

DUNACELL
SUSTAINABILITY
REPORT 2015-2017



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FOREWORD

I am pleased to hand over Dunacell's first Sustainability Report to our readers. I hope that the Report contributes to our stakeholders' understanding that our company is a great example of sustainable operation. Our product is made of a locally grown raw material, an agricultural by-product, the utilisation of which is not completely solved. Beyond this, we would like to present how we ensure in our production processes that our impacts on the environment are minimised. We also care about social issues: we strive to maintain and increase the satisfaction of our own employees and we seek to contribute to the development of our suppliers so that they can also provide the best possible conditions to their own workers. We also care about local communities, enterprises and organisations by considering their interests in our decision making.

We believe that the key to Dunacell's long establishment and its future is the fact that its management has always thought long term. Thinking long term these days means sustainable thinking and this goes far beyond the original concept of economic sustainability. This is what our partners expect us. It is a global trend that an increasing number of international companies, including our customers, would like to ensure that their full supply chain is sustainable. These expectations were our main drivers to publish our first sustainability report.

We consider our Report much more than a PR tool but we are aware that a good report will contribute to the image of the company. For us, a good report means that it talks about our achievements and challenges as well, presenting a balanced picture of our performance. We are proud of our sustainability achievements and seek to identify the areas that need improvement. Our main ambition is to ensure the market success of our high-quality product, for which we need to continuously optimise our production processes, develop and modernise the technology we use and reduce the use of potentially hazardous materials. Parallel to continuously decreasing the amount of materials, energy, water etc., used per ton of product, we also decrease production costs and our impact on the environment. As a result of and also for the sake of continuous development, our production buildings are continuously refurbished, our production processes are state-of-the-art and the best available techniques are used.

Nevertheless, we acknowledge that there is always room for improvement, environmental impacts can be further decreased and we are ready to take all opportunities to do so.

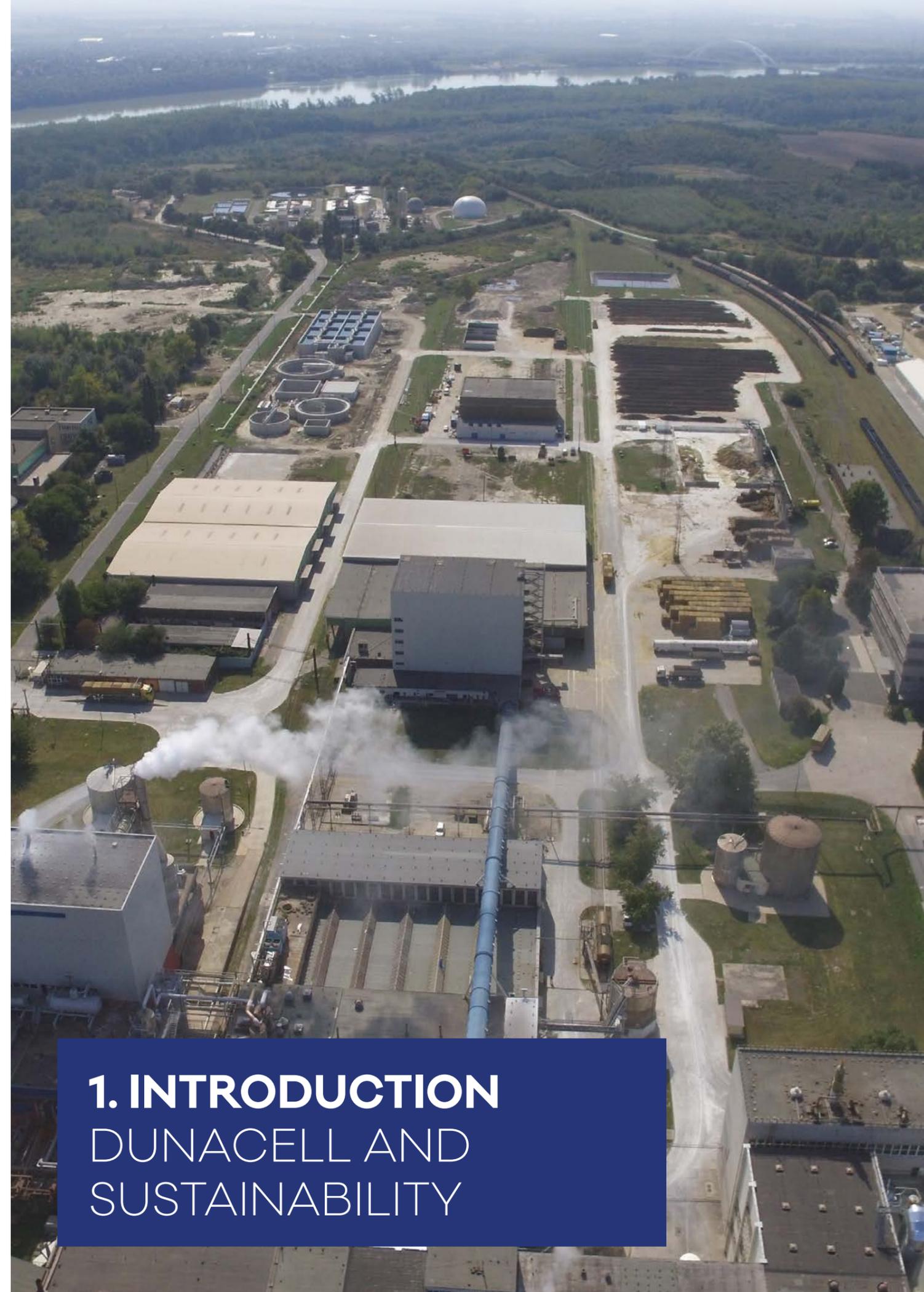
We are happy to be one of the few Hungarian companies publishing sustainability reports in the food processing sector. At the same time, we hope that more and more companies will embrace this approach. We also trust that this Report will fulfil the interests and expectations of our stakeholders.

I highly appreciate the work my colleagues have put into the sustainability performance of the company and the compilation of this Report. I am confident that our common efforts will keep the company on the right track towards even higher levels of sustainability.



A handwritten signature in blue ink, appearing to read 'S. Széles'.

Szilárd Széles, CEO, Dunacell Kft.



1. INTRODUCTION DUNACELL AND SUSTAINABILITY

1. INTRODUCTION

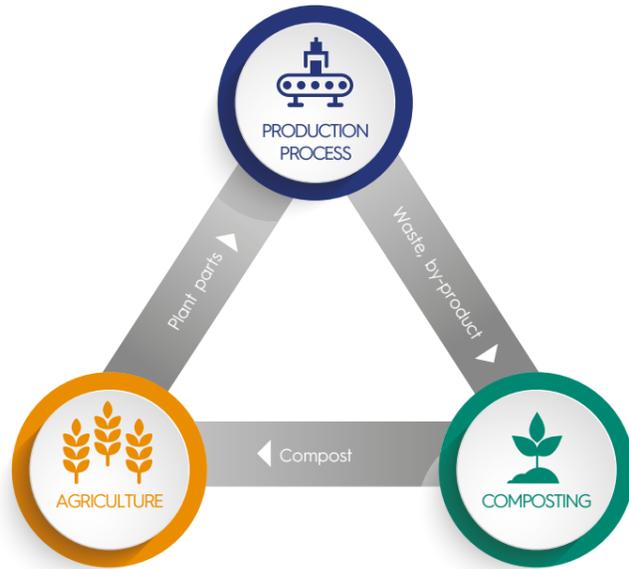
Dunacell Dunaújvárosi Cellulózgyártó Kft. is unique in Europe being one of the biggest dietary fibre producing company in the continent. It is owned 100% by J. Rettenmaier & Söhne (JRS) group, present in 120 countries around the world. Dunacell's main profile is the production of dietary fibres from annual plants, mainly from wheat straw. The company has more than 50 years history and has been situated in Dunaújváros, Hungary since its establishment.

