

2. ENVIRONMENT

General aim: Reduce environmental footprint

ACHIEVEMENTS:

- Since 2010 SO₂ emissions dropped by 60%, and NO_x emissions decreased by 40%
- In the Kurdistan Region of Iraq, comprehensive research into the water situation was undertaken for Akri-Bijell K10 Block. Although the study concluded that the Block was not affecting any water-stressed areas, all existing and potential operational locations and activities were analysed and the most relevant activities that could be taken to protect water sources have been incorporated into an operational plan.
- MOL Group undertook a group-wide assessment process to identify sensitive areas rich in biodiversity. Out of 162 sites surveyed, only 8 sites are located in biodiversity critical areas (6 Upstream and 2 Downstream), while 35 of our Exploration and Production operations are close to, or in, Natura 2000 sites. Furthermore, a Biodiversity Action Plan that covers the period 2014-2016 has been developed for our Pakistani operations.

CHALLENGES:

- To meet all the requirements defined in integrated environmental permits (IPPC) INA will have to implement a significant number of projects by 2018.

2.1. AIR EMISSIONS

Related objective: "Decrease VOC emissions by implementing LDAR methodology"

In 2010, MOL Group defined the specific objective of measuring and reducing fugitive volatile organic compound (VOC) emissions. This is because MOL Group operates a wide range of oil and gas technol-

ogies and equipment, and the industry itself, is considered to be a significant source of such emissions. Correspondingly, in 2014 MOL Group continued to run and extend its LDAR (leak detection and repair) program.

The program has made significant improvements for several years to Slovnaft, IES and MOL refineries and petrochemical sites (TVK), so in 2014 efforts were made to extend the program to INA refineries and also extend the scope of the program to other operational areas.

Accordingly, during a pilot project at the Hungarian logistics operation MOL started to create a comprehensive VOC emission sources inventory, taking into account all the emissions from tanks and fugitive emissions from leaks. VOC emissions were calculated and in the coming years the model will be extended to all of our logistics operations. Additionally, in 2014 across the entire MOL Group retail network vapour recovery units (VRU) were verified, checked and maintained (as required) in order to prevent air pollution.

Although at the units covered by the LDAR programme VOC emissions have significantly decreased, overall MOL Group emissions increased in 2014 by 25% when compared with 2010. MOL Group continues to extend the scope of VOC measurements across the group, as explained above.

The industry is also a source of SO₂, NO_x, CO and PM emissions and preventive measures have been taken to reduce the quantity of these as well. As result of the investments at the production units, compared to the 2010 baseline emission year SO₂ emissions were reduced by 59% and NO_x emissions by 40% in 2014.

The quantity of PM emissions in 2014 was similar to that of 2010, but a significant reduction on 2013 was made (66%). The same applies to CO emissions which were reduced in 2014 by 46% compared with 2013, but an increase was registered (42%) compared to 2010. These variations are the result of the incorporation of air emission related data for Russian operations into Group reporting in 2011, and air protection measures introduced at the same operations from 2012-2013.

Total air emissions (excl. GHG) by type (tonnes) [GRI EN21]

YEAR	2010	2011	2012	2013	2014	CHANGE 2010-2014 (%)*
SO ₂	13,142	10,625	7,878	5,776	5,368	(59)
NO _x (Nitrogen Oxides)	7,874	7,531	6,839	6,057	4,715	(40)
VOC (Volatile Organic Compound)	4,211	4,901	4,501	5,643	5,251	25
CO (Carbon Monoxide)	1,599	3,295	2,889	4,248	2,275	42
PM (Particulate Matter)	361	492	460	552	367	2
TOTAL	27,187	26,844	22,567	22,276	17,976	(34)

*Y2014 data are compared to the baseline year for our strategy: 2010

MOL Group continued its efforts to reduce emissions from stationary sources in 2014. At the Zala Refinery in Hungary, as well as the Rijeka Refinery in Croatia, fuel switching projects have been implemented (natural gas replaced fuel oil). For example at the Rijeka Refinery total SO₂ emissions decreased in 2014 by 2.6% compared to 2013.

