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In recent times, Korean people faced a new environment that needs a change and reform, and we are making every effort to change our society to more safe, sound and competitive one.

Under this social atmosphere, Korea Occupational Safety and Health Agency, KOSHA, conducted a variety of customer-oriented projects to protect worker's life, safety and health and to promote industrial competitiveness in 2002.

In order to effectively meet this change in occupational safety and health and to provide an on-site service for the workplaces, KOSHA performed technical guidance, supported to build self-regulatory safety management system, and to create safe and sound working environment.

The safety and health is the realization of humanism that secures the life and protects the health of workers. It is not a matter of choice depending on the time and environment but the highest value that we all have to pursue.

This annual report provides you with information and data of the projects that we did last year for the prevention of worker's safety and health. I hope this annual report will contribute to the information exchange for the prevention of industrial accidents and occupational diseases.

- Yong-dal KIM President -

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1.major functions

- technical support related to safety and health for small workplaces with high accident rates
- creating clean workplaces
- helping build occupational safety and health management system (kosha 18001 certification)
- establishment, amendment and distribution of technical standards (kosha code)
- inspection of dangerous machines, tools, and equipment and safety certification
- collection and dissemination of information and materials, and operation of computer communication networks
- providing technical support for workplaces with poor working environments
- establishment of occupational disease surveillance systems and epidemiological investigations
- development and dissemination of material safety data sheets (msds)
- safety inspections at dangerous construction sites
- examination and inspection of harmfulness and hazard prevention plans
- testing of safety devices and personal protective equipment
- examination of process safety management (psm) reports and establishment and operation of integrated risk management systems (irms) by area
- research, development and dissemination of industrial accident prevention technologies
- training for employees, employers and persons related to safety and health
- launching of a safety culture campaign and publicity to broaden the public's safety awareness
- international cooperation
- miscellaneous projects commissioned by the minister of labor and other central administrative agencies related to occupational safety and health

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2.Major Projects

2-1.Goal and Direction for the Accident Prevention Projects 2002

The Korea Occupational Safety and Health Agency, KOSHA, has announced "Settlement of Customer-oriented Technical Service of Accident Prevention" as the goal for the accident prevention projects in 2002, and finalized the following directions to achieve this goal.

KOSHA focused on the accident prevention for the small-sized workplaces that have high frequency of accident, and to do this, conducted "CLEAN Workplace" project, "Health Care Advisor" project, and assisted the subcontractors of the big enterprises with safety and health management.

Assisted the workplaces with establishment of the safety and health management system - equivalent to KOSHA-18001 Certificate system, dissemination of PSM (Process Safety Management) and of IRMS (Integrated Risk Management System), establishment and distribution of technical standard which is KOSHA Code, introduction and distribution of advanced occupational safety and health(OSH) management system.

Strengthened safety inspection, testing of safety device and of PPE(Personal Protective Equipment), and safety certificate which is S-Mark project in order to secure fundamental safety for the dangerous machinery, facility and equipment. Strengthened the accident prevention plan system and set up a safety measure through all-out safety check-up at the safety-vulnerable-time in order to reinforce accident prevention activities for the construction industry.

In order to create a pleasant working environment, KOSHA assisted the workplaces that have exceeded TLV(Threshold Limit Value) with technical improvement guidance, developed and distributed MSDS(Material Safety Date Sheet), built occupational diseases surveillance system and conducted epidemiological survey project.

For the improvement of social safety awareness, KOSHA conducted training programs for OSH professionals, selfexperience OSH training, public relations activities through mass communication media; implemented nation-wide safety culture, and dissemination of OSH information service.

In addition, KOSHA performed research and development projects, international activities with ILO, OECD, ISO and professional OSH institutes and organizations in Asia, Europe, American and Oceania

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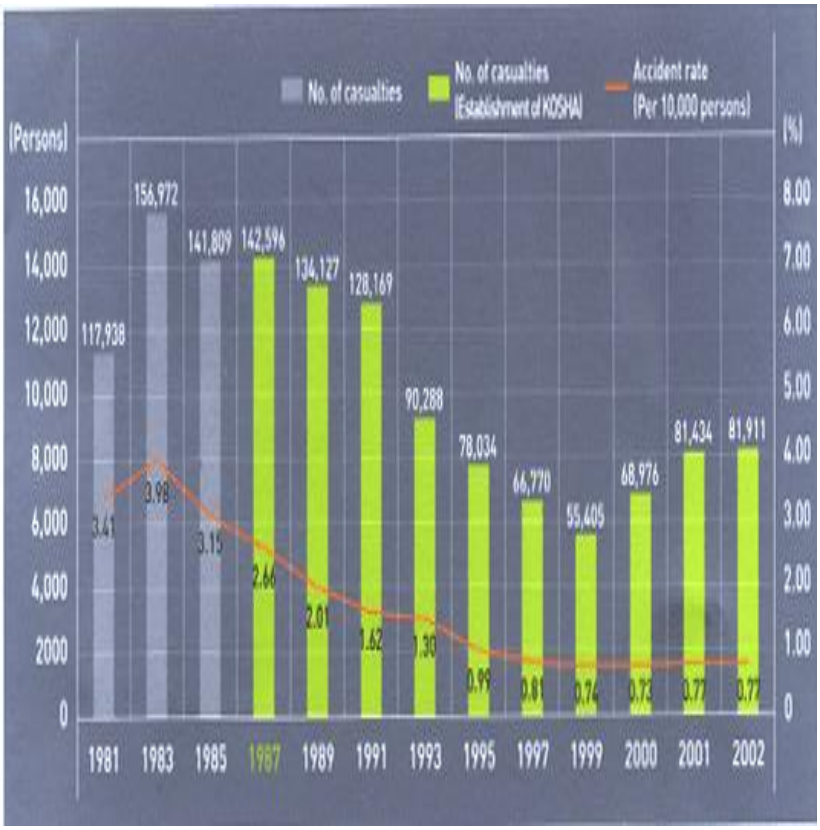
3.technical support for small & medium sized enterprises(smes)