The main product of Dunacell is dietary fibre made of locally grown annual plants, mainly wheat straw. From the residues of wheat processing and also from biologically degradable waste sourced from the surrounding area, Dunacell also produces yield enhancing compost.

Sustainability is one of the most important undertakings of Dunacell to increase product quality. Our partners, especially our customers are focusing more and more on assessing the sustainability of their own activities as well as their partners'. Apart from developing our technology and internal processes, we also place strong emphasis on the development of our management systems. The assessment, development and management of our activities from sustainability aspects forms an integral part of these efforts.

The operation of Dunacell is an excellent example of circular economy: the raw material is sourced from local farmers, while part of the by-products from our production processes are used to produce compost, utilised by local farmers for agricultural purposes. This economy model has multiple sustainability benefits: our by-products are utilised and the farmers need less artificial fertilisers on their lands.

Figure 1: Circular economy



The fact that our main product is produced from renewable local materials is not enough to say that our operation is sustainable on the long term. All production processes have impacts on the environment and the society, and the management of these impacts affects the overall sustainability of the company. Especially, if we look beyond the gates of our production plant and consider our whole supply chain downstream and upstream.

Recognising the extent of our responsibilities in sustainability issues, our Report covers the sustainability aspects of both our own processes and our supply chain.



Microscopic picture of wheat fibre

1.1 OUR PRODUCTION PROCESSES

We continuously monitor the use of materials, energy and other resources. Materials are recovered and recycled as much as possible and we also seek to minimise the impacts of transportation. We focus on the development and integration of technologies that minimise our impacts. In addition, we consider sustainability as an overall criterion for cooperation with our partners. We also place a strong emphasis on the compliance with national and international legal requirements.

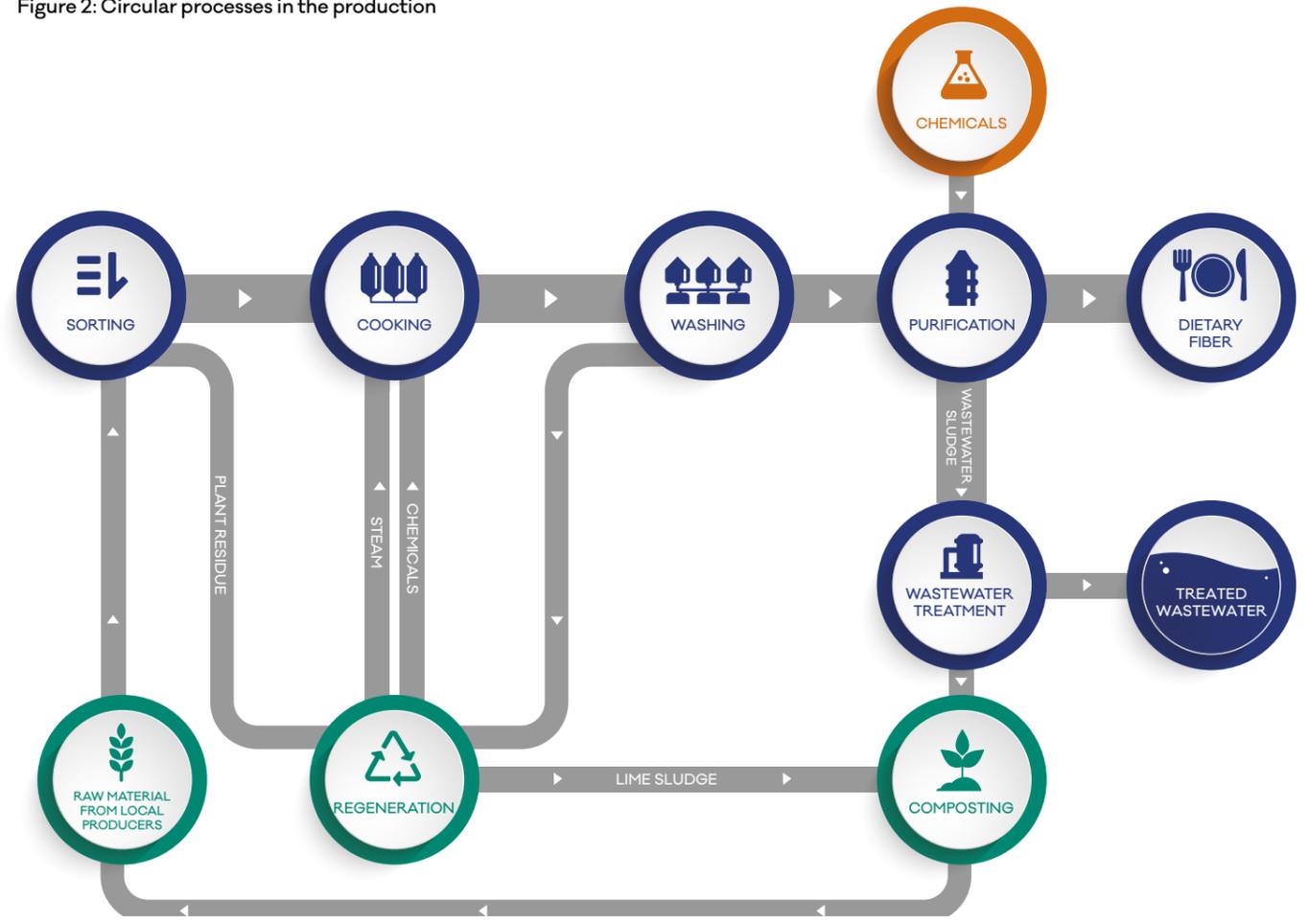
Dunacell applies the best available techniques in its production processes, we are continuously modernising our equipment to achieve the most efficient operation possible. We regenerate and reuse part of the chemicals. We use renewable materials, such as organic material dissolved out from straw, lignin and part of the waste straw from processing to generate process heat in our boiler. Process water is also recycled before treating it in the wastewater treatment plant (WWTP).

The next figure shows our production with the circular processes, contributing not only to high-level production but also increasing the water and energy efficiency of these processes.

The main framework of sustainability is clear: sustainable products, circular economy, low energy and material use due to the circular processes and zero waste production. However, we are aware that all economic activities have environmental and social impacts. We want to make sure that all potential impacts of our activities are identified and a carefully considered approach is in place to deal with them. Writing a sustainability report is a great opportunity to have a systematic overview of our impacts and identify any shortcomings in managing them.

Our partners, especially our customers are keen on seeing how their suppliers are managing their impacts. This is one of the drivers why we have decided to overview our impacts in a sustainability report.

