

European communication and inspection campaign

# Manual handling of loads 2008/2009

Evaluation report



PAŃSTWOWA INSPEKCJA PRACY

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## Introduction

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Workers' health problems related to musculoskeletal disorders are common in a similar extent for all Member States of the European Union. Every day in Europe 24% of workers experience backpain and 22% suffer from muscle pain.

In new Member States these disorders are even more widespread – 39% and 36% accordingly. Approximately 15% of work inability is related to back disorders. 50% of premature retirements in Europe are caused by pathological changes in the back area. Musculoskeletal disorders are the cause of suffering, inability to work, loss of worker's income, high costs generated by employers and national economies.

European communication and inspection campaign "Manual handling of loads 2008", which focused on construction and retail trade, was a continuation of actions undertaken in 2007 with regard to transport and health care sectors.

The fact that the campaign covered new sectors, where problems connected with manual handling of loads are complex and concern a great many workers, was supposed to raise workers' and employers' awareness of hazards, and, more importantly, result in wider application of so-called "good practice" connected with elimination and considerable reduction of manual handling in the territory of the European Union, wherever possible.

I wish to extend my thanks to all those who participated in the implementation of the Senior Labour Inspectors' Committee campaign, members of the working groups, national coordinators, heads of labour inspectorates involved in the campaign, but most of all, I would like to thank labour inspectors, labour inspection employees, employers and workers who in 26 countries joined the common project for elimination and reduction of negative influence which manual transport of loads has upon workers' health.

Tadeusz Jan Zając

## Background of the project

Ailments referred to as „musculoskeletal disorders” are most common health problems connected with work, which workers of the European Union suffer from. Owing to this already in 2007 Senior Labour Inspectors Committee initiated a European inspection campaign under the slogan: “Lighten the load”. Its first edition covered employers and workers of the transport and health care sectors.

The importance of the problems connected with musculoskeletal disorders and the experience gained during the implementation of the campaign in 2007 influenced the decision on the continuation of the campaign in 2008. This time the campaign was addressed to sectors of retail trade and construction. Polish Labour Inspectorate took over coordination of the campaign from the Dutch Labour Inspectorate.

The selection of employment sectors for the MHL 2008 campaign was dictated by existence or high probability of existence of health problems connected with manual transport among workers employed in shops and on construction sites.

Retail trade was the focus of European labour inspectorates’ attention owing to the widespread use of manual transport in that sector. Unloading, storing and laying out products on shelves, work at checkouts with belt conveyors and long work in a forced sedentary or upright position – these are the basic work activities of retail sector workers which constitute burden for their musculoskeletal system. The main areas of workplace inspections planned were:

- Distribution centres;
- International shop chains;
- Supermarkets.

The subsector of international shop chains was singled out intentionally to verify whether irregularities concerning manual handling of loads in this sector are caused by the general policy of the chain or by national characteristics. Analysis of the campaign results in this subsector will make it possible for labour inspectorates to undertake actions in collaboration with the chains at the European and national levels.

Construction was the focus of European labour inspectorates’ attention owing to the extent to which manual transport is used in this sector. Lifting, carrying, pushing, pulling, handling of heavy tools, and devices, masonry works, plastering, fitting works, work in trenches in forced body positions – these are the basic activities of construction site workers which constitute a burden for musculoskeletal system.

A large number of people employed in these sectors in connection with high risk of injury is the major reason why ill health related to musculoskeletal system of workers of retail trade and construction bring serious social consequences for the workers themselves, their families, employers, government administrations, and the whole European Union.

The sectors of the campaign were selected also because of the need to provide workers with equal opportunities and the same level of Health protection in all countries of the European Union.

### **Aim of the project:**

- increase the level of compliance with the EU Directive 90/269/EEC “Manual handling of loads” in order to reduce the number of musculoskeletal disorders;
- improve the inspection and communication methods in National Labour Inspectorates by drawing conclusions based on the existing methods;
- better harmonization of enforcement of legal provisions concerning manual handling of loads;
- continuation of the campaign on manual handling of loads commenced in 2007, exchange of experience and good practices among National Labour Inspectorates.

### **Products and costs of the campaign implementation**

Tasks (products of the campaign):

- I. Inspection campaign carried out on the basis of common guidelines concerning the strategy of preventing the risk of injury during manual handling of loads;
- II. Training for labour inspectors conducted at a national level based on common European supplementary training and methodological materials;
- III. Publications for construction and retail trade sectors;
- IV. Communication campaign using the Internet and the mass media;
- V. Evaluation of the 2008 campaign and the seminar summing up the campaign carried out in the period 2007-2008;
- VI. National initiatives – supplementary actions undertaken at the Member State level.

The National Labour Inspectorate in Poland, being the coordinator of the campaign, received funding for implementation of the project, beginning from 1 June 2008. The assumed budget of the campaign amounted to EUR 390175.00. In fact, the actual realization of the budget, owing to a favourable exchange rate was EUR 302272.77 out of which the European Commission financed 69.97% and the National Labour Inspectorate in Poland 30.03%.

But the cost of the project implementation is also connected with the costs incurred by all countries involved in the campaign: the cost of labour inspectors training, the cost of work performed by inspection employees, the cost of communication campaign, including the cost of printing publications (the printing of publication for seven countries was financed from the project's budget).

Implementation of the campaign would not have been possible without enormous involvement of the Labour Inspectorates represented in the Senior Labour Inspectors Committee.

## Results of the campaign

### Training for labour inspectors

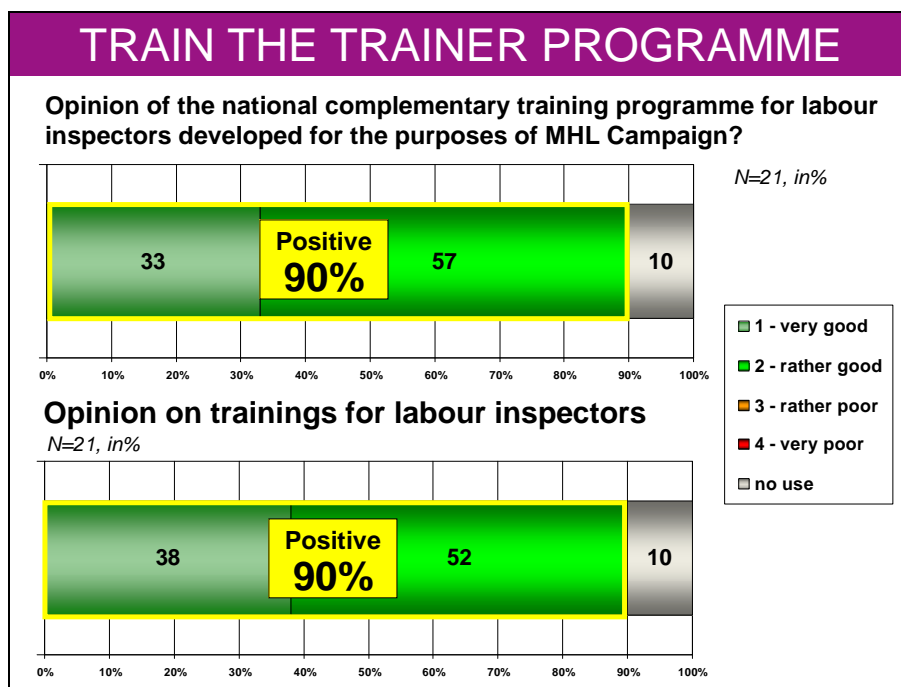
In March 2008 there was a meeting of the subgroup dealing with production of supplementary training materials for national trainers. In the course of the meeting supportive materials for national trainers were developed in the form of PowerPoint presentations; the group also specified training needs. In 2007 a group of trainers were trained at the European level, who later on trained inspectors in their own countries. In 2008 the training was repeated at the national level and during training sessions the trainers made use of the materials developed by the working group. This made it possible to complete inspectors' knowledge with elements specific for construction and retail trade sectors, and to provide them with updated common guidelines on the strategy of preventing the risk of injury during manual handling of loads. The training for labour inspectors, as a part of the preparatory process for the inspection campaign in individual countries took place in May and June 2008.

The table below contains information about the number of labour inspectors attending the training and the inspection campaign.