At the Slovnaft Refinery, the air emission measurement visualization software was upgraded and as a result real-time interventions can be made in the case that air emissions exceed the desired levels. The project to reconstruct one of the AVD (Atmospheric Vacuum Distillation) units reduced SO₂ emissions with an estimated 60 tonnes/year. We constantly monitor air emissions at all our exploration and production facilities situated outside the European Union with a view to reducing our environmental impact and protecting local communities. At our Russian operations a new associated gas (APG) turbine has been put into operation. 95% of the associated gas is now utilized for electricity production. At the same time, greener alternatives have been planned, for example, for well testing operations at Kalegran B.V. By using special burning equipment the hydrocarbons and other components that are produced are burnt at a higher

temperature with greater efficiency, resulting in less emissions of methane (CH₄), heavier components and H₂S to the environment. Additionally, the visual impact of well testing activities is reduced (a reduction in fumes) and less particulate matter is emitted.

2.2. WATER MANAGEMENT

Related objective:

- "Reduce total water withdrawals by 5%"
- "Improve water management techniques in water-stressed areas"

Water withdrawals

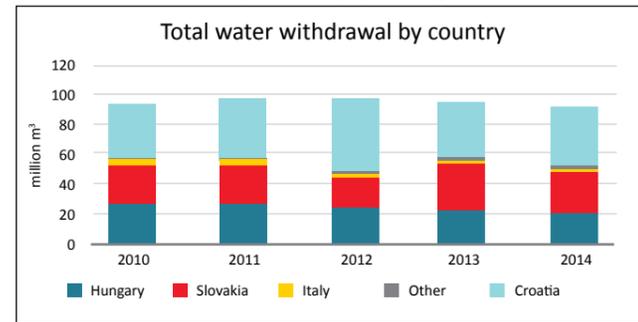
A variety of types of water sources are used by MOL Group for its operational activities: surface and groundwater, sea water, the municipal water supply system and wastewater that comes from production activities or other organizations. Improving water efficiency not only reduces our environmental footprint but often leads to reductions in operating costs.

Total water withdrawals, by source (thousand m³) [GRI G4-EN8]

YEAR	2010	2011	2012	2013	2014	CHANGE 2010-2014 (%)*
Municipal Water Supplies or Other Water Utilities	3,523	3,478	2,839	2,682	2,177	(38)
Surface Water Withdrawals	68,512	72,795	77,744	79,967	80,919	18
Ground Water Withdrawals	12,571	12,785	13,887	11,869	10,755	(14)
Rainwater Collected and Stored	565	487	16	0	188	(67)
Wastewater from Other Organizations	6,794	6,383	2,274	0	91	(99)
Total water withdrawals	91,967	95,930	96,762	94,518	94,130	2

*Y2014 data are compared to the baseline year for our strategy: 2010

Total water withdrawals (million m³) by country



In 2014, MOL Group's total water withdrawal was 94.13 million m³ which represents a slight increase of 2% as compared to 2010 (91.97 million m³).

We continue to implement a variety of initiatives in order to keep the Group on track to achieve its water withdrawal-related targets:

- Finalization of the closed cooling system at Hajdúszoboszló site (Hungarian E&P) in the first half of 2014 has reduced the site's water withdrawal by 66% (from 3,121,632 m³ to 1,069,234 m³)

Amount of contaminants (tonnes) [GRI G4-EN22]

YEAR	2010	2011	2012	2013	2014	CHANGE 2010-2014 (%)*
Total Petroleum Hydrocarbons (TPH)	75	57	73	63	95	27
Chemical Oxygen Demand (COD)	2,376	2,094	1,743	1,712	1,647	(31)
Biological Oxygen Demand (BOD)	582	568	419	417	471	(19)
Solid Substances (SS)	1,055	1,038	688	609	873	(17)

* Y2014 data are compared to the baseline year for our strategy: 2010

Reduced discharges are partly a result of the shutdown of some operations (for example, the IES refinery) and the following activities:

- The revamping of one of the AVD units at our Slovakian operations included the building of a new sewage system as well as installation of a better cleaning system for chemical waste water.
- At Rijeka Refinery, passive sea protection measures have been improved (through installation and maintenance of protective booms and underwater installations).