Figure 2: Circular processes in the production



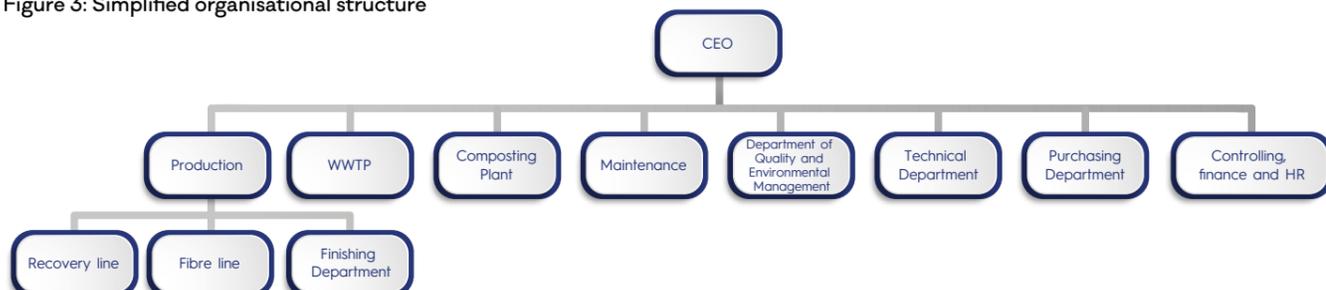


1.2 SUSTAINABILITY MANAGEMENT AT THE COMPANY

The JRS group issued its Group Policy in March 2016, covering employee rights, occupational health and safety issues as well as energy management. The main aim of the Policy is to minimise negative and maximise positive impacts on the environment and the society. Dunacell's management strictly obliges to the principles and goals of this policy in every area of its operation.

The figure below illustrates the organisational structure of the company. Sustainability and environmental management are fundamental values for us, the whole management is responsible for them, supervised by the CEO. This structure ensures that all sustainability issues are overseen by the highest management level.

Figure 3: Simplified organisational structure



1.3 POLICIES FOR SUSTAINABILITY

Dunacell's Safety, Quality and Environmental Policies all serve our sustainability goals.

Our policies emphasise the importance of prevention, which is implemented by risk assessment and preventive maintenance. These issues are integral parts of employee trainings as well. We regularly revise our policies and ensure that our processes conform to them in order to minimise our impacts. Legal compliance is fundamental for our company, beyond this, we are keen on being prepared for challenges and to be aware of all our impacts.

Extracts from Dunacell Policies:

"In case of planning new investments or developments, we consider environmental as well as occupational safety aspects to the extent possible. We apply the precautionary principle to prevent emergencies."

Environmental Policy

"To avoid severe chemical accidents, we focus on prevention."

Safety Policy

"Complying with regulations, we continuously assess unavoidable risks, and take actions for the preventive improvement of working conditions."

Safety Policy

1.4 OUR EMPLOYEES

We consider our employees the basis of our success and one of our most important stakeholders. Their well-being, satisfaction with working conditions and their career opportunities create the foundation on which our company can rely.

Dunacell currently employs a total of 122 people. The composition of our workforce can be found in the table below; 100% of them are covered by collective agreements.

We are striving to achieve a positive social impact by providing our employees with opportunities for development through training, contributing to the well-being of their families and the wider community.

Table 1: Characteristics of our workforce

Year/data	White collar		Blue collar		Total	Female	Male
	Full-time	Part-time	Full-time	Part-time			
2015	20	1	90	0	111	17	94
2016	19	2	93	0	114	17	97
2017	23	3	96	0	122	18	104

1.5 OUR SUPPLIERS

We purchase all our raw materials, energy sources, most of the chemicals and the services from Hungary (see also Chapter 3.1). Although Dunacell is a medium-sized company, we have a wide range of suppliers - approximately 600 different companies. We recognise our role in the society-related aspect of sustainability. Approximately 550 of our partners are from Hungary and the rest are from foreign countries.



1.6 OUR MARKETS AND OUR ECONOMIC PERFORMANCE

Most of the dietary fibre Dunacell produces is sold to Western European food producers, but our Central-Eastern European sales have also been increasing. All of our compost product is bought by local farmers.

Our financial results for the last 5 years are summarised in the table below:

Table 2: Our financial results

Year	2013	2014	2015	2016	2017
Net sales (thousand HUF)	6 498 276	6 685 762	6 947 947	6 504 410	6 753 459
Capital (equity + provisions, thousand HUF)	1 766 093	2 210 553	2 619 309	3 198 649	3 764 681
Debts (liabilities + accruals, thousand HUF)	4 152 567	4 570 875	4 760 806	5 020 462	5 525 730
Sale of dietary fibre (tons)	21 030	20 703	20 495	20 539	21 089
Sale of compost (tons)	0	0	4 228	85 843	45 219

Our financial numbers illustrate a balanced performance and stable capitalisation. Due to our continuous developments and investments, we have a positive outlook for sales as well as profitability.

Although the increase of compost sales does not have a major impact on our incomes due to low prices, it still represents a significant improvement in our activities.

1.7 OUR STAKEHOLDERS

We are aware that our sustainability activities can only be evaluated through dialogue with our stakeholders. Stakeholder involvement ensures that our sustainability goals are not formulated in isolation but with the close involvement of the people and organisations that our activities influence or whose activities influence us. The next table shows our communication practice with stakeholders as well as the issues that have appeared significant during these dialogues. We seek to involve all of our stakeholder groups into the life of the company and the decisions that affect them.

We have decided to involve our most important stakeholders in the preparation of our first sustainability report. These stakeholders are the ones that we assumed could add the most value to the content of the Report. Their involvement was not only important for the Report but we also had the opportunity to find out about their expectations and the opinions of the stakeholder groups on the importance of the different issues (see also Chapter 2).

Table 3: Stakeholder involvement

Stakeholder group	Stakeholders	Communication channels	Material issues
Owner	JRS Group	Yearly report and planning Monthly reports Meetings	Financial performance Stability Strategy Sustainability
Management	Dunacell higher management	Monthly reports Daily meetings Meetings	Economic performance Efficiency Development plans and projects Legal compliance
Employees	Dunacell employees and representatives	Employee meetings Employee events Internal communication Internal procedures and regulations Training and education Meetings with the Works Council Cooperation with the Trade Union	Information on company strategy Information on events, changes, results and developments Occupational safety, working conditions
Suppliers	Carriers and service providers	Negotiations on continuous or occasional cooperation Contracts Supplier assessment	Cooperation Contractual terms Supplier development Sustainable cooperation
Customers	Direct and indirect customers	Through sales network	Feedback on product Customer demands, experience and expectations
Professional organisations	Professional associations	Professional events Statistics Newsletters	Information exchange
Municipalities	Municipalities of neighbouring settlements	Events Official correspondence	Community involvement Eco-friendly solutions Developments and their impacts
Neighbours	Neighbouring companies	Regular Meetings Official correspondence Events	Development plans Eco-friendly solutions Cooperation Information exchange

1.8 SUSTAINABILITY MEMBERSHIPS

Our owner, JRS, is a member of Sedex (<https://www.sedexglobal.com/>), a non-profit membership organisation dedicated to advance improvements in ethical and responsible business practices in global supply chains. Our membership ensures that the JRS Group can demonstrate its dedication to sustainability.