Country	Trainers participating in realization	Inspectors participating in training programme	Inspectors participating in the MHL Campaign 2008	Total number of labour inspectors in the country	Inspectors participating in training programme - %	Inspectors participating in the MHL Campaign 2008 - %	Participating labour inspectors trained - %
Austria	4	35	37	308	11	12	95
Belgium	2	48	40	160	30	25	100
Bulgaria	2	115	280	385	30	73	41
Cyprus	1	30	25	30	100	83	100
Czech Republic	83	83	83	328	25	25	100
Estonia	8	28	28	49	57	57	100
Finland	10	10	10	350	3	3	100
Greece	3	98	98	294	33	33	100
Netherlands	2	13	13	320	4	4	100
Ireland	1	20	20	85	24	24	100
Italy	0	0	300	300*	0	100	0
Latvia	13	90	90	140	64	64	100
Lithuania	2	30	36	207	14	17	83
Malta	1	8	7	10	80	70	100
Poland	4	372	229	1458	26	16	100

Portugal	3	101	117	267	38	44	86
Romania	5	100	100	100	100	100	100
Slovakia	10	9	76	321	3	24	12
Slovenia	1	25	25	25	100	100	100
Spain	2	14	120	890	2	13	12
Sweden	16	40	45	300	13	15	89
<b>TOTAL:</b>	<b>172</b>	<b>1269</b>	<b>1779</b>	<b>6827</b>	<b>20 %</b>	<b>28 %</b>	<b>71%</b>

Data from evaluation forms forwarded by individual labour inspectorates involved in the project showed that 28% of labour inspectors from those countries participated in the campaign and over 70% of them had received training. Both the programme of supplementary training and the training sessions themselves were positively evaluated by 90% of participants.



### Inspection campaign in construction and retail trade sectors

The inspection campaign in 2008 covered two sectors: construction and retail trade.

#### *Subject of the inspection:*

In line with the assumptions adopted by the first working subgroup the main topic of the inspection was to provide answers to the following questions:

- 1) Has the company/organization conducted occupational risk assessments connected with manual handling of loads?
- 2) Have measures been taken and arrangements put in place to prevent the most serious hazards (hazards were supposed to be evaluated/indicated at least at the general level with the use of the inspection evaluation method such as SLIC guidelines on evaluation).

#### *Implementation of the inspection campaign*

Having regard to the campaign's assumptions and its schedule, the suggested period for implementing the inspection activities was autumn 2008: September-November period following the completion of the training cycle and obtaining ready-made publications. The first phase of the inspection campaign could be of preventative nature whereas the second was to focus on inspection. However, the manner in which the inspection campaign was to be organized and the schedule of its activities were left to the decision of National Labour Inspectorates.

National Labour Inspectorates were also free to decide when to commence and finish inspection activities, which was due to the fact that most of them carried their own long-term prevention and inspection programmes concerning manual handling of loads and also because of their country-specific manner of operation.

#### *Supplementary materials for inspection*

National Labour Inspectorates were free to make use of the past inspection tools to conduct inspections in 2008, i.e.:

- checklists allowing for hazard identification,
- KIM and MAC tools,
- country-specific tools used in the past inspection practice related to MHL issues.

The tools used for assessment of risk connected with manual handling of loads were available on the campaign website: [www.handlingloads.eu](http://www.handlingloads.eu).

In addition the following tools were developed for the needs of the 2008 campaign:  
- two inspection questionnaires with a commentary for evaluation of inspection activities (recommended for use in 2008).

Each list comprised ten topics connected with manual handling of loads. The list also contained information on legal means used in the course of the inspection. If the list used for evaluation contained topics not covered within the scope of conducted activities (in line with national legislation and inspection methodology) the questions contained in them were to be left unanswered. Evaluation lists constituted an attachment to the guide on the campaign.

Labour inspectors could also use evaluation lists directly during inspection activities (also as general checklists) or they could also be filled out by national leaders following the completion of the inspection campaign in a given country. In the latter case one should ensure the necessary data is collected in a different way, according to the national inspection practice.

Using the above-mentioned checklists enabled the collection of data in a fast and easy manner both at the national and European level. The data will make it possible to carry out an analysis of irregularities connected with manual handling of loads depending on the size of the company.

#### *Results of the inspection campaign*

During the inspection campaign conducted in 2008 labour inspectors carried out workplace inspections in 9894 workplaces:

Including 4 432 workplaces from the retail trade sector, out of which the following were inspected (the percentage in brackets refers to workplaces of a particular type in the general group of all workplaces of the retail trade sector):

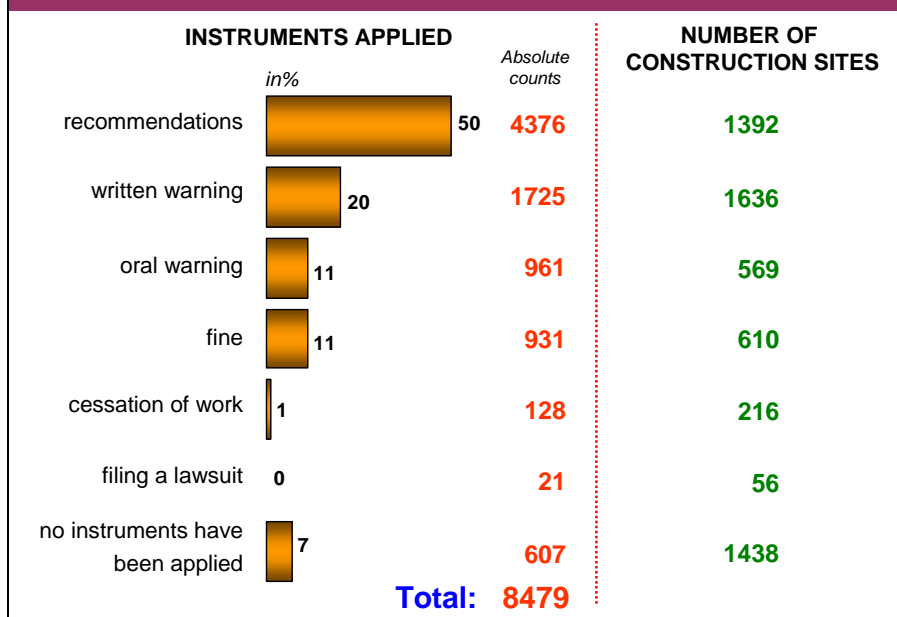
- 298 distribution centres (7%),
- 94 companies dealing with door-to-door deliveries (2%),
- 1325 shops employing less than 10 workers (30%),
- 1234 shops employing from 10 to 100 workers (28%),
- 238 shops employing more than 100 workers (5%),
- 1243 shops belonging to international chains (28%).

And 5469 construction companies, including (the percentage in brackets refers to companies of a particular type in the general group of all construction companies):

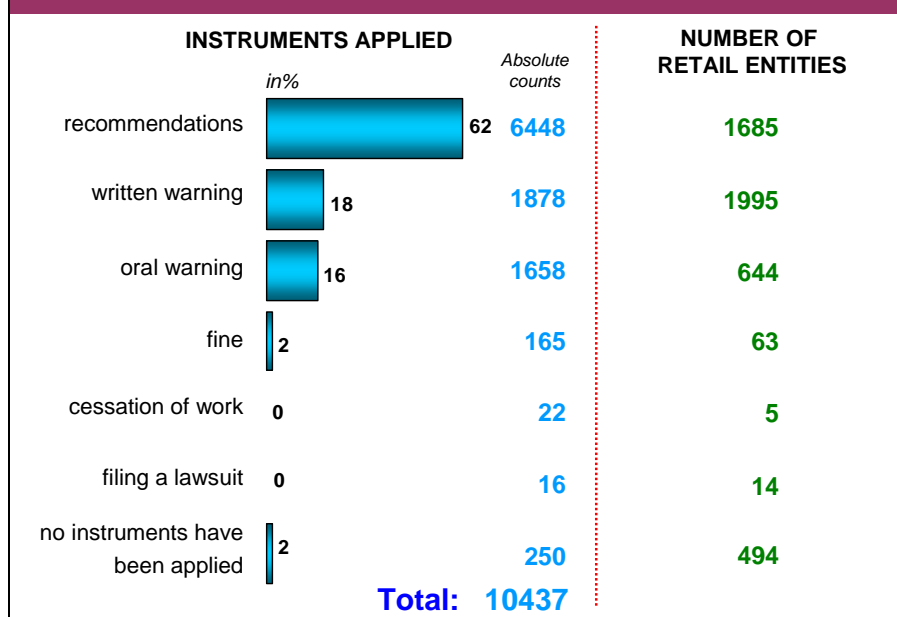
- 2015 companies employing less than 5 workers (37%),
- 1952 companies employing from 6 to 20 workers (36%),
- 802 companies employing from 21 to 50 workers (14%),
- 700 companies employing more than 50 workers (13%).

