation.

In 2013, 89.9% of all white and blue collar employees of company members of Türkiye İMSAD have been provided with performance and career evaluation.

Türkiye İMSAD Members Average Training Hours Allocated per Employee
Within the framework of public awareness works, Türkiye İMSAD has prepared a public service ad with cooperation of Ministry of Energy and Natural Resources. With the public service ad “Anyone Hear My Voice?” possible results of wrong material use is displayed and importance of safe and strong buildings are stressed.

Türkiye İMSAD supports cooperation of university and industry. Within this context according to the model developed by İMSAD, programs consisting of courses lectured by different industry representatives are conducted in several universities, courses are held to support high quality education and to share information required for the requirements of the industry.

Don’t Waste Your Energy

Türkiye İMSAD has prepared “Don’t Waste Your Energy” campaign to inform the public and create awareness on energy use and efficiency with cooperation of Ministry of Energy and Natural Resources.

Anyone Hear my Voice?

Within the framework of public awareness works, Türkiye İMSAD has prepared a public service ad with cooperation of Ministry of Energy and Natural Resources. With the public service ad “Anyone Hear My Voice?” possible results of wrong material use is displayed and importance of safe and strong buildings are stressed.

Organizing various activities on material topics of construction materials industry, Türkiye İMSAD takes on an important role in reaching sustainability goals. Results of the stakeholder assessment fieldwork conducted in November 2013 revealed that a majority of the stakeholders perceive Türkiye İMSAD as a source of information and reference for the industry and sustainability of the industry. With this in mind, Türkiye İMSAD continues to increase capacity and awareness by communicating its stakeholders via reports, conferences, seminars, contact meetings press bulletins, magazines, social media and public service ads.
Representing construction industry at home and abroad since its foundation in 1984, Association of Turkish Construction Material Producers (Türkiye İMSAD) is a non-governmental organization. It has gone through reorganization and started to accept industry associations and stakeholder institutions as members. Having stronger representative power both at home and abroad as a result of this reorganization, Türkiye İMSAD is a non-profit umbrella organization. It has a communication network of 21,000 producers with industry leader manufacturing establishments and associations.

Türkiye İMSAD is the driving force of Turkish construction materials industry; contributing to the growth of the whole of Turkish construction industry; participating in the establishment and practice of rules and adopting the vision to be an organization adding to the industry and companies. Türkiye İMSAD has the mission to create the highest value possible for all stakeholders with solution oriented management in representation of Turkish construction materials industry. In order to provide a growing, profitable and sustainable future, to create awareness in society, Türkiye İMSAD promotes ethical business dealings, follows the interests of the majority, represents the industry at home and abroad. In 2014, Türkiye İMSAD has become the first association to report on sustainability in construction materials industry with an initiative that is complementing its vision, mission and goals.

Türkiye İMSAD continues its operations in its new office in Kavacık, Istanbul with its new logo representing urban transformation, innovation and environment values.
Sectoral Coverage of Türkiye İMSAD

Timber & Wood Products
Gypsum & Gypsum Products
Aluminum
Lifts
Lighting
Fittings
Bims&bims Products
Pipes
Paint
Glass
Roofing & Façade Cladding
Cement
Iron & Steel
Floor & Wall Cladding
Autoclaved Aerated Concrete
Ready- mixed Concrete

Heating, Cooling, Ventilation & Mechanical Installation
Moulds& Scaffoldings Systems
Building Automation Systems
Lime & Lime Products
Kitchen & Accessories
Windows, Doors & Accessories
Precast Concrete Systems
Prefabricated Building Products
Ceramics
Vitrified Products & Armatures
Brick & Tiles
Building Chemicals
Insulation Materials
Others
Our International Operations

EUbuild

“Creating Awareness on the Possible Impact of EU Harmonization and Cooperation in Construction Materials Industry” project submitted to European Commission at the end of 2007 by Türkiye İMSAD has been financially supported. The project started in January 2008 and was successfully completed in June 2009. It has been included in the Commission Result Conference in Croatia as a sample project.