Dunacell is also a member of CEPI (The Confederation of European Paper Industries, www.cepi.org) and PNYME (Papír- és Nyomdaipari Műszaki Egyesület, www.pnyme.hu).

1.9 ABOUT THE REPORT

This is our first Sustainability Report and we wanted to make sure that its content and format fit into the line of internationally recognised sustainability reports and is comparable and meets their quality. This is why we have decided to publish a report according to GRI G4 by the Global Reporting Initiative.¹

The basic concept of GRI G4 is that the content of the Report should be formulated with the involvement of the stakeholders, focusing on material issues. This way the Report reflects the views and expectations of the stakeholders, instead of only covering the sustainability topics considered important by the reporting organisation.

Material issues were defined based on the impacts the activities of the company have on society and the environment, as well as based on the evaluation of the topics by the stakeholders involved. The details of the materiality assessment are described in Chapter 2.

GRI G4 provides two options for reporting: core and comprehensive². For our first Report, we have chosen the "core" option. Both options are built upon the same principles for content and quality (see Annex I) and our Report was prepared adhering to these principles.

This Report presents the results of our sustainability achievements for the years 2015, 2016 and 2017 and discusses relevant trends wherever possible to help readers evaluate our performance through time. We analyse the reasons for these trends and also provide an outlook to the future.

This Report is an important first step - we are planning to publish a Sustainability Report every 3 years from now on. For this Report, we have decided not to have it validated as we would first like to see our stakeholders' reactions.

Dear Reader! If you have any questions or comments on the contents of this Report or on our sustainability performance, please, write us at: dunacell@dunacell.com

¹ GRI (Global Reporting Initiative) is an independent international organisation founded primarily to establish a sustainability reporting system to ensure that information and data presented in sustainability reports are transparent, comparable, reliable, accurate, timely and verifiable. Following continuous development, G4 was issued in 2013. Currently, GRI G4 is the most widely used guidance for sustainability reporting worldwide.

² The "core" option requires the disclosure of general standard indicators and at least one indicator for each aspect that proved to be material through the materiality analysis. Comprehensive reports are supposed to disclose all GRI G4 indicators. In both cases, sectoral guidance should be applied where available.

More information: www.globalreporting.org

2. MATERIALITY



2. MATERIALITY

According to GRI G4, the content of sustainability reports should be defined together with the stakeholders. Dunacell has adopted a two-step approach to guarantee that all material issues are discussed in the Report. As a first step, all potentially relevant issues were collected by the CEO and Dunacell management team, including non-sector specific GRI G4 aspects as well as aspects and disclosures provided in GRI's Food processing sector guidance*. All relevant issues were discussed and evaluated according to the impacts of company activities on the environment and the society.

The following relevant topics were identified:

- Economic performance
- Market presence
- Indirect economic impacts
- Procurement practices
- Material use
- Energy use
- Water consumption
- Biodiversity
- Emissions to air
- Effluents and waste discharge
- Environmental impacts of products
- Environmental compliance
- The impacts of transport
- Overall environmental expenditures
- Supplier assessment from environmental aspects
- Environmental grievance mechanisms
- Employment
- Labour-management relations
- Occupational health and safety
- Training and education
- Supplier assessment for labour practices
- General legal compliance

As a second step, the list of relevant issues above (a total of 22 issues) was sent out to our stakeholders to vote on the importance of the issues regarding sustainability performance.

The following stakeholder groups were approached:

- Owner
- Dunacell management
- Employee representatives
- Suppliers
- Our biggest direct customer (JRS)
- One professional organisation (PNYME)
- The municipalities of the surrounding settlements (Dunaújváros, Dunavecse, Kisapostag), as well as
- Neighbouring companies

We asked our stakeholders through an online questionnaire to rate the importance of the issues above on a 1 to 8 scale (1=not important at all, 8=very important). A short description was also provided for each topic to gain a common understanding of the issues. A total of 21 organisations/representatives were approached and 19 answers were received.

None of the relevant issues got an average score below 6 from stakeholders, which has a clear message: there was no relevant issue that stakeholders in general considered "not important" from a sustainability point of view.

The 9 issues considered most important by the approached stakeholders were (with an average score above 7 points out of the maximum 8):

- Economic performance
- Energy use
- Water consumption
- Emissions to air
- Effluents and waste discharge
- Environmental impacts of products
- Environmental compliance
- Occupational health and safety
- General legal compliance

Out of these issues, 6 are environmental, 2 are social and 1 is economic. This method provided an excellent opportunity for us to see the differences in the opinion of the different stakeholder groups. The most important issues by stakeholder group were the following (topics are presented in the order of importance):

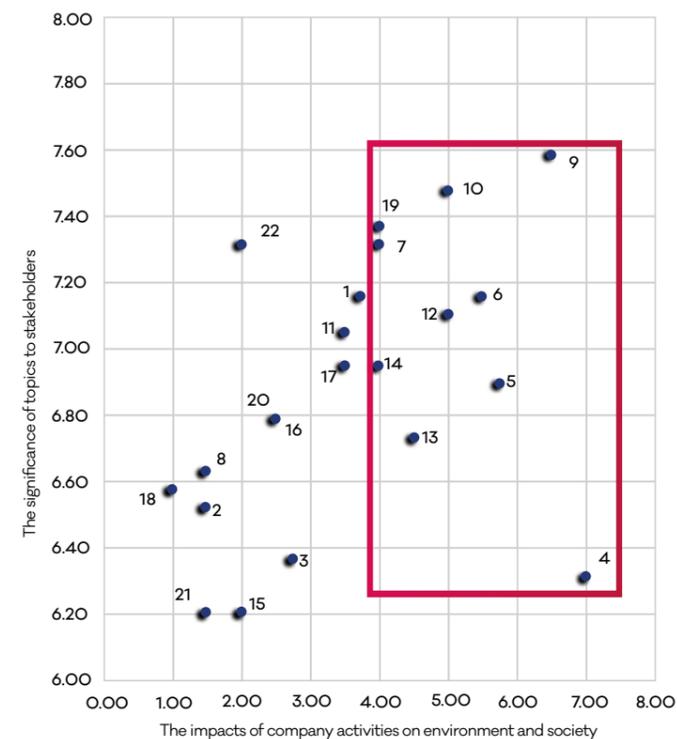
Table 4: The importance of topics according to stakeholder groups

Management	economic performance, material use, energy use, water consumption, biodiversity, emissions to air, effluents and waste discharge, environmental impacts of products, environmental compliance, general legal compliance
Suppliers	general legal compliance, economic performance, emissions to air, occupational health and safety
Customers	economic performance, indirect economic impacts, employment, training and education
Employee representatives	economic performance, water consumption, labour-management relations, occupational health and safety
Municipalities of neighbouring settlements	emissions to air, overall environmental expenditures
Neighbouring companies	emissions to air, effluents and waste discharge

It can be concluded that environmental issues were important for most stakeholders, while social and economic issues were considered significant mainly by suppliers, customers and employee representatives.

Based on the impact assessment and the questionnaire results, a materiality matrix was created, on which the average of environmental and social impacts is indicated on axis X and the significance of the topic based on stakeholders' opinions on axis Y.