Legal means used by labour inspectors are a reflection of the preventative nature of the campaign – in most workplaces labour inspectors restricted themselves to issuing recommendations (62% retail trade, 50% construction) or did not issue any legal means at all (7% construction, 2% retail trade). Only 2% of employers in retail trade sector and 11% of employers in construction sector were penalized with a fine. The decision to cease work was taken by labour inspectors only in 1% of construction companies and less than 1% of retail trade companies. Lawsuits were filed with courts in less than 1% of companies.

## INSPECTIONS – CONSTRUCTION SECTOR



## INSPECTIONS – RETAIL TRADE SECTOR



Labour inspectors reached thousands of workplaces, where the greatest hazards connected with manual handling of loads are observed. Hundreds of training sessions were conducted and tens of thousands of pieces of advice were given. Where labour inspectors went many irregularities were eliminated. Unfortunately, we could not be everywhere!

Cooperation depends on many variables:

- Size of the workplace: smaller entities are less likely to be inspected, employers are more nervous about the inspection and they are often not interested in prevention activities. In larger organizations employers often delegate powers to conduct prevention activities in that regard to external OSH services;

- Duration of the inspection: the length of inspection and the time of inspection (time pressure phenomenon: pre-holiday period in retail trade and the upcoming deadline for completing a construction project);
- Individual predispositions of a labour inspector.

We found that the level of knowledge regarding the subject of the campaign is relatively low, both in relation to identifying and reducing hazards. This made it difficult for labour inspectors to embark on a partner-like subject-oriented discussion with employers.

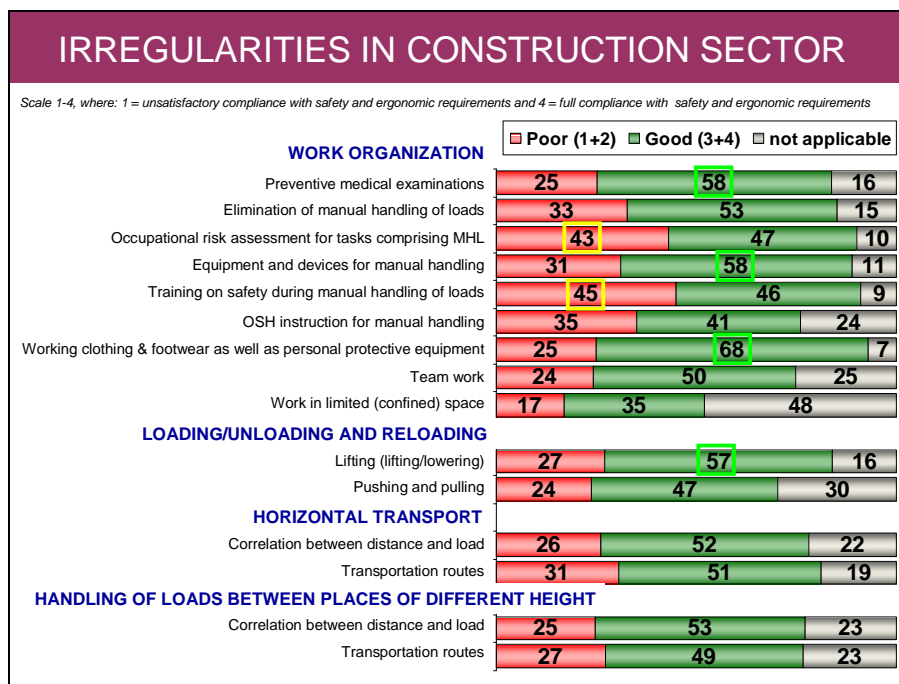
Employers often made excuses saying that introduction of technical solutions was too costly and their workplaces were ill-adapted for them (shops).

On construction sites the determining factor was considerable dynamics of change during construction works. The arrangements put in place to eliminate manual handling sometimes failed to keep up with the pace of construction work, therefore the simplest solutions were chosen – manual handling of loads.

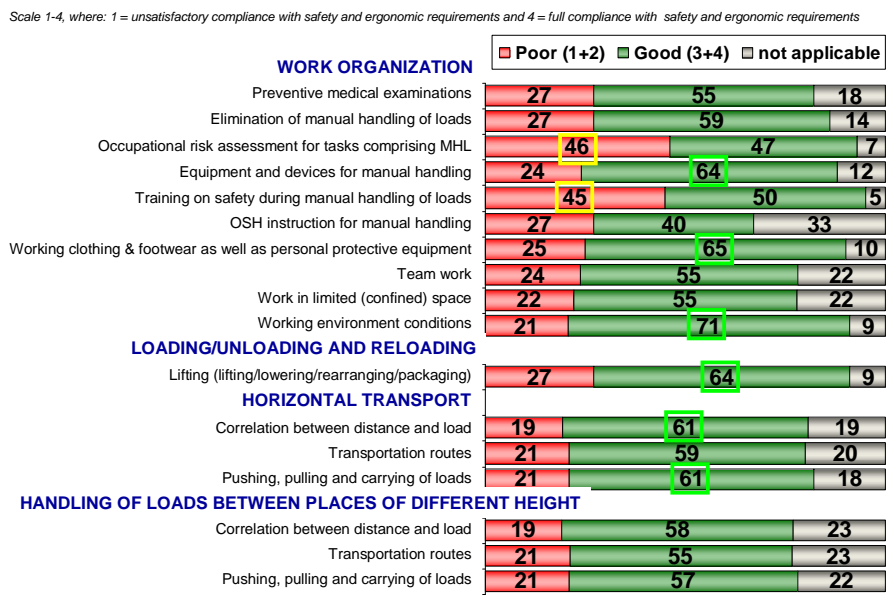
Regardless of the sector, a certain pattern was always observed that the more frequent a certain activity was and the more repetitive it was in respect of time, way and the manner of work performance, the more willing the employer and workers were to use appropriate technical solutions.

Workers, on the other hand, were very reluctant to adopt the proposed manner of performing work. This was mostly due to their habits – following proposed guidelines would lengthen the time needed to complete a certain task. Often the following sentence would be heard – “I only had to carry this load one time, I did not want to bother my colleague, I had no time to look for the cart.” Sometimes the training was considered to be the necessary evil. Workers (particularly) men on construction sites treated carrying loads like working out in the gym.

The tables below show identified irregularities in a statistical way:

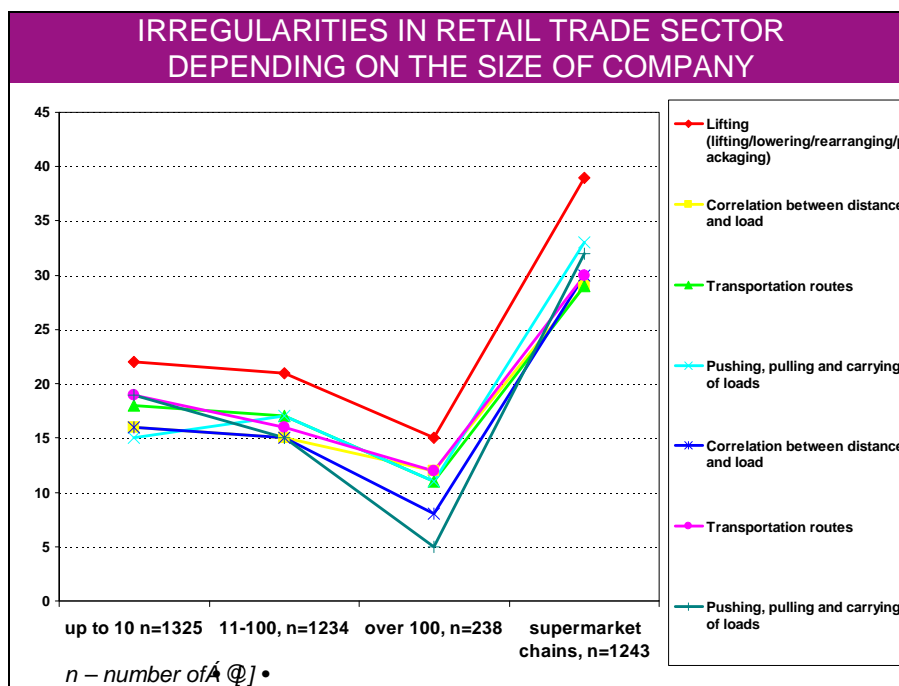
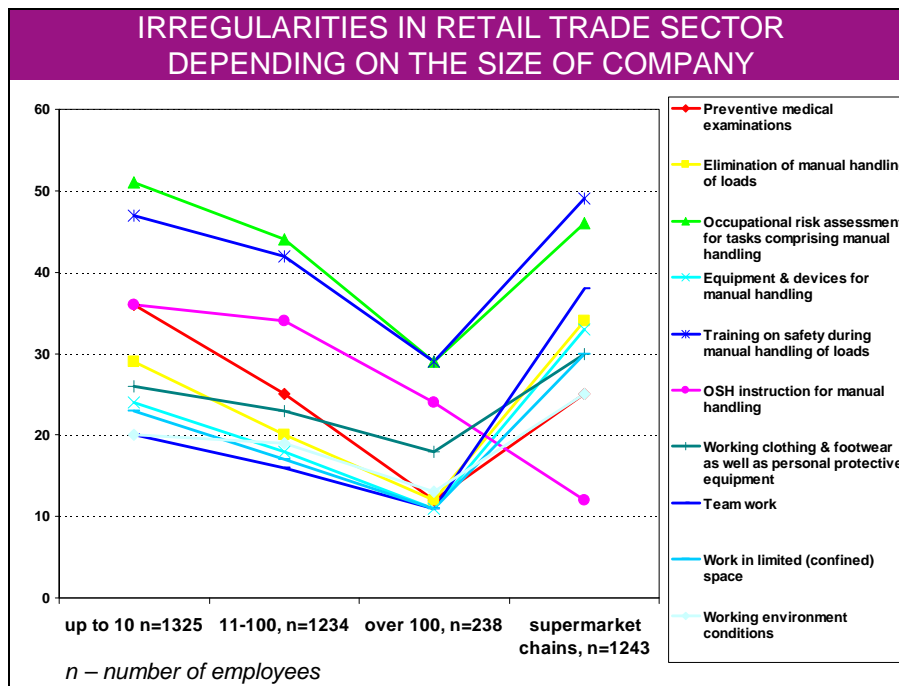


## IRREGULARITIES IN RETAIL TRADE SECTOR



It is noteworthy that the largest number of irregularities was observed with regard to occupational risk assessment on manual handling of loads (a considerable percentage of companies did not have any occupational risk in that regard) as well as compulsory training for workers in this area. A question arises whether practical solutions concerning work organization and provision of appropriate equipment, are really satisfying? Requirements relating to occupational risk assessment are straightforward and easy to verify. Legal provisions, however, do not specify satisfactory standards for practical solutions regarding elimination and reduction of manual handling. What we care about here is a continuous strive for improvement of working conditions. Therefore positive results demonstrated in the table should not elude us. They only attest to the fact that minimum level of prevention of musculoskeletal disorders – as provided for in regulations - has been achieved.

One of the assumptions of the project was to determine how international chains of shops – where corporate policy prevails, including provision of essential equipment and work organization - compare to other retail entities. Entities for inspection were not selected in a way that would allow for achievement of representative results at a European level. Therefore, the specification presented below should be treated very cautiously. Nonetheless, there exist grounds for intensifying dialogue between labour inspection and management boards of large international chains.



#### Communication campaign:

- **Publications for construction and retail sectors**

In February 2008 in Luxembourg a meeting was held of the working subgroup for mass media campaign, publications, and the webpage. The meeting was devoted to discussing the concept, and topic-related contents of the publications, which were later developed by the National Labour Inspectorate in Poland for the needs of the campaign. Two brochures were published –

for retail trade and construction sectors, as well as two posters presenting good practice with regard to manual handling of loads. Each of the publications was issued in 25 national versions. Altogether 100 thousand copies of publications were produced in cooperation with foreign partners. Publications, whose graphic design related to the publications from 2007, were richly illustrated with photographs. Emphasis was placed on the idea of eliminating manual handling of loads wherever possible. Publications promoted the assumption that making use of technical facilities, organizational arrangements, e.g. in respect of storing goods, can and should reduce manual handling, and where it cannot be avoided, work must be performed in a way that is safe for a worker's health and in line with the rules of ergonomics. Each 32-page brochure contained blank space for adding national input. These were contact details, national regulations, information about extra events held in a given country, and implemented by National Labour Inspectorate. 21 countries took advantage by adding their own country-specific input. In line with the arrangements made by the subgroup Member States were responsible for providing translations of the publications into national languages and preparing them for printing. Each Labour Inspectorate printed publications on their own, in the print run adjusted to their needs. Labour Inspectorates, which in their partnership declarations, indicated lack of funds to finance printing, received sets of publications printed from the funds of the project. 7 countries benefited from this possibility, which gave the total print run of 80 thousand copies.



Publications were distributed in large amounts. A considerable number of countries distributed over 3000 copies.

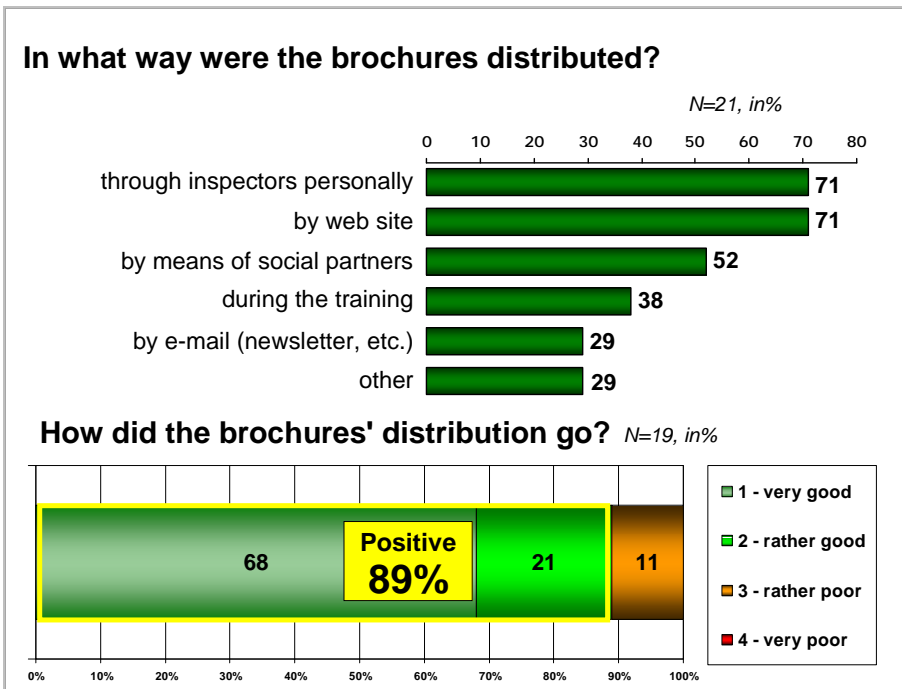
How many brochures/ posters dedicated to SLIC MHL Campaign were distributed?