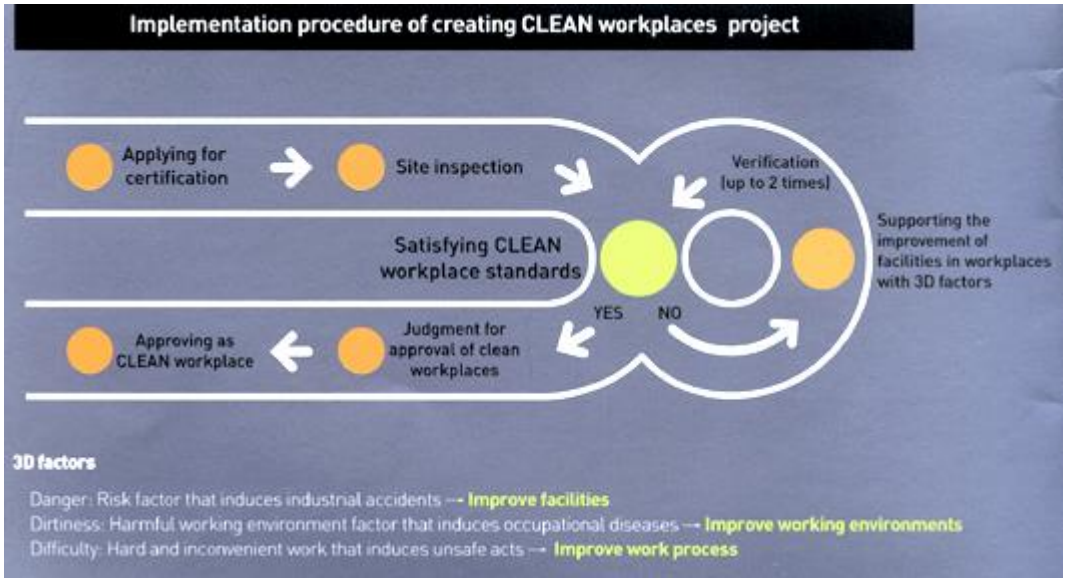
the small & medium sized enterprises (smes) with less than 50 employees commonly have conventional type of dangerous machinery and facility with high accident potentials, and they show higher rate of accident than the big enterprises due to poor technical and financial capability and lack of safety awareness. kosha puts a high priority to improve sme's osh capability and conducted "clean workplace" project that aims to provide this kind of smes with all-out customized osh technical support as well as financial support to enhance poor osh facility.
the smes commonly have bad working environment with high temperature, dust and noise. they are suffering from high accidents and occupational diseases that consequently causes labor shortage. kosha conducts "clean workplace" project in order to make this kind of smes clean from 3d factors which is "dirty, dangerous and difficult." the "clean workplace" project ultimately aims to help the smes free from labor shortage.



3-1.creating clean workplaces

the small sized workplaces with less than 50 employees commonly have poor working environments with dangerous machinery, equipment and facilities, high temperature, dust and noise, and a poor financial capability. they are experiencing manpower shortage as employees avoid hard labor. in connection with this, kosha planed to prevent industrial accidents at small-sized workplaces by providing necessary support. kosha is also pushing for creating clean workplaces projects to prevent industrial accidents and solve the manpower shortage.

creating clean workplaces is a project aimed at creating safe and healthy workplaces by improving the 3d factors, i.e. danger, dirtiness, and difficulty, which cause accidents, poor working environments and inconveniences at workplaces with less than 50 employees.



3-2.technical support for safety and health management

to create safe and pleasant working environments by eliminating 3d factors such as the harmful and dangerous elements at the workplaces and problems related to work, kosha and private safety agencies visit each workplace to provide technical support.

the technical support includes the creation of safe and pleasant workplaces by intensively eliminating or improving the 3d factors including harmful and dangerous elements, helping workplaces vulnerable to accidents eradicate the 5 most common causes of conventional accidents, i.e. being caught in or between machines and overturning, examination of harmful substances handled by workplaces exceeding threshold limit values, and the presentation of specific improvement methods for such harmful factors as special chemical substances, dust, noise and vibration.

3-3.safety and health management support for the affiliates of large enterprises

to promote the safety and health of big enterprises' affiliates with less than 50 employees, kosha monitors the results of support provided to parent firms or their affiliates, and if necessary, provides training for the parent firm's safety and health officials so that parent companies can voluntarily assist their affiliates in contributing to the accident prevention.