Figure 4: Materiality matrix



1	Economic performance
2	Market presence
3	Indirect economic impacts
4	Procurement practices
5	Material use
6	Energy use
7	Water consumption
8	Biodiversity
9	Emissions to air
10	Effluents and waste discharge
11	Environmental impacts of products
12	Environmental compliance
13	The impacts of transport
14	Overall environmental expenditures
15	Supplier assessment from environmental aspects
16	Environmental grievance mechanisms
17	Employment
18	Labour-management relations
19	Occupational health and safety
20	Training and education
21	Supplier assessment for labour practices
22	General legal compliance

In order to formulate the content of the Report, all issues that received at least score 4 on both axes were defined as "material issues". We selected this evaluation method to ensure that we focus on the issues receiving at least a medium rating from both the aspect of their impacts and the importance for the stakeholders.

Based on this, the following 10 issues are material for Dunacell:

- Procurement practices
- Material use
- Energy use
- Water consumption
- Emissions to air
- Effluents and waste discharge
- Environmental compliance
- The impacts of transport
- Overall environmental expenditures
- Occupational health and safety

These selected topics represent all three aspects of sustainability: economic, environmental and social.

The impacts within and outside of the organisation are presented for all selected material issues in the following table:

Table 5: The impact boundaries

Material issues	Impact within the organisation	Impact outside of the organisation
Procurement practices	x	x
Material use	x	x
Energy use	x	x
Water consumption	x	x
Emissions to air	x	x
Effluents and waste discharge		x
Environmental compliance	x	
The impacts of transport		x
Overall environmental expenditures	x	
Occupational health and safety	x	x

The following sections provide disclosure on the material issues through the description of the topic, the importance of the topic, the relevant impacts and the way the company manages the issue. The Report also provides – in line with GRI requirements – at least one indicator that demonstrates Dunacell's sustainability performance regarding the specific issue.

* <https://www.globalreporting.org/resource/library/GRI-G4-Food-Processing-Sector-Disclosures.pdf>



3. MATERIAL SUSTAINABILITY ISSUES

3. MATERIAL SUSTAINABILITY ISSUES

3.1 PROCUREMENT PRACTICES

Dunacell strives to purchase all raw materials and processing aids in the most economical way, preferring local suppliers to strengthen the economic power of the local communities. While our main raw material, straw is exclusively sourced from local farmers, there are other materials and chemicals that do not have a Hungarian producer and must be imported.

The decreasing rate of national purchase is due to the technological changes implemented in the last years which resulted in the increased use of one imported chemical.

The packaging and transportation methods of materials are selected to ensure the lowest environmental impacts (see also Chapter 3.8).

Table 6: The percentage of procurement budget spent on national and foreigner suppliers

	2015	2016	2017
National purchase value (% of total purchasing costs)	93.5%	90.8%	83.5%
Total procurement budget (thousand HUF)	2 891 823	2 346 860	2 429 856

Dunacell is committed to long-term trade relations as a customer and also as a vendor: we seek predictable and foreseeable relations. Therefore, our contracts with our main suppliers are for at least one-year – sometimes even 2-5 years, depending on the commercial situation. We place big emphasis on the development of our suppliers, so that we receive the highest quality of products and services from them while they also have the opportunity to develop and grow. This also requires establishing long-term and cooperative relationships.

3.2 MATERIAL USE

The amount of materials used in fibre production is rather high, thus our material usage has multiple and significant impacts on the environment.

A good example is our soil improver product, produced from the residues of straw sorting, wastewater sludge from wastewater treatment and lime sludge generated during chemical regeneration. Wheat straw is bought from the same farmers that use our soil improver product.

Our main raw material is wheat straw – a 100% renewable, annual plant that is a by-product of agricultural activities. Wheat is an important product of Hungarian agriculture so wheat straw is also generated in high amounts – approximately 4.5 million tons/year. A part of it (approximately 12%) is used in husbandry and mushroom production or is incinerated (approximately 8-10%) and occasionally ploughed back into the land. Dunacell utilises approximately 1.5% of the total amount of straw produced in Hungary. The logistics related to the transportation of straw is established to have the lowest possible impact on the environment (see also Chapter 3.8).

This way nutrients are returned into the soil in a natural and efficient way, so the need for using artificial manure is reduced, together with soil erosion and acidification, while plant production becomes more economic.

By the efficient reuse of materials through developments and investments we have achieved an 80% rate of renewable materials used in the production process.

Besides the raw material, other processing aids and chemicals are required for the production. An important circular process of the production is the regeneration and reuse of the chemical used for digestion. The chemical regeneration process also generates energy that is utilised in the production – increasing energy efficiency and decreasing environmental impacts (see Figure 2).

Table 7: Material use and the rate of renewables

	2015	2016	2017
Total material use (including packaging, tons)	65 438	71 466	72 848
Mass % of renewables in total material use	80.8	80.1	78.9

As a result of our technological setup, materials are used in the most effective way in production and by-products and wastes are also reused. We produce a marketable product through the 100% reuse of wastes and by-products.

Strong emphasis is placed on the storage and use of the purchased and used chemicals to ensure compliance with safety requirements. We are aiming to minimise the potential environmental impact of any accidents or incidents.

3.3 ENERGY USE

The energy demand of fibre production is significant thus energy management is very important to our economic performance as well as to our environmental impacts. There are 3 main strategic aspects in our energy management:

- to decrease the energy use in production technology and infrastructure;
- to increase the efficiency of our own energy production; and
- to increase the share of renewables in our own energy production.

These are the basic elements of the management approach as well the management systems of our company. Our developments and investments are mainly aiming to lower energy use and the goals above are also important in other development considerations.

Apart from major investments, we also focus on the continuous smaller-scale developments. We have achieved significant results in the past and would like to focus on the them in the future as well. To reach these goals, we continuously strengthen the awareness of our employees because we believe that all workers can contribute to the environmental and energy-aware operation through their approach and their working quality on a daily basis.

The heating energy used in our production is mostly generated by ourselves. We focus on efficiency and the use of renewables, which is biomass in our case. We have implemented several investments in the last few years and also modified existing equipment to be able to move forward in this area. In 2015, during the reconstruction of the boiler, a super concentrator was installed to increase the dry matter content and the heating value of the biomass.

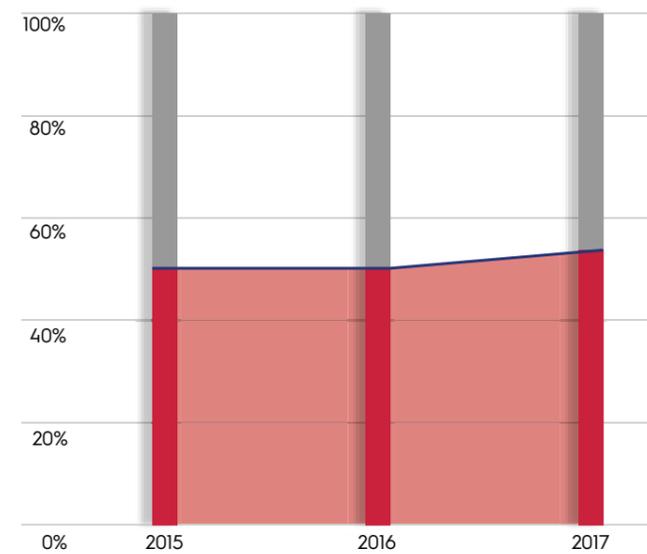
As a result of our developments, the use of fossil fuels has significantly dropped. Further, we have switched from using heating oil to using natural gas (no more oil is purchased, we are only using the already existing supplies). This did not only lead to economic benefits but also to the reduction of our CO₂-emissions, because when the same amount of energy is produced by gas instead of oil, it results in less CO₂-emission (see also Chapter 3.5).