Country	CONSTRUCTION BROCHURE						CONSTRUCTION POSTER					
	1-100	101-250	251-1000	1001-3000	more than 3000	None	1-100	101-250	251-1000	1001-3000	more than 3000	None
Austria		■						■				
Belgium					■							■
Bulgaria					■				■			
Cyprus				■					■			
Czech Republic				■				■				
Estonia		■					■					
Finland						■						■
Greece					■				■			
Netherlands		■										■
Ireland			■									■
Italy					■						■	
Latvia			■					■				
Lithuania			■						■			
Malta				■					■			
Poland					■						■	
Portugal					■						■	
Romania					■						■	
Slovakia				■					■			
Slovenia					■						■	
Spain					■				■			
Sweden						■						■

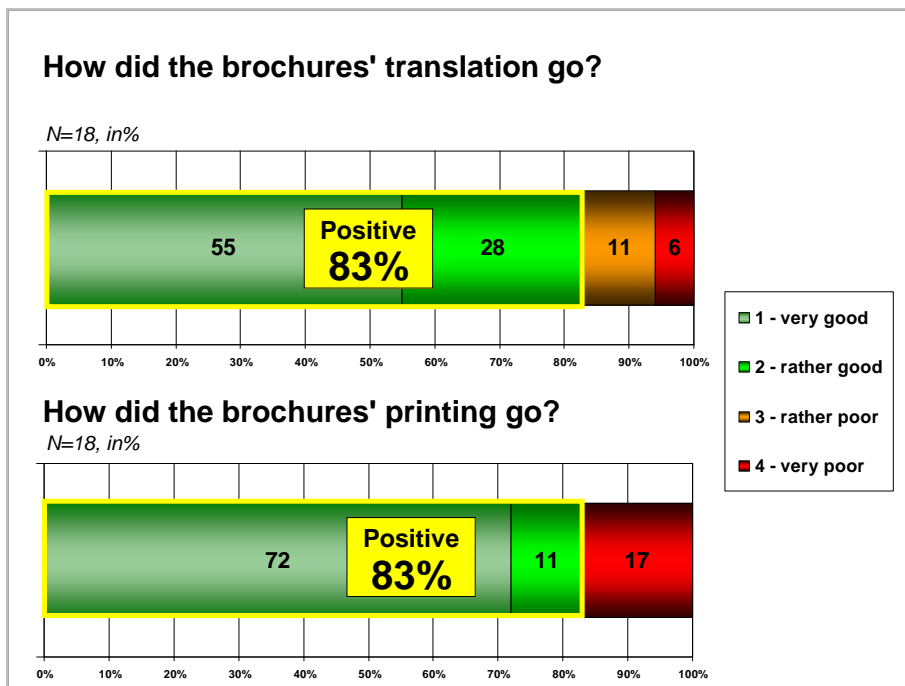
How many brochures/ posters dedicated to SLIC MHL Campaign were distributed?

Country	RETAIL TRADE BROCHURE						RETAIL TRADE POSTER					
	1-100	101-250	251-1000	1001-3000	more than 3000	None	1-100	101-250	251-1000	1001-3000	more than 3000	None
Austria		■						■				
Belgium						■						■
Bulgaria					■				■			
Cyprus				■					■			
Czech Republic				■				■				
Estonia		■					■					
Finland						■						■
Greece					■				■			
Netherlands						■						■
Ireland			■									■
Italy						■						■
Latvia			■					■				
Lithuania			■						■			
Malta				■					■			
Poland					■						■	
Portugal					■						■	
Romania					■						■	
Slovakia				■					■			
Slovenia					■						■	
Spain					■				■			
Sweden						■						■

Posters were made available directly by labour inspectors, on Labour Inspectors' webpages and also thanks to cooperation with social partners.



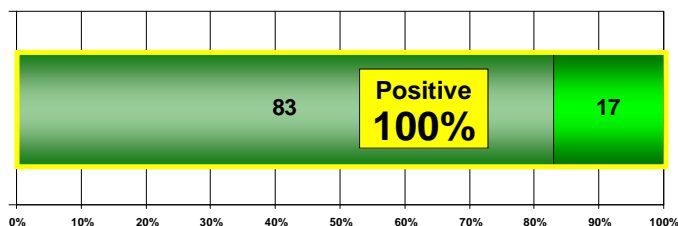
The process of translating and printing publications was evaluated positively in 83% of cases.



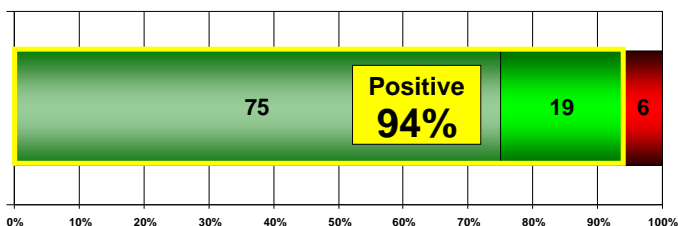
Both the brochures and posters were very well received by retail trade and construction sectors.

## Reception of the brochures in the construction sector:

### CONSTRUCTION BROCHURE *N=18, in%*

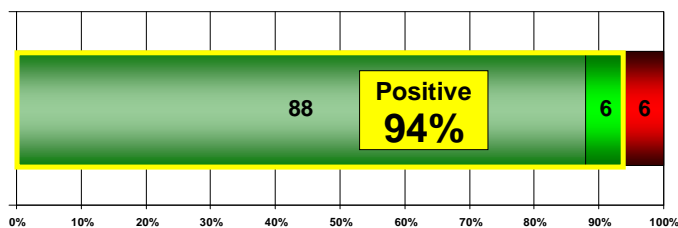


### CONSTRUCTION POSTER *N=16, in%*

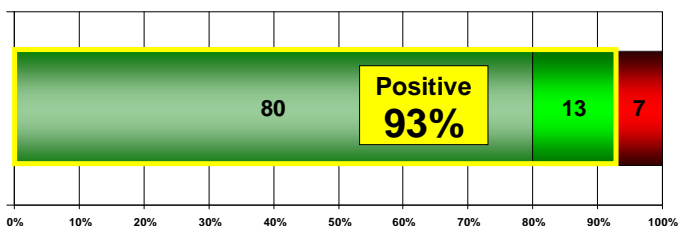


## Reception of the brochures in the retail trade sector:

### RETAIL TRADE BROCHURE *N=16, in%*



### RETAIL TRADE POSTER *N=15, in%*



The only problem for some Member States was the date of receipt of the publications (in the form of files ready for printing). The cause of that delay were not only procedural issues, but also repeated corrections made in the material at the phase of preparing its graphical layout.

- The webpage [www.handlingloads.eu](http://www.handlingloads.eu)

The National Labour Inspectorate in Poland took over management of the webpage [www.handlingloads.eu](http://www.handlingloads.eu). All information placed on the website was translated into 21 European languages. In line with the arrangements made by the working subgroup for communication campaign the contents of the webpage were not only updated, but they were also enriched with examples of good practice concerning manual handling of loads and electronic versions of the publications. The message of the campaign was also advertised on websites of National Labour Inspectorates.

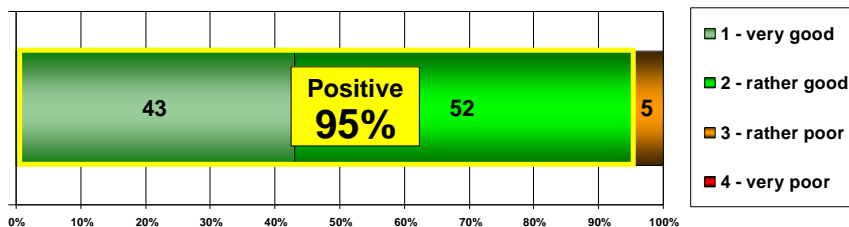
The webpage [www.handlingloads.eu](http://www.handlingloads.eu) is still active. Even after the campaign was officially concluded, it is still visited. The webpage will remain active till 2012, so it is still possible to enrich it with additional material, or edit national versions of the texts contained therein.

The most frequent visitors of the campaign's webpage came from Portugal, France, Poland, Italy and Romania. 95% of the countries involved in the campaign have a positive opinion of the webpage. The majority of Labour Inspectorates placed materials connected with the campaign on their own national webpages.



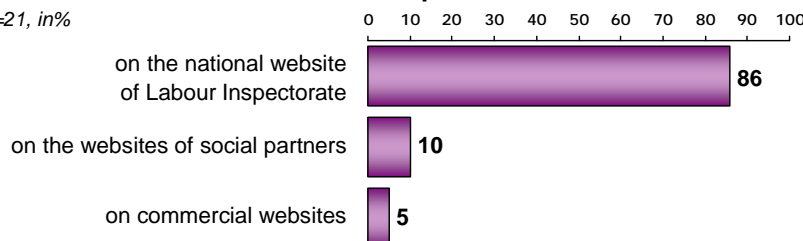
### Evaluation of SLIC Campaign MHL website: [www.handlingloads.eu](http://www.handlingloads.eu)