The increase in TPH may be explained by the increased production volumes at our Pakistani operations, as well as technological issues at the Sisak Refinery in Croatia.

Produced water

Significant amounts of produced water have to be managed at our

Quantity of produced water from Exploration & Production activities in 2014 (m³) [GRI OG5]

	EU OPERATIONS	NON EU OPERATIONS	TOTAL MOL GROUP
Amount of produced water	9,777,819	1,753,526	11,531,345
Total amount of re-injected produced water	10,837,128	1,315,734	12,152,862

compared to 2013. Moreover, with this new system annual cost savings of ca. HUF 40mn can be made.

- The quantity of drinking water used at Sisak Refinery was reduced in 2014 by 23.8% compared to the previous year as a result of repairs to the municipal water network.

Efforts to reduce water consumption are ongoing in our Retail segment as well. For example, in Slovenia modern water and chemical-efficient car washing systems have been installed at filling stations. Due to this initiative and other water-saving measures water consumption decreased by 900 m³ in 2014 compared to 2013, although the number of customers increased by 15% and two new filling stations were added to the network.

Water discharges

To protect surface water bodies, no untreated water is discharged by MOL Group.

In 2014, compared with 2010, the total amount of contaminants in discharged water was reduced.

exploration and production facilities. During 2014, over 11 million m³ of water was produced (9.7 million m³ in EU countries and 1.7 million m³ in non-EU countries). In order to minimize MOL Group's impact, the company aims to re-inject, whenever feasible, the produced water.

Compared to 2013, the amount of produced water at our EU operations has decreased due to the impact of efficiency projects, while in non-EU countries it has increased due to greater volumes of production. In order to address this issue, a pilot-project for injecting produced water was introduced in Pakistan in October 2014. (so far, the total volume of water that has been injected is approx. 5,595 m³). The system's injection capacity is 3,000 bbl (approx. 480 m³) of produced water per day. Before re-injection, the produced water must be treated to reduce the concentration of TDS to below 500ppm. For this purpose, a produced water treatment plant that uses a reverse osmosis method has been constructed.

Water-stressed areas

MOL Group considers water scarcity to be a serious issue, and as such has been taking measures to decrease the water demand of its operations.

Started in 2013, a comprehensive piece of research into water resources was finalized in 2014 for one of the operational blocks in Pakistan considered to be located in a water scarce area. The study covered TAL block and assessed available (groundwater and surface) water sources that might be affected by MOL Group's future water-intensive drilling operations. It also covered main water basin recharge and discharge patterns to ensure a sustainable supply of water throughout the TAL block. The main recommendations of the study have been already included in MOL Pakistan operational plans for 2015.

During 2014, in the Kurdistan Region of Iraq, a comprehensive water study was undertaken for Akri-Bijell K10 Block (operated by Kalegran B.V.). The study concluded that the Block does not affect any water-stressed areas and no such areas are situated in the immediate vicinity of the block. However, all existing and potential operational locations and activities were analysed during the study and the most relevant activities for protecting water sources were incorporated into an operational plan. It is also supported by the new Social Investment Strategy was developed in 2014 for Kalegran B.V. in which water is identified as a key areas for development.

None of our CEE exploration and production facilities are situated in water-stressed areas.

Unconventional Exploration and Production

Unconventional exploration techniques such as fracking have revolutionised the energy industry but prompted environmental and community concern. The first concern is that fracking uses huge amounts of water that must be transported to the fracking site, at significant environmental cost. The second worry is that potentially carcinogenic chemicals may escape and contaminate groundwater around the fracking site. There are also worries that the fracking process can cause small earth tremors.

MOL Group is not specifically involved in unconventional exploration, but, realizing the sensitivity of the issue, has defined a set of environmental standards for responsibly undertaking limited fracking activities for enhancing the production of conventional fields.