Table 8: The distribution of energy sources

	unit	2015	2016	2017
Heating oil	MWh	21 541	13 730	4 272
Natural gas	MWh	14 380	26 077	34 028
Biomass	MWh	73 656	78 601	83 445
Total energy production by Dunacell	MWh	109 577	118 40	121 744
Purchased heating energy	MWh	24 364	21 124	23 214
Purchased electricity	MWh	20 918	22 882	23 62
Total purchased amount of energy	MWh	45 282	44 006	46 836
Resold steam	MWh	-9 215	-6 513	-7 686
Total amount of renewables*	MWh	75 747	80 889	85 807
Total amount of non-renewables*	MWh	69 897	75 012	75 088
Total energy use	MWh	145 644	155 901	160 894
Renewables rate*	%	52%	52%	53%

*The amount of renewables is calculated as the sum of energy produced from biomass and 10% of electricity consumption as approximately 10% of electricity sold in Hungary is produced from renewables.

Figure 5: The percentage of renewables out of total energy used



Overall, we have been able to increase biomass-based energy to approximately 66-68% of our own heating energy production. At the same time, our specific CO₂-emissions have been reduced as well. If fossil fuels were used instead of biomass to produce the same amount of heating energy, the total CO₂-emissions of the company would be 60% more than the current value (see also Chapter 3.5).

An important aim of our developments is to increase the use of renewables in energy production. As data above illustrates, we have been successful in this. However, as our production capacity has grown, purchased electricity and heating energy from outside sources have also increased. We have limited possibilities to influence the renewables rate of the purchased electricity and heat.

Figure 6: Electricity and gas energy-intensities of our production

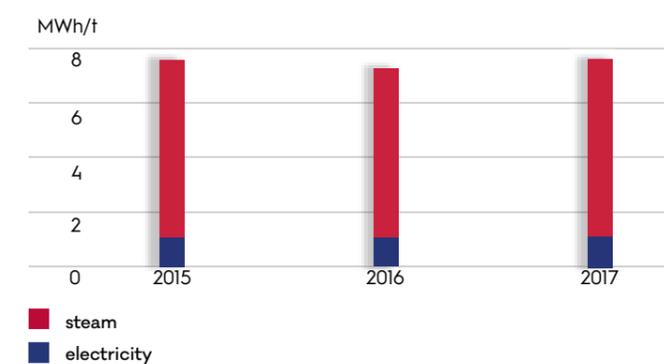


Table 9: Energy intensity of production related to the total energy use

Energy source	unit	2015	2016	2017
Steam	MWh/tons	6.442	6.195	6.589
Electricity	MWh/tons	1.080	1.066	1.139
Total	MWh/tons	7.522	7.260	7.727



3.4 SUSTAINABLE WATER CONSUMPTION

Fibre production is a very water-intensive technology, thus strong emphasis is placed on water-management as water is a very important natural resource. Therefore, we strive to decrease water consumption and to make sure that treated process water is returned to natural cycles with the required quality. Dunacell sources 100% of its process water from surface water resource, the Danube River. After treatment, more than 90% of it is discharged back into the Danube.

Water is used in all main technological steps – fibre extraction, washing and cleaning. Water is also used as a cooling medium, for material conveyance, to produce steam and also to clean equipment.

As a result of measures implemented in the last few years, a 50% reduction in the amount of water withdrawn has been reached compared to 2008.

Figure 7: The trend of water use

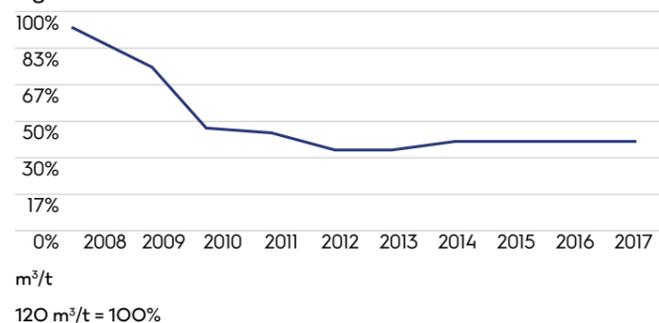


Table 10: Total water withdrawal and the water efficiency of the product

	unit	2015	2016	2017
Total water withdrawal	m³	1 107 375	1 214 451	1 292 185
Water efficiency of the product	m³/ton of product	57.2	56.5	62.3

As illustrated by the data, we have had to increase the amount of fresh water usage in our processes to be able to comply with strict product quality requirements.

3.4.1 Reuse of process water

Fresh water entering into the technological process is reused in many ways (see also Figure 2) like countercurrent washing and condense water collection. Depending on quality, collected process water is reused either as feedwater for the boiler or as a washing liquid.

3.4.2 Evaporation

Only 8-10% of the water we withdraw is consumed in our production. Most of it evaporates and enters the atmosphere, where it finally precipitates and returns to the local ecosystem.

3.4.3 Wastewater treatment

Wastewater generated in the technology must be treated before discharging in order to minimise impacts on the aquatic life and to comply with environmental requirements. Until the end of 2017, process wastewater was discharged to the WWTP operated by Hamburger Hungária Kft. In 2016, a decision was made to construct our own biological WWTP to ensure compliance with current and expected future legal requirements on the long term.

During the construction of our WWTP, the most up-to-date BAT requirements were considered. Since January 2018, we have been treating our wastewater at our own WWTP through the following steps:

- primary treatment – the removal of suspended matter, neutralisation and cooling;
- secondary treatment – activated sludge biological treatment to remove organic matter by surface aeration;
- final sedimentation tank, sludge treatment – remaining sludge removed from the system is dewatered and
- used to produce yield enhancing substance in our own composting plant.

Table 11: The amount of discharged wastewater

	unit	2015	2016	2017
The amount of discharged wastewater	m³	1 020 984	1 113 432	1 171 286

3.5 EMISSIONS TO AIR

Our emissions to air mainly originate from the burning of fuels to produce energy. Most of our emissions are carbon dioxide (CO₂), nitrogen-oxides (NO_x) and particles. We are continuously striving to increase the share of renewables and energy efficiency in order to decrease our emissions. Using a sulphur-free technology, our SO₂-emission is practically zero, below the detection limit. We use dust collecting and air cleaning equipment (electrofilter, bag filters, scrubber) on our point sources to comply with emission limit values.

CO₂ is the most important of our emissions, the emitted amounts are shown in the next table. Direct emissions include carbon dioxide from the burning of natural gas, heating oil and biomass, as well as emissions from the use of company fleet vehicles (GHG Protocol emission factors were used for the calculations), while indirect emissions include emissions from the production of purchased steam and electricity. Our direct emissions are monitored according to the EU ETS system and reported to the Authority after verification.

We have calculated the amount of CO₂ that would be emitted if the amount of energy produced by burning biomass was produced by burning natural gas. Our calculations show that **CO₂-emissions would be 60% higher** if only natural gas was used. This means that the use of biomass results in improving energy efficiency and also contributes significantly to decreasing emissions and climate protection.