N=21, in%



### Were the information and materials published on national websites

N=21, in%

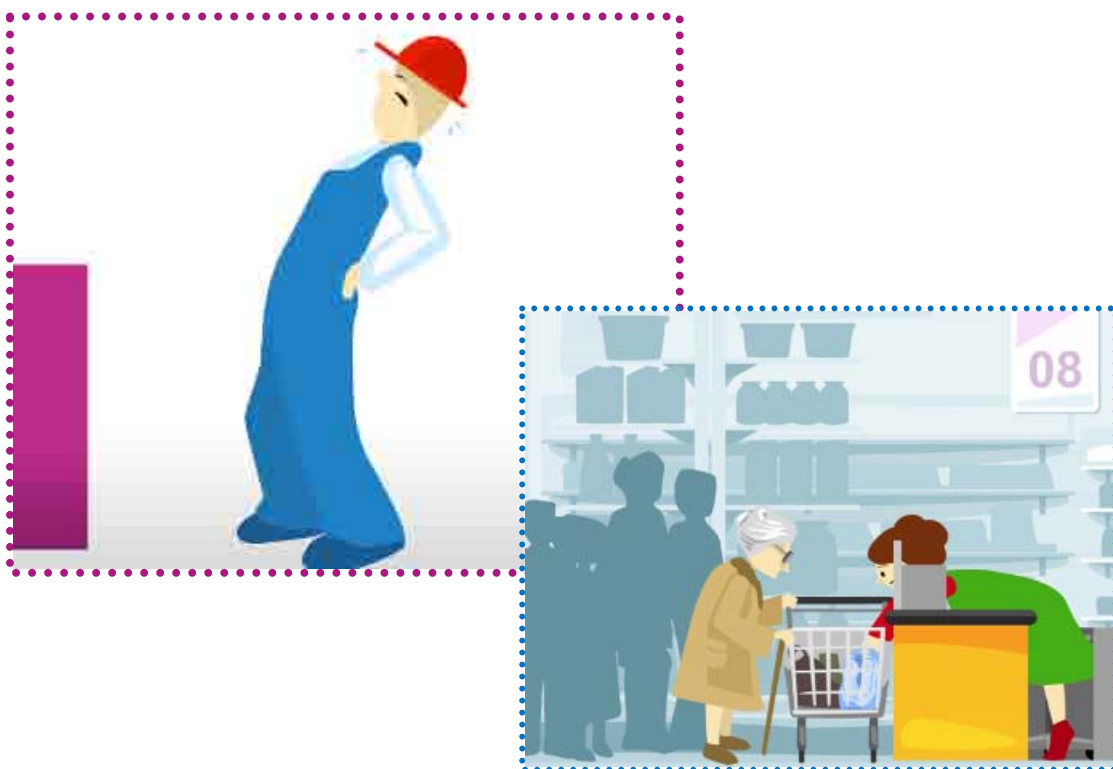


- **Cooperation with mass media**

One of the key undertakings within the framework of the campaign was widespread propagation of its message thanks to cooperation with the media. Therefore press releases were prepared and forwarded to coordinators of the campaign in the participating countries. The releases were supplemented with local information and provided to national mass media.

- **TV spots and educational films**

Additionally, two seven-minute training cartoons and two tv advertisements (spots) were produced for broadcasting in electronic media. Certain elements of the cartoon films were also used for making the internet banner, which was used not only on the webpage [www.handlingloads.eu](http://www.handlingloads.eu), but also on national webpages of individual Labour Inspectorates.



### **The summing-up seminar**

The summing-up seminar was held on 20 and 21 April 2009 at the Polish National Labour Inspectorate's Training Centre in Wrocław. During a two-day conference the results of the two-year campaign were presented and discussed. This event also provided the opportunity to become acquainted with the best practices in the area of elimination and reduction of risk connected with manual handling of loads - in the course of two days of the seminar its participants could familiarize themselves with an exhibition of good practices. The event was attended by 150 participants including representatives of labour inspectorates from 20 countries: Austria, Belgium, Bulgaria, Czech Republic, Cyprus, Denmark, Finland, France, the Netherlands, Spain, Latvia, Germany, Norway, Portugal, Poland, Romania, Slovakia, Slovenia, Sweden, and the United Kingdom. During the seminar all European countries involved in the

campaign had the opportunity to present their best practice, share experience and recommendations for the future. The list of participants, besides members of the Senior Labour Inspectors Committee, included representatives of the European Agency for Safety and Health at Work in Bilbao as well as representatives of other institutions and organizations concerned with occupational health and safety issues.

### **Selected national initiatives**

#### **Cyprus**

Organization of two conferences for OSH specialists during which they received information about the campaign and the KIM method.

#### **Greece**

Presentations on manual handling of loads during a conference organized on the occasion of World Day of Occupational Safety and Health.

#### **Latvia**

Emailing employers about manual handling of loads problems and occupational risk assessment.

#### **Portugal**

Organization of 4 thematic seminars – in cooperation with social partners, scientific circles, and organizations dealing with work safety.

#### **Slovakia**

International conference whose topic, among others, related to the issue of manual handling of loads.

Meetings of experts.

#### **Sweden**

Publishing the KIM tool and its distribution among employers.

### **Evaluation of achievement of pre-set objectives**

Following the completion of the inspection and communication campaign the project was subjected to evaluation. The evaluation covered inspection, communication and training phases of the campaign.

Its aim was to:

- determine the extent to which qualitative and quantitative expectations were fulfilled;
- examine the best practices related to manual handling of loads in retail trade and construction sectors;
- examine what could be learnt from the project.

The evaluation at the European level was made on the basis of evaluation forms for communication campaign and training, and evaluation checklists for inspection campaign – as filled out by the national coordinators.

Qualitative and quantitative expectations of the campaign	Fulfilment
80% of SLIC countries will implement the inspection project regarding manual handling of loads in 2008 (23 countries).	26 countries declared their willingness to join the campaign based on partnership declarations (Norway and the United Kingdom participated only in the preparatory phase)
Every labour inspector participating in the MHL inspection campaign will attend the national training on manual handling of loads	82% labour inspectors taking part in the campaign were trained at the national level in 2008 (1269 out of the total number of 1779)
Every country participating in the project will declare the number of workplaces which will be covered with inspections within the MHL inspection campaign. The declared number of inspections should be possibly high so as to achieve a substantial influence upon the retail trade and construction sectors.	All participating countries declared a specified number of workplaces to be inspected.
The number of inspections carried out by every participating country in construction and retail trade will be higher or equal to the declared number – the results of inspections should be collected by means of evaluation forms	9894 inspections were carried out in total – more than originally declared. All National Labour Inspectorates sent the data concerning the inspections they carried out.

## Good practices

### Construction

Handling of loads always accompanies all construction works. Irrespective of the fact whether these are bricks, finishing elements or tools an employee changes their position horizontally and vertically along progress, stage or place of works. Construction of houses, roads and bridges requires both usage of heavy machinery and materials of different shapes, sizes and weight, and transport is most often carried out on unhardened ground. This limits the choice of helpful devices and narrows it to simple solutions, i.e. manual handling of loads. Unfortunately, taking such a shortcut most often means that employees end up with injuries or musculoskeletal disorders.

Fortunately, traditional methods of handling loads are more and more often supported with technical solutions. Paving work is a good example. It is not only the matter of simple tools which facilitate taking an appropriate hold of a cobblestone, brick or kerb, but above all it is the matter of multifunctional machines designed for paving work. Thanks to very durable vacuum suckers they make it possible to lift and transfer elements weighing up to 300 kg, even when the surface of an object is uneven.

**Photo 1 (Poland)**

Handle for carrying paving stones



**Photo 2 (Poland).**

Handle for carrying curbs by 2 persons.

**Photo 3 (Poland).**

A handle designed for kerbs to eliminate manual handling of loads



**Photo 4 (Poland)**

Device for paving work with a vacuum suction unit.



### **Paving work**

Paving work performed in a traditional way is both exhausting for employees and not very effective. Changeable weather conditions, the necessity to handle heavy loads manually and work in a forced position constitute a serious problem, but they are at the same time a challenge for designers of construction equipment. Using modern, mechanized and multifunctional machines in paving, building and road works is a great solution. Around 50 types of special grippers which such machines are often equipped with attest to their enormous versatility. Amongst them one can find specialized devices used for laying cobble stone and kerbs.

Machines designed for paving work have a compact and solid structure. They are also characterized by great manoeuvrability and stability during work. Their versatility and ease of operation are just another advantage, while air-conditioned, soundproof cabin with 360° field of view and three-point lighting guarantee comfort and safety.

Owing to usage of the machine shown in the photo one can lay even up to 100 m<sup>2</sup> of cobble stone or up to 100 m<sup>2</sup> of kerb within an hour (Austria).

**Photo 5 (Austria)**

All-round machine designed for paving work with a special gripper for laying cobble stone.



**Photo 6 (Austria)**

A machine with a vacuum sucker designed for handling heavy elements.