3-4.operation of health-care assistant advisor program

to prevent musculoskeletal disorders, and cerebro/cardio-vascular diseases at workplaces with less than 10 employees, kosha conducts a health-care advisor program that consists of nurses and physical therapists. the advisor visits workplaces to provide assistance in establishing and implementing plans that provide health consulting services, ex post facto management of health check-ups, and prevents or reduces occupational disease by providing stretching techniques and guidance on physical exercises, along with first aid items and protective equipment.

status of clean workplaces (unit:sites)

			2002
creating clean workplaces		manufacturing construction	4,324 972
technical assistance for safety and health management	kosha assistance	safety health construction	7,619 5,078 10,791
	agent assistance	safety health	46,744 46,477
safety and health management support for the affiliates of big enterprises			11,83111
operation of a health-care advisor program			30,340

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4.promotion of self-regulatory safety managementtechnical support for small & medium sized enterprises(smes)

in order to promote self-regulatory safety activities at each workplace, kosha recently has changed its strategies from supporting safety management at each workplace to focusing more on promoting capabilities of the safety management system of the enterprises and intrinsic safety at the workplaces for continuous safety and health improvement.

kosha has developed and provides a safety and health management system that combines business management with safety management activities in order to improve the self-regulatory system and capabilities of safety management in big enterprises. for workplaces suffering short of safety technologies, the agency provides on-site technical support and safety assessment to discover potential risk factors and help the enterprises set up their management plan. meanwhile, kosha pursuits the intrinsic safety of machineries from the manufacturing stage by operating a safety certification system for the hazardous machines, tools and safety devices.

4-1.certification of occupational safety and health management system (kosha 18001)

the occupational safety and health management system means a system under which an employer reflects safety and health policies in corporate management policies and establishes detailed execution guidelines and regulations for all employees to follow. in addition, the management periodically self-evaluates the results of the management plan to ensure its continuous improvement.

in order to effectively distribute such an occupational safety and health management system, kosha in july 1999 started implementing the kosha 18001 certification system for all workplaces.

the safety and health management system under the kosha 18001 program consists of workplace analysis, establishment of policies on safety and health management and objectives, establishment and implementation of the safety and health management system, evaluation of the results and selfinspection, and manager examination. each workplace voluntarily determines the detailed method of applying and implementing each component element by considering the size of the workplace, management environment and objectives, and the existence of potential hazards.

during 2002, kosha presented kosha 18001 program certificates to 46 voluntary participants whose management systems were considered satisfactory. at the end of 2002, there were 188 workplaces that received such certificates.

4-2.development and distribution of safety & health standards

technical standards on safety and health are essential to acquire safety and health at workplaces. in january 1990, technical guidelines, working environment standards and provisions related to the operation of the general technical standard committee were added to the occupational safety and health law.
the committee is placed under the control of kosha.

the technical standard committee is composed of 8 technical committees-general safety, electrical safety, mechanical safety, chemical safety, construction safety, general health, occupational medicine and occupational hygiene commitees, and a general standard committee which finalize the draft for standards. each committee is composed of maximum 20 members of experts from employees' and employers' representatives, government authorities, kosha, industries and academia.

standards that must be complied with among those determined by the technical standard committee are submitted to the ministry of labor for public announcement in the name of the labor minister. other items are classified into osha code and announced by the president of kosha for the use in industries.
currently, there are 29 standards announced by the ministry of labor, and 229 kosha codes including 38 codes added in 2002. kosha codes are distributed through printed material and internet homepage for widespread use. to improve the quality of kosha code, kosha revises its codes every 5 years to reflect technological developments.

since international standards tend to be more adopted as domestic standards, kosha uses international standards as references when developing its codes.
kosha is a secretary organization of national committees and participates in iso tc96 (cranes), iso tc108 (mechanical vibration), iso tc146 (air quality), iec tc31 (explosion-proof electric equipment), and iec tc44 (electric safety of machinery).

4-3."s" mark safety certification

the "s" mark safety certification system was introduced in november 1997. the purpose of this system is to comprehensively evaluate product safety and reliability, and the manufacturers' quality control system in order to help machine and tool makers design and produce safe products, and prevent industrial safety certification is required mainly for industrial machinery; however, it is applicable to all items ranging from simple machines such as safety devices, protective gear, and parts including industrial machinery to the advanced semiconductor manufacturing equipment.

the criteria of "s" mark safety certification are divided into essential certification standards (safety certification regulations, etc.), common certification standards (hydraulic and pneumatic safety standards, design and installation standards for safety guards, etc.), and product-specific standards (injection molding machine safety standards, etc.), which are governed by international standards, i.e. iso and iec and european norm (en).

when the "s" mark safety certification system was introduced, many domestic enterprises showed interest in the system. starting in 2000, however, manufacturers from foreign countries, such as japan, u.s., and britain, applied for the "s" mark. the number of foreign applicants and consultations has increased, and up to now kosha has received 303 applications from 92 foreign enterprises.

"s" mark safety certifications issued

(unit: cases)		2002	2001	2000	1999	total
results processed	no. of certifications issued	360(76)	534(98)	372(79)	162(29)	1,428(282)
	no. of cases returned	44(19)	199(71)	240(82)	179(26)	662(198)
	no. of applications	404(95)	733(169)	612(161)	341(55)	2,090(480)

* figures in () denote the number of workplaces

4-4.technology information service

kosha has built a database containing domestic and foreign safety and health materials. under a title called kosha-net service system, it provides such materials to workplaces and the general public free of charge.

the kosha-net service began on july 1, 1996 as pc communication services. starting in january 2000, kosha operates an internet www service (http://www.kosha.net).
approximately 95,000 members comprising safety and health managers at job sites and employers take advantage of the information service.

materials provided through the kosha-net include 12 fields: government policies and legal information; technology information; material safety data sheet (msds); kosha-code and examples of accidents. currently, the database contains approximately 165,000 information cases equivalent to 500,000 sheets of a4 size paper.

starting in 2001, kosha began to provide diversified technical information services through the web. while kosha provides video materials, it also conducts virtual safety and health training. during 2002, the kosha homepage and kosha-net service websites were integrated to provide more efficient access to information and services.