We are aware that our technology also results in odours which, depending on weather conditions, may disturb our environment. We are continuously searching for and applying technologies that reduce these unpleasant odours. During the planning process for new developments and investments, we always search for the technologies with the least possible odour emissions.

Table 12: Our direct and indirect CO₂-emissions and the CO₂-intensity of the product

	unit	2015	2016	2017
Direct CO ₂ -emissions	tons	8 843.646	8 723.021	8 330.109
Indirect CO ₂ -emissions	tons	8 955.510	9 188.246	9 640.210
CO ₂ -intensity of the product	tons of CO ₂ /ton of product	0.919	0.834	0.837



3.6 ENVIRONMENTALLY FRIENDLY WASTE MANAGEMENT

Dunacell's goal is to minimise waste generation and ultimately reach **zero waste** by the efficient use of materials.

Wastes, residues and by-products generated in the production process are either reused within our gates or are used for energy generation so process waste does not leave our plant:

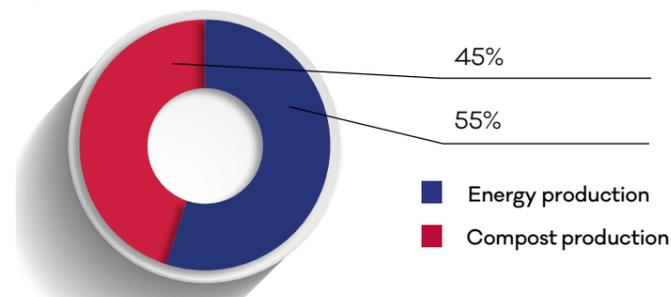
- we generate energy for production purposes by burning straw pieces sorted out during raw material preparation;
- other residues generated during production and wastewater treatment (such as lime sludge, sorting residues, straw, wastewater sludge) are used to produce a yield enhancing substance with Nebih marketing authorisation. It is 100% used on local farmlands, leading to less use of artificial manure;
- our lime sludge also has Nebih marketing authorisation and is used as a soil improver, improving soil conditions and decreasing soil acidification.

Other hazardous and non-hazardous wastes are collected selectively and handed over to licensed companies. These wastes mainly come from maintenance activities (oils, greases and metals) or from packaging.

Table 13: Non-production wastes per treatment (%)

	2015	2016	2017
Non-hazardous			
Utilisation	99.5	99.7	99.9
Disposal	0.5	0.3	0.1
Hazardous			
Utilisation	24.4	17.9	59.3
Disposal	75.6	82.1	40.7

Figure 8: The use of production residues



3.7 ENVIRONMENTAL COMPLIANCE

Dunacell's operation is subject to Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control), regulating emissions, energy efficiency, waste minimisation, accidents resulting in environmental damage and also restoration activities when abandoning sites. Dunacell holds an IPPC permit according to Governmental Decree 314/2005. (XII.25.).

The Authority holds yearly inspections to verify compliance with permit requirements. No non-compliances have been found during these inspections and no environmental fines were imposed in the reporting period. We are following the relevant legislative changes and take measures where needed in order to stay compliant.

3.8 THE ENVIRONMENTAL IMPACTS OF TRANSPORT

Our raw material, wheat straw has relatively low specific weight despite the fact that it is transported in a compressed form. It is of key importance to minimise transportation distances both from an economic aspect and also to minimise environmental impacts. Therefore, we only source straw from local farmers and 90% of our raw material is purchased from within 100 km of the production facility.

Apart from the above, we also help our suppliers through different types of financial support so that they can buy the most up-to-date and efficient baling machines to press harder and heavier bales absorbing significantly less moisture. As a result of this, straw bales are now 15% heavier on average for the same size, so the same amount of straw needs 15% less transport capacity, decreasing environmental impacts. We pay the same price for straw regardless of the transportation distance, encouraging suppliers to minimise it and decrease impacts.

Figure 9: Location of straw sources

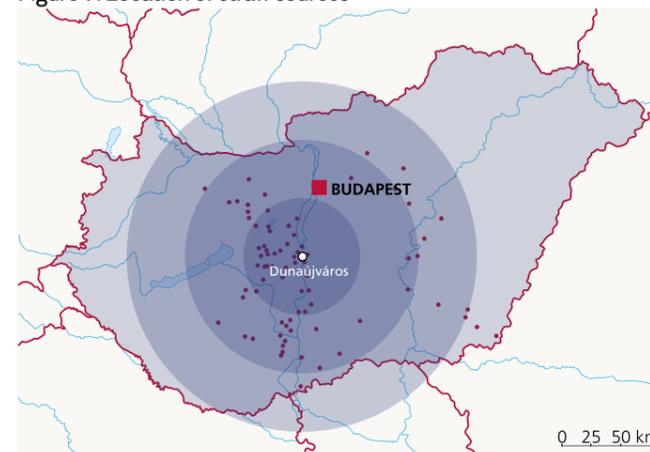


Table 14: Changes in the amount of straw shipped per truck

	2015	2016	2017
The amount of straw shipped per truck (tons)	15.23	16.07	15.97

In case of purchasing chemicals, we choose for rail freight of high-volume materials, where the characteristics of the substances allow.

We oblige our straw-suppliers in the contracts to apply the most efficient transportation methods in order to minimise the environmental impacts of transport. One of our measures was that 70 cm-high straw bales are not accepted anymore, resulting in an 8% increase in the average carrying capacity of the transporting vehicles, so the same amount of straw can now be transported with 8% less transport capacity. We have also implemented a rewarding scheme for less moisture content of the straw in our purchasing price, this way our suppliers are directly encouraged to apply the most efficient transport methods.

3.9 ENVIRONMENTAL EXPENDITURES

Our environmental expenditures for prevention, permits, remediation costs, provisions and investments for non-compliances are budgeted for the yearly business plan. All relevant tasks are coordinated by our environmental manager.

The main impact on our budget was imposed by the construction of our WWTP in 2016-2017.

Table 15: Total environmental expenditures (thousand HUF)

	2015	2016	2017
Total environmental costs*	282 877	491 202	389 099
Environmental investments	3 222	705 591	714 922

* includes the difference between incomes and expenditures regarding our composting plant



Dunacell's WWTP

3.10 OCCUPATIONAL HEALTH AND SAFETY

We are committed to occupational safety and we consider that ensuring healthy and safe working environments for our workers is a primary task. Our employees receive yearly training on occupational safety, fire protection as well as emergencies and disasters. Their knowledge and preparedness is tested during the yearly obligatory emergency response exercises, contributing to the level of safety of life and property on the site. The strong cooperative relationship with the Disaster Management Authority makes emergency response much more efficient if necessary.

The effectiveness of regular trainings and continuous check-ups is confirmed by the fact that the number of accidents has not increased at Dunacell in the last 3 years. All accidents are investigated according to the legal requirements. A specific occupational safety training is held after each accident with the participation of employees to assess the cause of the accident and the ways to prevent it. We have also set the goal of raising responsibility awareness to prevent workplace accidents.

Dunacell complies with all relevant legislation. All workers are provided with personal protective equipment or collective equipment if necessary. The development of occupational health and safety is an important aspect of our continuous investments. Dunacell's management evaluates all risks prior to the start of any procedure. Technological, organisational and personal action plans are developed for the prevention of all potential hazards identified and workers also receive specific occupational safety trainings. These measures strengthen the identification of their own role in safety issues.