Waste generation and treatment (tonnes) [GRI G4-EN23]*

YEAR	2010	2011	2012	2013	2014	CHANGE 2010-2014 (%)**
Hazardous Waste	92,918	89,895	82,331	60,528	80,866	(13)
Non-hazardous Waste	77,604	68,783	80,891	185,528	170,970	120
Total Waste	170,522	158,678	163,222	246,056	251,836	48
Waste Disposed/Landfilled	80,202	74,656	76,867	86,574	102,413	28
Waste Reused/Recycled	90,320	84,023	86,355	159,482	149,423	65
Total Waste	170,522	158,679	163,222	246,056	251,836	48
Ratio of reused/recycled Waste	53%	53%	53%	65%	59%	12

*Data for waste included above include operational, remediation and construction waste.

**Y2014 data are compared to the baseline year for our strategy: 2010

These requirements encompass stakeholder concerns, water / land use and protection, well integrity, the use of chemicals and other risks which may be anticipated from specific risk studies. MOL and its subsidiary INA have successfully undertaken fracking on a few pre-existing wells during which all risks were managed during the entire life cycle of the activity, from contracting to completion of the wells for production.

2.3. WASTE MANAGEMENT, SPILLS AND SITE REMEDIATION

Waste management

Related objective: "Increase the proportion of recovered waste (remediation waste excl.) by 5% by the end of 2015"

MOL Group is a vertically-integrated oil and gas company which means the types of waste it generates are very diverse as well. The company's daily operations produce a wide range of solid and liquid wastes (including oily sludge, waste chemicals and spent catalysts, etc.). The total amount of waste generated in 2014 increased compared to 2010 (by 48%). The increase can be explained by reference to the following projects:

- A construction project started in 2013 at our Slovakian operation which continued throughout 2014. It generated more than 52,000 tonnes of non-hazardous waste, while hazardous waste at the same facility was generated through maintenance and tank-cleaning activities and soil remediation projects at the logistic depots.
- The conversion process of the IES refinery into a logistics depot also increased the amount of hazardous waste generated at this site by more than 1,800 tonnes, and non-hazardous waste by more than 1,700 tonnes.
- At our Croatian Exploration and Production operations, hazardous waste increased by more than 12,000 tonnes compared with 2013 due to remediation activities related to two significant oil spills to the environment (see the chapter on Spills for more details), as well as the final disposal of old chemical inventory.

Despite the overall increase, at the MOL Group level the waste recovery rate improved in 2014 compared with 2010 by 6%.

Notes to the sustainability performance

Several initiatives have impacted MOL Group's waste generation and waste recycling figures. They include the following:

- At the Hungarian Exploration and Production operation MOL has started to use the crushed concrete which is created from demolition projects to build remediation storage boxes or for repairing roads which lead to wells.
- There was a significant increase in the quantity of hazardous waste produced at exploration and production facilities in Croatia, partially due to two significant spills to environment, as described in the respective chapter of this report.
- At the Slovakian operation, more than 30 tons of catalysts were sent to metal recovery, precious metal parts will be used during manufacturing of new catalysts while silver was sold making ca. EUR 10,000 revenue.
- The company continue to recover the used oil that is produced by the lubricant units in accordance with the principle of product

Drilling mud produced in 2014 (tonnes) [GRI OG7]

	EU OPERATIONS	NON EU OPERATIONS	TOTAL MOL GROUP
Hazardous waste from aqueous (water-based) drilling mud and cuttings	559	0	559
Hazardous waste from non-aqueous drilling mud and cuttings	0	3,260	3,260
Non-hazardous waste from aqueous drilling mud and cuttings	25,594	30,472	56,066

Drilling mud treatment in 2014 (tonnes) [GRI OG7]

	EU OPERATIONS	NON EU OPERATIONS	TOTAL MOL GROUP
Aqueous (water-based) drilling mud and cuttings – waste for deep well injection, onshore disposal	5,111	24,018	29,129
Aqueous (water-based) drilling mud and cuttings – recovered, recycled	21,042	1,260	22,302
Aqueous (water-based)drilling mud and cuttings – offshore disposal	0	0	0
Non-aqueous drilling mud and cuttings – waste for deep well injection, onshore disposal	0	0	0
Non-aqueous drilling mud and cuttings – recovered, recycled	0	3,260	3,260
Non-aqueous drilling mud and cuttings – offshore disposal	0	0	0

Spills

Protecting communities as well as the natural and built environment from accidental pollution in areas in which MOL Group operates is one of the top priorities for the company. Accordingly, regular maintenance and inspection campaigns are conducted and emergency response plans are in place and constantly updated for each of our sites. Spill prevention measures are considered to be a priority when we design and operate our facilities. In the case that we detect any spills, all the measures necessary to restore the pre-spill status of the affected areas are immediately taken.