4-5.0peration of ilo-cis national center

prevention of occupational diseases and preservation of employees' health the information center operates a special database containing domestic and overseas information on safety and health for use by the kosha staff and visitors. through kosha-net, kosha focuses on providing translated version of overseas news and technical materials. to ensure users can easily utilize domestic and overseas information, it translates and posts materials on the kosha-net.

in particular, kosha translated and published sections of an encyclopedia of occupational health and safety (the 4th edition, 1998) issued by the international labor organization(ilo).

kosha annually provides approximately 1,000 cases of information that the users cannot find easily. people of all social classes including safety and health mangers at workplaces, college students and experts use this service through communication nets. if the safety and health information users cannot search for any information or items easily, kosha helps them find such items.

"kosha occupational safety & health newsletter", published quarterly in english and provided through the internet since 2001, will continue to provide the latest information on kosha activities, statistics, and events (www.kosha.net).

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5.prevention of occupational diseases and preservation of employees' health

recently as new chemicals have been developed in advanced industries like semiconductors or heavy and chemical industries, the incidence rate of occupational disease is ever increasing. furthermore, cerebro/cardio-vascular diseases resulting from mental stress, the musculoskeletal disorders resulting from automation of production process, and vdt work are rapidly increasing.

to deal with this situation effectively, kosha conducts examinations of working environment monitoring. if the results keep exceeding governmental standards, the agency provides technical support to handle workplace risks as well as information on harmful chemicals. it is also launching a variety of projects to prevent occupational diseases such as cerebro/cardio-vascular diseases, and musculoskeletal disorders.

5-1. technical support for workplaces with poor working environments

kosha provided technical support by conducting evaluations of the working environments on workplaces that were inspected last year and discovered to have employees that exceeded the mandated tlv(threshold limit values) and those workplaces found to have occupational disease potential, workplaces manufacturing or using asbestos, benzene, lead and other harmful substances, workplaces suffering from oxygen deficiency and workplaces with other inappropriate working environments. these inspections determine the type and degree of hazardous work, evaluate the working environments and inspect the local ventilation systems. after the inspection, a report on improving the working environments is prepared and submitted to the appropriate responsible individuals. this support has contributed to the prevention of occupational diseases and improvement of working environments. keeping with kosha's commitment to prevent oxygen deficiency in the workplace, training was conducted for 10,134 employees from 4,626 workplaces that are considered vulnerable to

asphyxiation caused by the monsoon season and summer heat. kosha leased out, at no charge, oxygen concentration meters, ventilation fans, and other equipment for the prevention of oxygen deficiency to 176 workplaces in 2002.

technical support provided

(unit:sites)		**2002**
technical support to workplaces with poor working environments	workplaces exceeding noise and dust limits	570
	workplaces subject to approval on manufacturing and/or use	101
	workplaces experiencing oxygen deficiency processes	173
	waste treatment plants	132
	miscellaneous	80
	total	**1,056**
special technical support form the ministry of labor		2,640

5-2. prevention of work-related diseases early detection of occupational diseases

employees serving in a complicated, modern industrial society need to manage not only their physical health but also their mental health due to job-related stress.

in the past, kosha performed an "after the fact" style of health management that was only concerned with the early discovery of occupational diseases and other health disorders. now, the agency is operating in a proactive mode of health management by providing free health training to those individuals participating in the health promotion project. this innovative project continues to be concerned with workrelated diseases and the agency is also attempting to implement changes that will prevent cerebro-cardiovascular diseases and musculoskeletal disorders.

to prevent musculoskeletal disorders and cerebro/cardiovascular diseases at small sized workplaces, kosha began to operate a health-care assistant advisor program for 30,340 job sites. an adviser visits workplaces with a history of employees having basic diseases (hypertension, hyperlipemia and diabetes) to provide assistance in establishing and implementing plans for health management. kosha's help includes assistance in establishing and implementing plans that provide health consulting services, health training and health consulting services, exercise function tests and exercise guidance, ex post facto management of health checkups, blood pressure checks, other simplified tests, and provision of first aid medicines and technical data.

in addition to this, kosha operates exercise function test centers at the seoul, busan and gwangju regional head offices, and incheon and changwon area offices to improve employees' physical fitness and create a health

conscious culture at workplaces. starting in 2003, kosha plans to provide technical support and related materials to prevent health problems of employees . these employees include female, elderly, shift employees, an handicapped and foreign employees.

to prevent musculoskeletal disorders, kosha formed a task force team composed of ergonomical experts and provided technical assistance to 161 workplaces having multiple cases of musculoskeletal disorders and a high degree of hazards regarding the handling of heavy materials, improving equipment and tools, work frequencies and time adjustment.

in 2002, kosha published and distributed to workplaces 2 types of pamphlets related to the prevention of musculoskeletal disorders, 26 kinds of one-page technical bulletins on improvement cases, 4 types of posters and other related technical materials, and held the 2nd presentation of prime examples of prevention activities on musculoskeletal disorders.

also, kosha operates a musculoskeletal disorders prevention team composed of public health doctors and ergonomical experts to launch varied occupational disease preventive programs in compliance with regulations governing prevention of health problems related to musculoskeletal disorders.

support to the prevention of work-related diseases by year

	2002	**2001**	**2000**
technical assistance for workplaces (sites)	27,645	7,356	1,724
training for workplaces (sites)	5,993	16,877	1,436
employees group training (persons)	61,095	46,884	112,106
no. of employees utilizing exercise function test centeer(persons)	14,474	14,675	20,736
total	**109,207**	**85,792**	**136,002**

5-3. early detection of occupational diseases

5-3-1.epidemiological investigation

a health check-up may reveal that many employees have chronic or recent onset of occupational diseases or precursors to these diseases. when the risk is present, the occupational safety and health research institute(oshri) forms an epidemiological investigation team composed of health specialists and members of center for occupational disease research to determine the causes through epidemiological research. the results of this work are used to prevent recurrence of disease.