EUbuild EE

Upon successful performance of EU build project prepared between 2007 and 2009 on EU harmonization of Turkish construction materials industry, Türkiye İMSAD has been granted fund support from European Commission for a second time in 2011. Being elected among the 12 projects to be funded among 200 rivals, “EU build EE Energy Efficiency Finance in Construction Project” aims to develop finance tools and mechanism on energy efficiency in buildings.

Led by İMSAD, EU build EE project has Albanian Energy Efficiency Center (ECC), Council of European Producers of Materials for Production (CEPMC), Chamber of Economy of Sarajevo Canton (CESC), Macedonian Center for Energy Efficiency (MACEF), Montenegro Employer Federation (MEF) and Belgrade Chamber of Commerce (BCC) are partners of the project. Participants of the EU build EE project consist of 47 institutions and establishments form Belgium, France, Austria, Norway, Albania, Bosnia Herzegovina, Macedonia, Montenegro, Serbia and Turkey.
Our Memberships

- CPE, Construction Products Europe, Board Member
- CEDBIK, Eco-Friendly Building Association, Founder Member
- DEIK, Foreign Economic Relations Board, Founder Member
- SEDEFED, Board Member of Federation of Industrial Associations
- Export and International Consulting, Contracting and Coordination Council member
- İTBAK, Construction Technical and Scientific Research Council, Board Member
- TOBB SME Contractors Council Member
- TSE, Turkish Standards Institute Advisory Committee, Vice Chairman
- YAD, Building Research Society founding member and President of the Board of Directors
- YAMTEK, Member of the Technical Committee on Building Materials
Türkiye İMSAD Governance

Türkiye İMSAD management structure consists of General Assembly, Board of Directors, Board of Inspectors, Executive Board and General Secretariat. Türkiye İMSAD holds board of directors meetings regularly each month to conduct.
Türkiye İMSAD presents an innovative structure in associations both with its member profile, its organization structure and its corporate identity. Including company members along with its sectoral associations, Türkiye İMSAD also reaches stakeholder corporations with industry related activities. With this rare structure all stakeholders of Turkish construction industry is brought together under a single roof.

With its wide member structure Türkiye İMSAD, has a network that can reach over 18,000 different points at once. With 7 company members, 1 association and 1 participant members, Türkiye İMSAD has reached 231 total numbers of which 76 are company members, 29 are sectoral associations and 8 are participating members. Having members from first and second ISO top 500 lists Türkiye İMSAD, employs at least 1.5 million people with its membership structure. Construction material industry has a direct impact on 7.5% of the population of Turkey when the families of the employees are included. Reaching 17% of the production industry, the construction materials industry preserves the same percentage in the overall value added in the industry.

Technical Committees and work groups armed with technically qualified staff from Türkiye İMSAD members and from academicians have been established and started their duties by the end of 2013. Electing their chairperson, vice-chairperson and secretary, committees prepare their 2014 business plan and set their long, medium and short term goals. Selected titles from work plans of committees are given below:

- Giving technical support and service on important areas such as legislation, technical specifications and regulations on demand from the public or industry,
- Inspection and declaring opinion on current documentation and practices,
- Carefully preparation of material descriptions and technical specifications,
- Preparing material and/or assembly standards.
Türkiye İMSAD Sustainability Committee

Türkiye İMSAD Sustainability Committee started to take action in 2011 to contribute in creating policies on environment, energy efficiency, climate change related topics for the sustainability of Turkish Construction Material Industry and to establish cooperation for raising awareness and providing information.

Türkiye İMSAD Foreign Trade Committee

Foreign Trade Committee established to monitor the global priorities of the industry, forge sustainable and permanent alliances with international organizations and corporations in line with the vision of Türkiye İMSAD, continued its duty in 2013. Experts from the industry, stakeholders and institutions were invited to exchange knowledge on countries with potential.