In 2014, a total of 5 spills to environment (of above 1 m³) with a total

hydrocarbon volume of 193.5 m³ were recorded across the MOL Group; a decrease in the number of spills on last year. The two largest spills were recorded at our Croatian operations. The first one, a spill of 70 m³ of hydrocarbons, was due to human error and polluted over 1000 m² of soil and water. The second one, caused by an attempt at theft through making an illegal connection, involved 100m³ of hydrocarbons, polluted 2000 m² of soil and 7 km of water course. In both cases, immediate remediation activities commenced and the soil and water were fully cleaned up.

In addition, 12 other spills to environment occurred as a result of off-site road accidents (11 in Pakistan and 1 in Hungary). In all cases the contaminated soil was remediated. (Information about the corrective

stewardship. The proportion of used oil that was returned in 2014 was 16.5% (compared to 14.5% in 2013 and 22.5% in 2012).

MOL's campaign for the collection of used cooking oil from households (using the retail network in three countries – Slovakia, Hungary and Romania) continued in 2014. 390 tonnes of used cooking oil were collected and recycled in 2014 (an increase of about 30% compared with the 228 tonnes collected in 2013).

At MOL Pakistan a small incinerator was installed and 383 tonnes of waste was incinerated during 2014. The advantages of the incinerator include the ability to better control emissions and hygienically treat waste.

The Group's environmental standards define its policy related to managing drilling mud and include regulations about mud selection, waste minimisation, recycling and responsible disposal. Relevant data about this topic are presented below.

measures we have taken to improve hazardous material road transportation can be found in the chapter of this report on Road Safety.)

Although MOL Group does not operate any off-shore installations it ensures that measures are in place to protect marine ecosystems in the vicinity of operations that are located near the coast (e.g. Croatia, Rijeka Refinery).

Remediation

In 2014 MOL Group continued to implement a group-wide remediation programme that is designed to eliminate historical pollution.

At our Hungarian operations, approximately HUF 959 million (USD 4.2 million) was spent on the management of environmental damage at 202 sites. In 2014, 15 remediation sites were closed, and as compared with 2010, the environmental liabilities have been reduced with 32.2%.

At Slovnaft the remediation programme continued at 8 logistic and 5 retail sites. Remediation work, including post-monitoring activities, was successfully concluded at 1 logistics site (Bratislava-Rača) and 2 filling stations. Total spending on the remediation programme in 2014 was HUF 732 million (2.48 million EUR) compared with HUF 1.1 billion (USD 4.9 million) in 2013. At the Rijeka Refinery, remediation activities that are designed to protect the sea and coastal area have been carried out continuously since 1993. During 2014, 514 m³ of hydrocarbons were pumped out from under the ground. Remediation projects continue to be implemented at Italian operations too. In 2014 a total of 1.2 million EUR (HUF 354 million) was spent on remediation activities and the capability of the supernatant recovery system was increased in the Belleli area with the addition of 6 piezometers equipped with dedicated automatic oil-skimmers.

Concerning international exploration and production sites, in Russia, 4.8 ha of mud pits were eliminated and 21.5 ha of land was restored to its original state at the Matyushkinskaya Vertical fields. In Baitex, almost 38 ha of land were also restored to their original status. In Paki-

stan, a total of 3,628 tonnes of oil-based mud was treated through a bioremediation process. Treated mud is re-used as a filling material for road construction.