employers and/or the occupational physicians can request the institute to conduct epidemiological investigation when they meet any special illness or conditions which are not clarified by regular air monitoring and health examination.

the occupational epidemiology and surveillance team in changwon evaluates the working environments of the petrochemical complex and shipyards concentrated in the southern part of korea, and enhances early detection and prevention of occupational diseases through health checkup and occupational disease surveillance.

it also conducts epidemiological investigation on hazardous substance intoxication and occupational cancers. in 2002, the institute carried out epidemiological investigations on benzene, styrene, waste materials and metal working fluid.

no. of investigated cases

(unit: cases)	**2002**	**2001**	**2000**
internal selection	35	114	56
external request	41	15	21
total	**76**	**129**	**77**

5-3-2. occupational disease diagnosis

when it is difficult to determine if a patient referred to korea labor welfare corporation for compensation has an occupational disease or when the health problem is suspected of being a new occupational disease, the corporation shall request the institute to make a decision. the institute then reviews the current medical literature, evaluates the working environments, and conducts a comprehensive medical evaluation. it consolidates all data, reaches a conclusion, and communicates the findings to the corporation.

no. of investigated claimed asses requested for the evaluation of work-relatedness

(unit: cases)	**2002**	**2001**	**2000**
accepted	42	61	68
rejected	46	69	58
undetermined	44	2	2
total	**132**	**132**	**128**

5-3-3. occupational disease surveillance

since certain occupational illnesses, such as, asthma and lung cancer are not easily detected by the special

health examination, attempts are going on to discover the diseases through the operation of the center for occupational disease research.

the occupational asthma and lung cancer surveillance center composed of allergists and physicians was established to discover the previously unreported occupational disease cases and protect the employeesi? health.

cases reported to the center for occupational disease research

(unit: cases)		2002	2001	2000
area	incheon	76	154	
	gumi	98	287	130
	busan-ulsan-gyeongbuk	108	193	
disease	musculoskeletal	185	554	203
	mesothelioma	8	80	
	occupational asthma	10	26	32

5-3-4. health management pocket books and medical examinations

the oshri distributes the health management pocket books to retirees who were exposed to carcinogenic substances. it makes every effort to achieve early detection of occupational cancer for the pocket book holders.

no. of annual health examinations to workers who have been exposed to 11 carcinogenic substances

(unit: cases)	2002	2001	2000
asbestos	51	44	46
silical (silicosis)	39	31	31
benzidine chloride	2	1	4
hexavalent chromium	12	6	1
vinyl chloride	46	7	2
cokes oven emission	1	1	2
total	**151**	**90**	**86**

5-3-5. quality assurance

oshri operates a quality assurance program to evaluate and improve the accuracy and reliability of working environment measurements and special health examinations to protect the health of employees from harmful factors at workplaces.

twice a year, test samples for working environment measurements and bio-samples are mailed to participating agencies for analysis. oshri prepares samples like activated charcoal tube, membrane filter, blood and urine, which contain specific organic solvents, metals and metabolites.

the oshri has continuously participated in the international quality assurance programs, american industrial hygiene association's proficiency analytical testing program, us cdc-bllrs international quality assurance program, and germany's international quality assurance program to confirm the analytical ability of the institute as the main organization that manages the quality assurance program. the oshri has been rated proficient in those assurance programs.

also, it provides the education and training courses for standardized diagnostic methods and criteria in special health examinations to accurately diagnose and preven pneumoconiosis and occupational hearing loss.

furthermore, to effectively manage the integrated quality of working environment measuring institutions, kosha plans to introduce a total quality assurance (tqa) program composed of quality assurance for the collection of samples, professionalism of personnel involved in the test and analysis, maintenance of measuring and testing equipment, and the systematic management of the test results.

5-4. material safety data sheet (msds) database

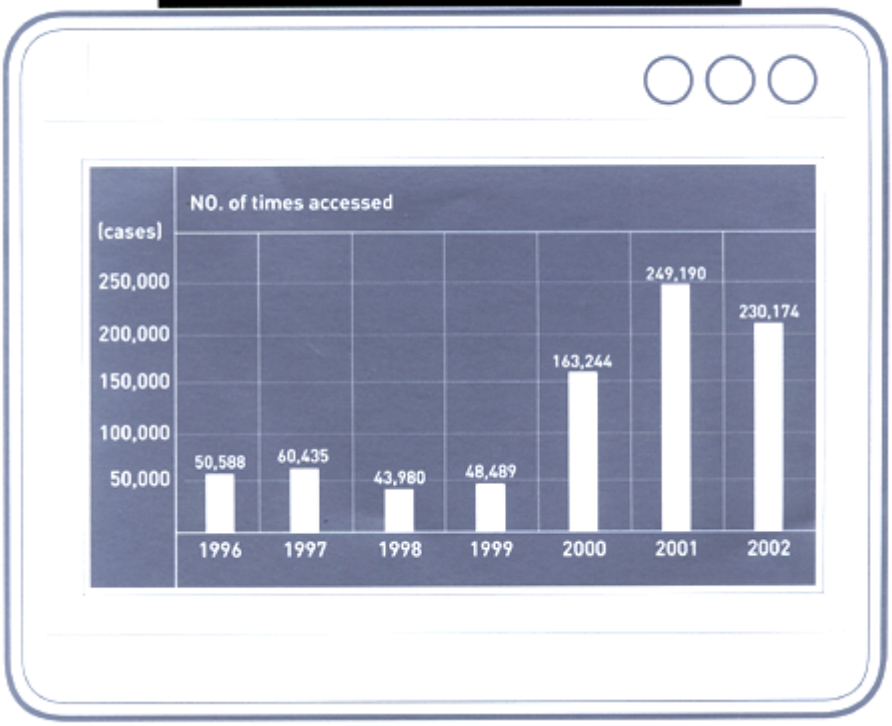
as a part of kosha's plan to prevent occupational diseases and accidents for employees handling chemicals, safety and health information of chemicals used in the nation has been stored in the korean version of msds database. the database
has been provided to workplaces free of charge through the kosha homepage (www.kosha.net).