**Photo 7 (Austria)**

A suction unit designed for manual handling of cobble stone.



**Photo 8 (Estonia)**

Transport – a lorry which can be loaded from three sides. Providing easy access to the entire loading space eliminated the necessity of onerous moving of europallets. Loading and unloading takes place just by using forklift trucks. One should remember about providing flat and hardened surface of the manoeuvring yard.



**Elimination of manual handling of loads - the use of slipform curbing**

The process involves feeding kerbmix concrete from the ready mix truck via an auger into a hopper connected to a mould. The mould is pre-fabricated to the required profile. The auger's heavy-duty design gives it plenty of torque to move the material required for big jobs and gives it extra longevity.

The concrete is vibrated to ensure that the right density and compaction is achieved. As the machine moves the mould slips over the vibrated concrete – hence the term 'slipform'. Any changes in the energy the curber applies to the concrete or changes in the concrete properties will alter the results of the curbing process. Hence, uniformity is key in the slipform process. Distribution of concrete to the curber must be continuous to meet the demands of high production, and the squeezing of the concrete must be constant to produce a uniform shape and finish. Uniformity in design (mix and geometrics), logistics (concrete supply and delivery), and energy levels (vibration, squeeze, and movement) are all vital for satisfactory machine performance and curbing results.

The machine is equipped with electronic sensors, which run on a preset guideline mounted on steel pins and brackets - this defines the vertical and horizontal alignment of the kerb being placed. A troweling section on the rear of the mould finishes the concrete.

Good practice reported from Ireland.



**Photos 9 and 10**  
Pouring out kerbs with the use of slipform curbing method (source: the Internet)



**Photo 11**  
Pouring out track-way with the use of slipform curbing method



## Reduction of physical loads caused by manual handling of loads – substitution of the material in use

Not only can musculoskeletal disorders be reduced significantly by mechanizing the work processes, but also by using a different - lighter material. Particularly significant results can be achieved by substituting such a heavy material as concrete with plastic which is four times lighter.

Low weight of the material minimizes the costs of transport, workers' exertion and physical load during the laying itself. The paving does not absorb water and so it does not take away the necessary moisture from plants. Owing to this in the summer grassy areas remain truly green. In the winter season plastic paving neither freezes nor cracks. The plastic composite is also easy to manufacture and lets you create various shapes with great precision, for example around sewage shafts, water seals, lamp posts. At the same time the plastic surface is perfectly even and durable. The plastic paving is ideal for reinforcing driveways, playgrounds or pitches.

**Good practice from the Czech Republic. Photos from the webpage: [www.recyklace.cz](http://www.recyklace.cz)**

**Photo 12**

(source – the Internet)  
A single plastic element used to laying down works.



**Photo 13**

Standing posts produced out of plastic elements.



Many ad hoc conservation and construction works at height must be completed quickly, but at the same time in more unfavourable conditions than when constructing a building from the very beginning. It is not always possible to appropriately organize a construction site in such a way that required safety standards are kept. Excessive haste or seeking compromises at the cost of employees' safety have often been a cause of many tragedies. Many dangers might have been avoided, if the necessity to transport tools and materials manually by climbing ladders placed on scaffoldings had been eliminated. During works at heights, which are classified as particularly dangerous ones, every additional hazard factor increases the possibility of an accident. In such cases replacing traditional scaffoldings with working platforms is a good practice. The presented type of the platform is easy to move around and to assemble. The height of the unfolded working platform can be even a dozen or so metres high, and unfolding does not take more than a minute. Durable and stable construction of the platform not only guarantees comfort and safety of work at heights, but also almost entirely eliminates manual handling of loads.



**Photo 14 (Poland)**

A moving platform during work

### **Retail trade**

Manual handling of loads should be eliminated whenever it is possible. To this end one should first analyze the ways in which work is performed. All activities requiring manual handling of loads should be reviewed in order to establish, whether it is indeed necessary. Later on, in case it turns out that work is carried out in an inappropriate way, one should take preventive measures. Often by eliminating manual handling of loads, it is at the same time possible to eliminate other hazards in the work environment.

This was exactly the case in one of the Austrian companies. Thanks to the usage of a small overhead crane manual handling of loads was entirely eliminated. Earlier an employee had to personally handle and manually pour the contents of 13 sacks 25 kg each into a funnel, which can be seen in the photo. In the process of emptying the contents of a sack a cloud of harmful

dust was produced. At present the contents of a big bag are gradually and slowly poured into a container under gravity, which prevents the formation of dust.

Another example of “good practice” registered in large-area shops is replacing manual handling of loads with the use of electric carts. Additionally, thanks to the possibility of adjusting the height of a working level, employees no longer have to bend over while laying out products onto shop shelves (Austria).

**Photo 15 (Austria)**

An overhead crane, thanks to which the necessity to handle sacks manually was entirely eliminated.



**Photo 16 (Austria)**

An electric cart designed for transport of goods with adjustable height of a working level.

In building depots hoists are used more and more often to enable simple transport and placing heavy goods on shelves. Placing objects above the shoulder line is very burdensome for employees, just like working at levels which require bending down. The device shown eliminates hazards connected with performance of this type of tasks.



**Photo 17 (Bulgaria).**



**Photo 18 (Latvia)**

Storing – a typical electric cart for placing goods on warehouse shelves.

Work organization in large-area shops is a major challenge in eliminating musculoskeletal disorders. At every stage of work (unloading of goods, storing, in-house distribution), it is possible to use diverse support equipment facilitating the transport of loads. It is possible thanks to good arrangement of working spaces already at the design stage of shop construction. Employees willingly use these solutions and appreciate their usefulness. Thanks to roller cages adapted to the transport of europallets they can more quickly and more safely transport goods for long distances directly from the warehouse to shelves in the sale hall. According to the people who operate these devices, they are relatively easy to use, however at the beginning it is necessary to undergo training conducted by an experienced instructor. Equipping cages with the forklift system, speed control option, or wheels adapted to smooth surfaces enhances everyday activities even more.

Laying out goods on shop shelves is also connected with many hazards. During this work employees must repeatedly bend down and lift goods from the floor level. A very useful device is an electric elevator. Thanks to this, as goods are unloaded from boxes, it is possible to change freely the working height in order to minimize burdens for spine and muscles. The next simple solution which can be applied in every place where „roller cages” are used (folded carts with net structure), is a ramp for gathering them together. The ramp entirely eliminates the need to lift emptied baskets while putting them into a collective cart.

**Photo19 (Finland)**

Electric elevator on wheels



**Photo 20 (Finland)**

Ramp enabling the collection of „roller cages”

The most beneficial for workers' health solution, which helps maintain the human motor system in a good condition, is the elimination of manual transport by using mechanical devices for transporting goods. Inspectors reported that such good practices were most often applied in retail trade and construction, particularly in warehouses belonging to large international chains and on larger construction sites. For example heavy goods were stored in collective packaging on pallets and transported by means of electric carts.

Especially for the retail sector, the workplaces that were designed and built for that specific use were generally ergonomically planned and thoughtfully laid-out. For example, there were no stairs between different levels, ramps were properly sloped and routes were wide enough.

Finally, inspectors found that some super market chains had implemented simple but effective organizational measures that in some cases eliminated the need for MHL: for example, heavy goods in collective packages were being stacked in-store with the pallets that are moved with the aid of electrical trolleys.

In big warehouses there were also used complex systems of transporting goods by the use of belt or roll conveyer.

**Photo 21 (Greece)**  
Belt conveyer



**Photo 22 (Greece)**  
Roll conveyer



Not only does the weight of objects we handle affect our musculoskeletal system leading to disorders. The size, shape, position and stability of the gravity centre or the possibility to grip the object appropriately are also of great importance. Among others, workers employed in shops selling carpets and floorings encounter untypical and large objects. For example placing heavy

rolls of flooring on exhibition frames in a shop causes great difficulty, as much as unrolling the flooring rolls during sale.

In this case it is very helpful to use special sets comprising tapes, blocks and reels, thanks to which even unhandy objects are easily placed in their proper places, even those that are out of reach of employees' shoulders. Thanks to this solution it was possible to avoid considerable burdens for spine and muscles, and the very work became effective, but first of all safe. There is no possibility for a heavy roll to fall down and crush an employee.

**Photos 23, 24 (Slovakia)**

A device for placing flooring rolls on exhibition stands.