Remediation and environmental liabilities are of particular importance when operational sites are abandoned. MOL Group focuses on optimizing its operations that affects our assets as well. In 2014 no major site was abandoned. The largest site affected by operational changes is IES in Italy where refining activity has now been stopped. This site will however continue to operate as a logistics depot. In international exploration and production areas drilling sites (but no operational sites) have been opened and closed. A case study about site restoration in Oman can be found here.

2.4. BIODIVERSITY

Related objective: "Implement Biodiversity Action Plans for all critical operation sites"

Due to the nature of the activities of the oil and gas industry, they have both direct and indirect impacts on biodiversity. Direct impacts are in general easier to control, which is why in 2014 the focus continued to be on taking action locally. MOL Group operates in diverse environments around the world, in some cases in sensitive areas that may host protected or endangered species, contain ecosystems of biological or geographical value, or in landscape-protected areas. In 2014 a group-wide assessment was conducted to identify potentially sensitive areas which should be the focus of the future. In total, 162 sites were surveyed.

Most affected by their protected status are Upstream sites. Only 8 sites are in biodiversity-critical areas (6 Upstream and 2 Downstream), while 35 Upstream operations are located close to or within Natura 2000 sites (European nature conservation area category). Two of the Upstream operations are situated in water-stressed areas (see chapter on Water) while one can be found in a water-protected landscape.

	E&P/NOT E&P	CROATIA	HUNGARY	SLOVAKIA	ITALY	INTERNATIONAL E&P
Number of sites	E&P	50	23	not relevant	not relevant	13
	Downstream	32	28	13	3	not relevant
Acreage of sites km ²	E&P	4,432	24,234*	not relevant	not relevant	33,527*
	Downstream	6.2	18.45	9.53	0.52	not relevant
Number of sites - Natura2000 risk	E&P	17	18	not relevant	not relevant	0
	Downstream	0	0	0	1	0
Number of sites - biodiversity critical	E&P	5	1	not relevant	not relevant	3
	Downstream	0	2	0	0	not relevant
Acreage of biodiversity critical area	E&P	71	14	not relevant	not relevant	6,617
	Downstream	0	0	0	0	not relevant

*Includes area of concession.

The Hungarian exploration and production facilities often happen to be in or near protected areas. To reduce their impact, MOL is working in close cooperation with the National Parks Administration in order to carefully plan drilling or decommissioning activities. In 2014 a new wells inventory was made in order to identify which sites are operating in or near Natura 2000 sites and three new Natura2000 datasheets were developed in 2014. The goal of this initiative was to integrate the provisions of the management of Natura 2000 sites into day-to-day activity at the respective sites. MOL Group works to protect biodiversity not only around its production sites but also within them by creating and improving conditions for protected species.

Initiatives involving stakeholders include at Slovnaft the cooperation with BirdLife Slovakia to protect the Martin (Delichon Urbicum) which continued in 2014 when 50 new artificial nests were created or the Hungarian Ornithological and Nature Conservation Society's participation in protecting the Peregrine Falcon that is nesting around the Algyő Gas facility.

MOL Group pays special attention to its operations outside the EU. MOL Group standard practice is to ensure that exploration and production sites go through an environmental and social impact assessment process before they are allowed to start operating, even when this is not a legal requirement. In Pakistan, a Biodiversity Action Plan that covers the period 2014-2016 has been developed and more than 2000 trees have been planted around the gas-processing facilities. Afforestation projects continued in 2014 at our Russian operation too, resulting in the creation of more than 37 ha of softwoods and conifers.

2.5. HSE PENALTIES

In 2014 MOL Group paid penalties for Health, Safety and Environment-related breaches of rules in 24 cases, resulting in a total of HUF 18 million.

The largest single penalty (HUF 8.9mn) was given to TVK Plc. in Hungary. The penalty resulted from an increase in water pollution (the level of adsorbable organic halogens (AOX) in effluent exceeded the permitted limit due to leakage of an Olefin-2 heat exchanger). As a consequence, operations were suspended leading to a more significant financial impact than the penalty itself. A project has already been implemented which with the aim of addressing the root cause of the problem.

Other penalties represent minor costs and are in most cases related to administrative issues such as incorrect site documentation.