the material safety data sheet system was initiated on july 1, 1996 and has thus far been accessed for a total of 846,100 cases since march 1996. during the period from 1997 to 1999, kosha developed and distributed information notebooks containing summarized information on 509 chemicals deemed essential for employees handling chemical materials.

in 2002, kosha strengthened its hazardous chemical material information services by updating and providing free services regarding the existing msds db (containing 50,300 types of chemicals) containing information on chemical materials from manufacturing plants, workplaces, and chemical importers and retailers, and newly entered chemicals.

to validate the reliability of the msds db, kosha will construct a chemical material safety & health center capable of carrying out chemical component analysis, and toxicity and physiochemical tests in 2003. it will have experts, facilities, and equipment by the end of 2004 to fulfill its objectives.

MSDS DB utilization cases by year



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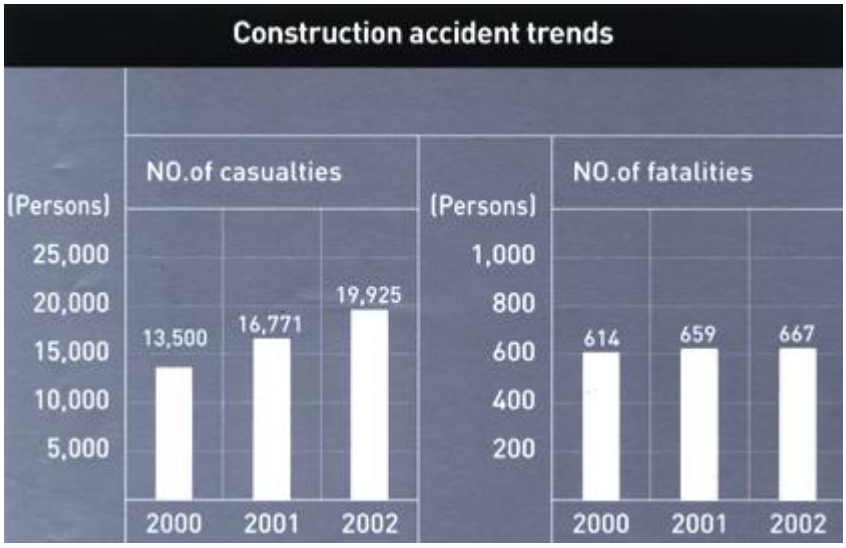
6.Accident Prevention at Construction Sites

The government recently sought a construction business activation policy with construction projects centered on S.O.C. projects, and the construction of apartments and small projects in the Metropolitan areas. The total construction orders during 2002 stood at approximately 83 trillion won or US$70 billion as of December 31, 2002, or approximately a 22.6% year-onyear increase.

Such increased construction orders inevitably induced the hiring of foreign, elderly, female, and unskilled persons, which led to increased accidents.
Coupled with the government's deregulation policies, employers' desire to invest in safety has decreased and the construction accident rate has recently risen.



To effectively prevent accidents at construction sites, KOSHA is launchin a wide variety of accident prevention programs according to the scale and type of projects, locality, and risk characteristics.

6-1.Technical support for large construction sites

KOSHA examines and inspects "Harmfulness and hazard prevention plans" submitted by construction companies as part of its efforts to preliminarily secure workplace safety. For construction projects of a specified scale, KOSHA conducts safety inspections based on the harmfulness and hazard prevention plan submitted by the contractors. KOSHA has focused its examination on the appropriateness of the safety and health programs in reducing or eliminating hazardous working environments.

At the same time, KOSHA makes an ongoing effort to prevent accident that might occur during work by periodically inspecting the workplaces to verify that the submitted safety plans have actually been implemented.

Examinations and inspections

(Unit: sites)	**2002**	**2001**	**2000**	**1999**
Examination	2,284	1,234	866	786
Inspection	7,060	4,974	4,415	4,599
Total	**9,344**	**6,208**	**5,281**	**5,385**

There are 6 Social Overhead Capital (S.O.C.) construction projects- subways, high-speed railways, express highways, power stations, dams, and ports with a high accident rate, including collapses. KOSHA manages these construction projects differently according to their accident rate and safety grade, and provide technical assistance in cooperation with the Ministry of Labor.

Technical assistance to S.O.C construction sites by year

(Unit: sites)	**2002**	**2001**	**2000**
Yellow grade	271	263	377
Red grade	30	30	74
Total	**301**	**293**	**451**

6-2. Technical support for medium-sized construction sites

Compared with big-sized construction sites, the mediumsized construction sites where overall construction cost is less than 10 billion won or US$8.3million generally lack safety awareness and self-regulatory management capabilities.

KOSHA assists the uninformed inspections with the Ministry of Labor at medium-sized construction sites to point out potential accident factors and present the technological improvement programs.

KOSHA conducts accident prevention activities to discover and remove hazardous factors from sites with the potential for cave-ins, collapse of supports and form works, flooding, electric shock, and fire during thawing, rainy season, and winter.