Türkiye İMSAD Market Development Committee

Founded in 2013, Market Development Committee has the main objective of growing and developing the market and providing sustainable growth. Committee founded for this purpose prioritizes the following issues:

- Work on actualizing new products aimed at legal changes and practices concerning finance needs of industry producers and securing receivables,
- Developing suggestions for financial solution towards building material producers within urban renewal,
- Study on unfair competition, informal economy and other problems that are detrimental for the markets,
- Following large scale projects in domestic and global markets and researching national and international financial support to be able to participate in such projects,
- Developing suggestions aimed for growing the industry with new regulations of mortgage system and supporting legislation,
- Organizing and supporting meetings such as promotions and fairs that will help for the growth of both domestic and global markets.
Türkiye İMSAD Technical Board

Due to wide scope and diversity of construction materials, there are construction materials in all formats. Apart from these technical issues are also present in various design and manufacturing processes and in assembly and usage of the materials. Türkiye İMSAD has technical committees and work groups to tackle these issues. Founded in 2013, Technical Board 2013 is founded to coordinate all committees and work groups and to establish and announce Türkiye İMSAD’s opinion by presenting the results to the association management and related parties.

Building Material Regulation Committee

It works under the Building Material Regulation no: 305/211, which is expected to enter into force starting on July 1st, 2013 and replace Directive 89/106/EEC.

Environment Friendly Material Technical Committee

It works on environment, climate change, ecology, energy use and efficiency, poisonous compounds, waste and recycling. It aims to commission projects in 2014 that cover education on Environment Friendly Buildings/Materials projects and related regulations as well as requirements and procedures for obtaining EPD certification.

Technical Committee on Construction Material Purchase Specifications

Commission mainly handles general technical issues in public sector purchasing specifications and provides opinions by inspecting general laws and legislation. When needed, works on technical specifications, purchasing and procurement processes of corporations such as TOKİ will also be conducted in cooperation with such institutions.

Committee on Heat Insulation Rules Standard Revision in TS 825 Buildings

Established to form opinion during revision process of the standard in related committees and work groups. Committee on Heat Insulation Rules Standard Revision in TS 825 Buildings has Window, External Door and Glass Work Group operating under it. Window, External Door and Glass Work Group are established to form opinion on the revision of the standard.
Performance Indicators

Energy Consumption of Türkiye İMSAD Members, TJ

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<th>2011</th>
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<tr>
<td>Total Energy Consumption</td>
<td>80.571</td>
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<td>83.308</td>
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<td>Indirect Energy Consumption (Electricity)</td>
<td>7.864</td>
<td>8.224</td>
<td>7.961</td>
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<td>Direct Energy Consumption</td>
<td>72.589</td>
<td>74.288</td>
<td>74.735</td>
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<tr>
<td>Coal Consumption</td>
<td>50.509</td>
<td>52.817</td>
<td>52.009</td>
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<td>Natural Gas Consumption</td>
<td>19.757</td>
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<td>19.469</td>
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<td>Other Fossil Fuel Consumption</td>
<td>454</td>
<td>346</td>
<td>365</td>
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<td>Alternative Fuel Consumption</td>
<td>1.625</td>
<td>2.259</td>
<td>2.304</td>
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<td>Biomass Fuel Consumption</td>
<td>244</td>
<td>264</td>
<td>589</td>
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<tr>
<td>Renewable / Waste Heat Energy Consumption</td>
<td>119</td>
<td>299</td>
<td>611</td>
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CO₂e Emission Distribution of Türkiye İMSAD Members

2013 CO₂e emissions distribution:
- Direct CO₂ emissions: 92.3%
- Indirect CO₂ emissions: 7.3%
- Biomass CO₂ emissions: 0.4%

Greenhouse Gas Emissions of Türkiye İMSAD Members, tons CO₂e

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<tr>
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<th>2011</th>
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<th>2013</th>
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<td>16.221.013</td>
<td>16.164.119</td>
<td>16.025.704</td>
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<tr>
<td>Direct CO₂ emissions</td>
<td>15.059.121</td>
<td>14.948.933</td>
<td>14.849.164</td>
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<tr>
<td>Indirect CO₂ emissions</td>
<td>1.161.892</td>
<td>1.215.185</td>
<td>1.176.540</td>
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<td>Biomass CO₂ emissions</td>
<td>24.451</td>
<td>26.197</td>
<td>61.064</td>
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Energy & Greenhouse Gas Emission Densities of Türkiye İMSAD Members