Lifting a cardboard box filled with cans of soft drinks does not seem like a difficult or strenuous activity. The situation becomes complicated, however, when during a work shift one has to perform this activity repeatedly. The box, when full, weighs ca. 8.5 kg and is difficult to handle, particularly when it is in a stack of other packages. Thanks to using a special handle with suckers the box is easy to get out even from hard-to-reach places. The device makes it possible to lift only one box at a time, which is an additional advantage. Thanks to that employee "athletes", who for the superficial sake of saving time and energy used to grab 2 or 3 boxes at a time, don't have any possibility of doing so now.



**Photo 25 (Sweden)**

In companies manufacturing furniture no tasks are performed from the initial stage to the final one at a single workstation. Individual elements of furniture, manufactured at one workstation have further details added at subsequent stages of production. This requires the transport of ever heavier semi-finished products from one place to another. In this event special stands equipped with wheels, as shown in the photo, are of great help. Moving a sofa in a traditional way requires the participation of at least two persons. However, by using this simple technical solution, practically one person can transport even two sofas without any effort. Similar solutions are also successfully used in furniture shops. However, the device can only function properly on an even surface.



**Photo 26 (Sweden)**

Appropriate organization of logistic centres requires constant monitoring of inventory because of the need to ensure reliable bookkeeping, keep the fluidity of supplies and also having a sufficient stock of merchandise. It requires frequent counting of packages with products. It is not always possible to get the final result by multiplying properly arranged objects. Sometimes it may prove necessary to transfer them from one place to another, raising, moving and lifting them laboriously. This is not very effective, and often causes additionally musculoskeletal disorders.

In cases when shapes of packages or objects are irregular or arranged in irregular stacks, it is possible to use the scales which are equipped with a counting option. It is sufficient then to know the average weight of a single object in order to get the overall weight and the number in a few seconds. Such scales allow also to affirm quickly whether declared by a supplier average weight of packages of goods on a pallet corresponds to reality.



**Photo 27 (Poland)**

A floorscale enabling the counting of goods.

## Self checkouts

**A self checkout eliminates the physical load connected with manual transport of goods by the cashier.**

In self-checkout systems, the customer is permitted to scan the barcodes on their own items, and manually identify items such as fruits and vegetables (usually with a touchscreen display), which are then weighed where applicable, and place the items into a bagging area. The weight observed in the bagging area is verified against previously stored information to ensure that the correct item is bagged, allowing the customer to proceed only if the observed and expected weights match.



**Photo 28 (Poland)**

There is normally an attendant watching over several self checkout machines, to provide assistance, prevent theft through exploitation of the machines' weaknesses, and to enforce payment. Attendant assistance is also required for the purchase of age-restricted items.

Payment on these machines can be accepted by various methods; Credit Card, cash via coin slot and bank note scanner, and in-store gift cards where applicable. Most coupons also have barcodes and can be scanned the same way that items are scanned.

**Photo 29 (Poland)**



An alternative system consists of a portable barcode scanner that is used by the customer to scan and bag items while shopping. When the customer has finished shopping, the scanner is brought to a checkout kiosk, where the information from the barcode scanner is downloaded to the kiosk, usually in conjunction with a customer loyalty card. The customer pays and receives a receipt at the checkout kiosk.

Theft on these services is reduced by a combination of a high barrier to entry, and occasional audits of customers' shopping, where customers chosen at random are taken to a specialised till and have their shopping scanned in the usual way.

## Examples of good practice recorded in other sectors in 2008

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### Farming (Cyprus/Poland)

Workers employed in greenhouses perform tasks connected with manual handling on a daily basis. These include: carrying of crates filled with freshly picked fruit and vegetables, carrying large pot plants, and plant protection products like pesticides and insecticides. These work tasks are carried out in conditions arduous to human health – high temperature, humidity and poor ventilation. Additional obstacle is the impossibility to operate auxiliary equipment, and even unobstructed movement poses difficulty. Consequently, gardeners are often at risk of musculoskeletal overload as their work consists mainly in performing actions in a forced body position while their movements involve a lot of repetition.



**Photo 30**

Platform suspended from a rail mounted to a ceiling.



**Photo 31**

Floor-mounted rail system.

A simple solution to these problems consists in installing platforms which move along rails under the ceiling of the greenhouse or installing a floor-mounted rail system with a cart. Owing to the above it is possible to transport even 20 crates with fruit at a time. Since the introduction of that solution workers have never reported any ailments connected with back pain.

At the same time one can make use of one-axle hand carts with a long handle and a small turning radius. This minimizes the amount of human effort allows free movement and takes the load from musculoskeletal system.



**Photo 32**

Hand-cart for transport of heavy pot plants.

## Recommendations for the future

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The problem of downplaying the ergonomic factors of the working environment does not only refer to employers, but to the whole of society. Little importance is attached to this problem in families, at schools, in workplaces or while doing everyday chores. Too often do we pay too little attention to the fact how heavy satchels our children carry to school, what posture they assume while doing their homework or spending their free time with the computer. Are their desks well adjusted and are their chairs selected appropriately for their height? Consequently, we stop paying attention to the manner in which we perform our work. After all it is better not to become the laughing stock for our colleagues and perform our work like everyone else – poorly, like everyone else!

### **Regarding organization of the campaign**

Experience gained during the implementation of the third phase of the project „Manual handling of loads 2008“ indicates that preparatory activities shall be carried out a year before the implementation of the campaign. This would allow the organizers to avoid the time pressure and delays in publication and dissemination of information materials which were caused mainly

by a longer than expected process of applying for financial support from the European Commission. It would also allow the national inspectorates participating in the campaign to plan their budgets for the implementation of the campaign – particularly the cost of publication of information materials.

### **Regarding labour inspection**

A number of training sessions were conducted for labour inspectors, particularly in relation to methods of occupational risk assessment. In order to facilitate fieldwork checklists were developed. Requirements for employers were also harmonized. Labour inspectors in all countries participating in the campaign could provide employers with coherent, professionally prepared materials.

During conversations with labour inspectors we came to the conclusion that integrated prevention and inspection activities produce the best results. The actions should be adjusted to the specific sector and size of the workplace.

A problem appeared with regard to appropriate selection of workplaces to be inspected. The situation in that regard is different in various Member States. It seems advisable to first carry out analysis of work-related accidents and occupational diseases in various sectors and then make the final selection based on result of the analysis. A serious obstacle in this regard is the lack of legal requirement to report minor accidents to labour inspection. As results from examination of post-accident documentation many of such accidents are caused by poorly performed work tasks connected with manual handling of loads.

### **Regarding workers**

Workers need to be seriously motivated to be willing to change their working habits. Although manual handling of loads is the major cause of health disorders, labour inspectors often hear that occupational stress and working overtime are the cause of greatest nuisance for workers. Lack of sufficient knowledge leads to ignorance. Downpaying problems leads to accidents and occupational diseases. It seems that besides all types of inspection or prevention campaigns at the workplace level, we could achieve the most desired effects through to long-term educational programmes which comprise compulsory school subjects on shaping safe and hygienic methods of work performance.

### **Regarding employers and management**

A lot of emphasis should be placed upon correct behaviour of middle-level management: managers, foremen and skilled workers. They must set an example for workers and be an example to follow. Building leadership may help overcome the barrier of incomprehensible shame of performing work in a safe fashion.

Worldwide economic and financial crisis can also constitute a barrier for undertaking prevention actions aimed at reducing and eliminating adverse effects of manual transport at work. The crisis may lead to reduction of financial resources for safety and occupational health.

Summing up of the two-year campaign which took place in April 2009 in Wrocław (Poland) should not mark the completion of our actions but the commencement of new ones. Enriched with experience and professionally prepared materials, we must not rest on this two-year initiative. We were not able to change many stereotypical ways of thinking. So far we have reached too small a number of employers and workers, and in the places we were able to get to many effects of our actions will be visible in the upcoming years. In our opinion the website of the campaign should remain active and regularly updated. We receive many positive opinions concerning the website from various circles. The website is worth promoting in the Internet. It should still be enriched with examples of good practice as well as methods of assessing

occupational risk connected with manual handling of loads. We encourage everyone interested to send us any materials which could advance this website.

The success of the campaign lies in the fact that for the first time the musculoskeletal hazards were treated seriously.

Together we undertook a coordinated action in this regard.

**Please feel free to contact us if you have any comments on the report or any additional materials that can be placed on the campaign webpage:**

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