Technical assistance for medium construction sites

(Unit: sites)	2002	2001	2000	1999
Inspection, and supervisory technological assistance by construction safety patrol	306	501	5,203	4,550
Inspection and supervisory guidance during high risk seasons	2,410	2,005	2,726	2,864
Total	**2,716**	**2,506**	**7,929**	**7,414**

6-3. Technical support for small sized construction sites with many accidents

There are many small sized construction sites where employees' safety awareness and safety technology levels are relatively low even though many accidents occur. KOSHA provides ongoing technical support to improve safety levels of related officials.

To acquire fundamental safety and improve safety facilities, KOSHA distributed personal protective equipment (3,000 safety belts, 21,000 safety helmets and 6,000 safety shoes) and provided other technical assistance to those construction sites lacking safety consciousness in 2002.

Technical assistance for small sized construction sites

(Unit: sites)	2002	2001	2000	1999
Technical assistance	9,022	6,358	1,856	1,154

6-4. Self-regulatory safety management

Unlike the manufacturing industry, a construction business is managed separately by headquarters and site offices. To ensure employeesi? safety, it is necessary to integrate the safety management system of sites with headquartersi? system, rather than merely having an safety management system of each site.

In accordance with this, KOSHA has developed and distributes KOSHA 18001 Program , a safety and health management system to 5 biggest-sized construction and ordering companies. It is expected to promote the levels of safety and health activities at a site by a safety and health management system of the construction companies' headquarters.

The safety management system of construction industry is below an acceptable level. To assist construction companies to develop their self-regulatory safety and health activities, KOSHA received application for technical support from construction contractors and provided free technical assistance to 1,153 construction sites in 2002.

Most construction projects involve many subcontractors due to inherent characteristics of the construction industry. Because most subcontractors are small in size, it is difficult to operate voluntarily a management system and implement safety procedures. Considering this fact, KOSHA has originated a cooperative system with related agencies to promote safety activities of construction companies. In addition, KOSHA holds a presentation of the cases of sitesafety activities and chooses good examples applicable for construction sites.

There are many serious accidents that occur every year and become an issue of discussion on TV and in other media. KOSHA holds technical seminars using this issue as the theme to present solutions to the technical and safety problems where officials related to construction sites had questions. This has contributed to an improvement of safety awareness by actively inducing construction employees to participate in these safety activities.

To raise safety technology levels, KOSHA has also developed and supplied safety work procedures for a variety of hazardous operations, including water supply and drainage systems and masonry work, and technical materials for iron tower work in which the accident rate has been increasing and transmission line (T/L) construction work. KOSHA will continue to promote employeesi? safety and provide industries with technological assistance and other safetyrelated services.

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7.Fundamental Safety of Machinery, Equipment and Facilities

Risks are increased as equipment becomes more complicated to operate. It is often difficult to discover potentially hazardous conditions in today's complex equipment systems, but operators' carelessness is usually a causing factor.

In order to secure fundamental safety of dangerous machines, equipment and facilities, KOSHA introduced and implements safety inspections of dangerous machines, equipment and facilities, performance test of safety devices and personal protective equipment, and establishment and dissemination of Process Safety Management (PSM) system and Integrated Risk Management System (IRMS) at chemical plants, pursuant to provisions of the Occupational Safety and Health Law.

7-1. Inspection of harmful or hazardous facilities, machinery and equipment

Since July 1, 1991, KOSHA has implemented inspection on 6 types of dangerous machines and equipment, including cranes, with a high risk potential. Under this inspection system, all manufacturers, importers, installers, and users are required to undergo 3 stages of inspections. These include design inspection prior to manufacturing, completion or performance inspection after manufacture (or inspection during the process of manufacture in the case of pressure vessels), and periodic inspections in using.

A real-name inspection system has been implemented to ensure the fairness of judgment, and an inspector qualification system has been added to improve the qualifications and consistency of inspectors.

Kinds of Inspection

(Unit: cases)	2002	2001	2000	1999
Design inspection	7,688	6,621	5,976	4,105
Completion inspection	17,904	15,255	13,637	10,939
Performance inspection	9,357	7,337	7,670	4,871
Periodic in spection	37,416	30,310	32,110	29,016
Total	**72,365**	**59,523**	**59,393**	**48,931**

Inspection objects

(Unit: cases)	2002	2001	2000	1999
Crane	36,528	30,176	30,000	22,061
Lift	5,886	5,360	5,103	5,091
Pressure vessel	28,939	22,901	23,162	18,854
Press and shearing machines	1,010	1,075	1,107	2,876
Roller	2	11	21	49
Total	**72,365**	**59,523**	**59,393**	**48,931**

7-2. Tests for safety devices and personal protective equipment (PPE)

To protect employees from faulty safety devices and protective equipment, KOSHA conducts performance tests on 68 kinds of equipment and issues approvals or rejections. They include 57 kinds of dangerous machinery and equipment prescribed under the Occupational Safety and Health Law, i.e. presses, safety valves, temporary equipment at construction sites, and explosion-proof electric equipment, and 11 kinds of personal protective equipment, i.e. safety helmets and dust respirators.

KOSHA assists domestic manufacturers with design and R&D efforts during the production of safety devices and protective equipment. This helped make it possible for the domestic manufacturers to develop high-temperature and high-pressure safety valves, auto-darkening welding shields with expanded range of vision and increased blocking speed of harmful rays, and the phototube-guard type safety device with improved sensing range of the optical axis has been improved.