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<td>Turnover $</td>
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<td>4.373.776.032</td>
<td>4.640.570.011</td>
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<td>TJ/ million $</td>
<td>18.68</td>
<td>18.93</td>
<td>17.95</td>
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<tr>
<td>Tons CO₂e/million $</td>
<td>3.761</td>
<td>3.696</td>
<td>3.453</td>
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Types of Greenhouse Gases indicated in CO₂e

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<td>CO₂ (tons CO₂)</td>
<td>16.199.832</td>
<td>16.140.692</td>
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<td>CH₄ (tons CO₂e)</td>
<td>5.419</td>
<td>5.956</td>
<td>5.645</td>
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<tr>
<td>N₂O (tons CO₂e)</td>
<td>15.763</td>
<td>17.471</td>
<td>16.651</td>
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<tr>
<td>Total (tons CO₂e)</td>
<td>16.221.013</td>
<td>16.164.119</td>
<td>16.025.704</td>
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Türkiye İMSAD Members Water Data Table

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<th>2012</th>
<th>2013</th>
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<tr>
<td>Total Volume of Surface Water Withdrawn (m³)</td>
<td>1,364,449</td>
<td>1,257,633</td>
<td>1,492,050</td>
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<tr>
<td>Total Volume of Ground Water Withdrawn (m³)</td>
<td>4,272,911</td>
<td>6,386,989</td>
<td>5,300,958</td>
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<tr>
<td>Total Volume of Rain Water Collected (m³)</td>
<td>5,245</td>
<td>428,245</td>
<td>3,225</td>
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<tr>
<td>Total Volume of Water Reuse (m³)</td>
<td>532,017</td>
<td>619,781</td>
<td>681,753</td>
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<tr>
<td>Total Volume of Treated Water (m³)</td>
<td>3,036,601</td>
<td>2,779,255</td>
<td>3,567,400</td>
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<tr>
<td>Total Volume of Water Withdrawn from Municipal Resources (m³)</td>
<td>1,260,468</td>
<td>1,261,497</td>
<td>1,247,222</td>
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<tr>
<td>Volume of Total Water Withdrawn (m³)</td>
<td>7,832,979</td>
<td>10,308,137</td>
<td>9,078,787</td>
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<td>Ratio of Total Treated Water to Total Water Withdrawn (%)</td>
<td>38,8</td>
<td>27,0</td>
<td>39,3</td>
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<tr>
<td>Ratio of Total Water Reuse to Total Water Withdrawn (%)</td>
<td>6,8</td>
<td>6,0</td>
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Türkiye İMSAD Members Waste Data Table

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<tr>
<td>Total Weight of Hazardous Waste (Tons)</td>
<td>140,246</td>
<td>240,818</td>
<td>248,533</td>
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<td>Total Weight of Non-Hazardous Waste (Tons)</td>
<td>390,084</td>
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<tr>
<td>Total Weight of Waste (Tons)</td>
<td>530,330</td>
<td>724,684</td>
<td>1,165,351</td>
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<td>G4-12</td>
<td></td>
<td>Türkiye IMSAD has nearly 100 suppliers on its supplier list and working the suppliers with corporate companies that cares about ethical values.</td>
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<td>Türkiye IMSAD 2013 Annual Report (<a href="http://imsad.org/docs/frap_2013.pdf">http://imsad.org/docs/frap_2013.pdf</a>, page 22)</td>
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## SPECIFIC STANDARD DISCLOSURES

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**MATERIALITY MATTERS**

At the time of publication the G4-17 to G4-27 disclosures were correctly located in this G4 content index and final report.

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TÜRKİYE İMSAD SUSTAINABILITY REPORT 2013   70-71