The following goals have been set to further improve occupational health and safety:

- preventive instead of reactive approach,
- seeking comprehensive instead of occasional solutions with the engagement of employees and
- to achieve that safety is a natural and organic part of daily routines.

The following table shows our main health and safety indicators.

Table 16: Health and safety data

	unit	2015	2016	2017
Number of work-related accidents with minor injuries (0-15 days off)	number	5	2	4
Number of work-related accidents with serious injuries (15-60 days off)	number	2	3	3
Number of work-related accidents with severe injuries (60-360 days off)	number	1	2	0
Number of fatal work-related accidents	number	0	0	0
Paid sick hours ratio to working hours	%	1.7	2.1	1.1

Our collective agreement regulates working schedules and overtime as well as the assignment of work- and protective clothing. Other health and safety issues are dealt with in the safety regulations.



4. GOALS AND CHALLENGES

It is the basic interest of our own and our stakeholders that the sustainability of our operation is ensured on the long term. For this, it is inevitable that our performance is monitored and improved in co-operation with our stakeholders. As a part of this, we have defined areas for development on the short and long term as well.

Our direct and indirect impacts are significantly determined by our material and energy use. As a result of our developments and investments we have made good progress in these areas. It is of course a challenge that the more optimised a system is, the harder it is to achieve further improvements but we are committed to develop in that, too.

We also aim to decrease the environmental impacts of our operation and focus on the mitigation of odours: we have developed an action plan and have already started preparatory work.

The performance of our suppliers has a big impact on our own performance, so their further development is also an important goal. In order to be effective, it is important to clearly understand and know each other, therefore we need to further improve our communication with our suppliers.

The most important resources of our company are our workers. We are committed to develop our competencies and knowledge through continuous trainings.

We are determined regarding the material wealth of our employees and we take it upon ourselves to value them with appropriate financial support. However, it is a challenge to compensate the increasing personnel costs by higher levels of efficiency.

We also place an emphasis on the health of our colleagues and focus not only on workplace safety but on preventive health protection as well. We have plans to open a gym for our workers.

We are aiming to strengthen the social involvement of our company in the local communities as well. We are planning to establish an even more efficient network with the neighbouring local municipalities.

4. GOALS AND CHALLENGES



Annex I:

GRI PRINCIPLES

CONTENT

- **Stakeholder Inclusiveness:** Dunacell has engaged its stakeholders in the definition of report content to ensure that their interest and information demand is considered. We are planning to strengthen our relations with the stakeholders and extend the range of stakeholders engaged.
- **Sustainability Context:** The Report presents Dunacell's performance in the context of sustainability, the sustainability-relevance of all disclosures is clear.
- **Materiality:** The Report covers the most important sustainability impacts of company operation. The material issues were defined with the engagement of the stakeholders.
- **Completeness:** The Report covers all material aspects. Dunacell paid particular attention not to omit any material and relevant information and to avoid presenting incorrect or ambiguous information that would misinform the decisions of stakeholders.

QUALITY

- **Balance:** The Report strives to present a balanced picture of Dunacell's sustainability activities by reporting both positive and negative impacts so that readers can have a full picture of the company's overall sustainability performance.
- **Comparability:** Wherever possible, the Report presents information and data that makes it possible to understand changes and trends in the company's performance through time and also benchmarking with other organisations.
- **Accuracy:** Data and information disclosed in the Report are as accurate as possible and are detailed in a way that makes it possible to assess Dunacell's sustainability performance.
- **Timeliness:** The relevant date for all information is clearly defined and disclosures of the Report cover the years 2015-2017.
- **Clarity:** The information and data in the Report are free of inconsistencies, they are clearly presented in a way that is comprehensible to the stakeholders.
- **Reliability:** Disclosures in the Report are presented in a way that makes it possible to verify them and the sources of information are provided as well. Dunacell is also happy to be at the readers' service should they need any help in interpretation or further specification of information.

Annex II:

GRI INDEX

	Indicator description	Chapter	Page no.
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Strategy and Analysis	G4-1 Statement of the CEO on the importance of sustainability and the organization's sustainability strategy	Foreword by the CEO	4.
Organizational Profile	G4-3 The name of the organization	1.	6.
	G4-4 Primary brands, products and services	1.	6.
	G4-5 The location of the organization's headquarter	1.	6.
	G4-6 The number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report	1.	6.
	G4-7 The nature of ownership and legal form	1.	6.
	G4-8 Markets served (geographic breakdown, sectors served, and types of customers and beneficiaries)	1.6	10.
	G4-9 The scale of the organization (number of employees, net sales, quantity of products)	1., Tables 1, 2	6., 9, 10.
	G4-10 Total workforce by contract type and gender	1.4, Table 1	9.
	G4-11 The percentage of total employees covered by collective bargaining agreements	1.4	9.
	G4-12 The description of the organization's supply chain	1.5	10.
	G4-13 Significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain	1.	6.
	G4-14 The ways the precautionary approach or principle is addressed by the organization	1.3	9.
	G4-15 Externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses	1.8	12.
	G4-16 Association memberships (such as industry associations) and national or international advocacy organizations in which the organization holds a position, participates in projects or committees etc.	1.8	12.

	Indicator description	Chapter	Page no.
GENERAL STANDARD DISCLOSURES			
Identified Material Aspects and Boundaries	G4-17 Entities included in the organization's consolidated financial statements or equivalent documents and differences in Report coverage	Not reported - all entities of Dunacell is covered by the Report.	-
	G4-18 The process for defining the report content and the Aspect Boundaries and the way Reporting Principles were applied for defining the report content	2., Table 5, Annex I	14., 15.
	G4-19 The material Aspects identified in the process for defining report content	2., Figure 4	15.
	G4-20 The Aspect Boundary within the organization	2., Table 5	15.
	G4-21 The Aspect Boundary outside of the organization	2., Table 5	15.
	G4-22 Restatements of information provided in previous reports	Not applicable, this is Dunacell's first Sustainability Report.	-
	G4-23 Significant changes from previous reporting periods in the Scope and Aspect Boundaries	Not applicable, this is Dunacell's first Sustainability Report.	-
	G4-24 List of stakeholder groups engaged by the organization	1.7, Table 3	11.
	G4-25 The basis for identification and selection of stakeholders with whom the organization decides to engage	All stakeholder groups are engaged, see also Table 3.	11.
	G4-26 The organization's approach to stakeholder engagement (frequency of engagement, etc.)	1.7, Table 3	11.
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	Indicator description	Chapter	Page no.
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	G4-30 Reporting cycle	19	12.
	G4-31 Contact point for questions regarding the report or its contents	19	12.
	G4-32 'In accordance' option, GRI Content Index and External Assurance Report	19	12.
	G4-33 The organization's policy and current practice regarding external assurance	19	12.
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Ethics and Integrity	G4-56 The organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	Dunacell operates adhering to JRS Group Policies and has not released its own code of conduct or codes of ethics.	-

	Indicator description	Chapter	Page no.
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	G4-EN16 Indirect greenhouse gas (GHG) emissions (Scope 2)	3.5, Table 12	21.
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	Indicator description	Chapter	Page no.
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