To enhance the reliability of testing according to ISO 17025 standard, which is the international evaluation standard for testing agencies, KOSHA was designated as an authorized public testing agency by the Korea Laboratory Accreditation Scheme (KOLAS) for 137 test items including epidemiological and electrical tests. As a result, all KOSHA test reports are recognized by the testing agencies of all countries participating in a mutual recognition agreement with KOLAS because it complies with the standards established by the International Laboratory Accreditation Cooperation (ILAC) and Asia Pacific Laboratory Accreditation Cooperation (APLAC).

In June 2002, KOSHA was designated as an authorized calibration laboratory for height gauges by the Agency for Technology and Standards. KOSHA has thus acquired the traceability and reliability of the measuring

equipment calibrated by KOSHA.

In May 2002, KOSHA entered into a technical tie-up agreement with PTB of Germany, and has successfully carried out joint research on new explosion-proof technologies.

Performance tests conducted

(Unit: cases)	2002	2001	2000	Total
Performance test conducted	1,855	1,766	1,734	**5,355**

7-3. Review and Implementation assistance on the Process Safety Management System

Starting in January 1995, the Process Safety Management System (PSM's) was implemented in order to induce a selfregulatory safety system at workplaces in accordance with the Occupational Safety and Health Law.

The purpose of this system is to have the employers of workplaces with many complicated devices and hazardous materials, such as oil refineries and petrochemical plants, prepare a PSM report containing related matters on securing systematic process safety data, evaluation of process risk, and establishment of safety operation plans and emergency response plans for review and confirmation.

Workplaces subject to PSM

Eight industries including the crude oil refining industry and workplaces handling 21 types of hazardous materials in excess of prescribed quantities such as inflammable gas and other combustible materials.

(Unit: sites)		300 or more employees	Less than 300 employess
Eight industries	Crude oil refining	8	29
	Oil refining	3	13
	Synthetic resin	16	54
	Organic chemicals	3	18
	Nitrogen fertilizer	1	3
	Composite fertilizer	1	4
	Agricultural chemicals	0	12
	Explosives and fireworks	3	10
Prescribed quantity		138	326
Total		**173**	**469**

7-4. Integrated Risk Management System (IRMS) for chemical plants

Fires, explosions, and the leakage of toxic materials at chemical plants occur due to a wide range of causes including climatic conditions. It is difficult to predict when or why these accidents take place. Also, an accident

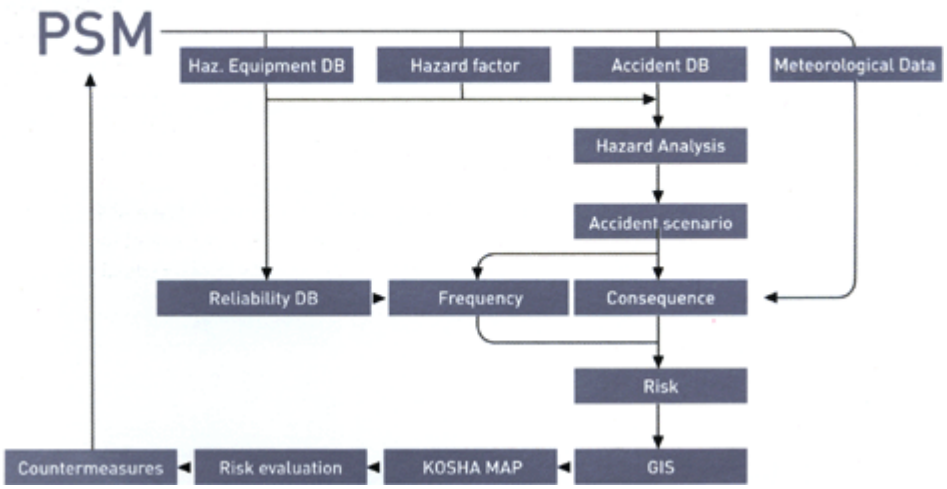
that occurs at an individual workplace may lead to chain-reaction accidents causing enormous personal and property damage, leading to extensive, economic effects.

To effectively cope with these situations, KOSHA developed an Integrated Risk Management System (IRMS) program to prevent major industrial accidents such as fires, explosions and the leakage of toxic materials and to minimize damage therefrom. During 2002, the agency distributed IRMS to Ulsan City Hall, Yeosu City Hall, fire stations and 585 workplaces subject to the PSM program, and plans to supply IRMS to SeoSan City Hall, Incheon City Hall, and fire stations during 2003. In addition, KOSHA planed to fully apply the IRMS program to local governments, fire stations and workplaces by strengthening the IRMS- user training.

IRMS

This is an advanced safety management system capable of taking emergency actions. It contains large amounts of computerized information on hazardous facilities and materials used in chemical plants. Based on this information, accident scenarios are derived and the accident probability and the extent of damage are calculated to better prevent the accident's occurrence. This information is also used to support fire trucks and perform first aid on injured people during actual accidents by exchanging information with related institutions.

IRMS Schematic drawing



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8.R&D Related to Occupational Safety and Health

KOSHA operates an Occupational Safety and Health Research Institute(OSHRI) to perform short and long-term R&D activities. The Institute also conducts research into safety and health policies and systems, and safety engineering sectors such as mechanical, electrical, chemical and construction engineering. It also carries out research activities in occupational health sectors like working environments, occupational diseases and toxic chemical materials.

8-1. Research into safety management policies

The OSHRI analyzes the trends of occupational safety and health, and presents policy directions through analysis on the effects of implementing safety management policies. At the same time, it also surveys and analyzes demand for short and long-term occupational safety and health research to develop programs that can be applied to workplaces in relation to safety and health and for effective and systematic industrial safety and health research.

8-2. Occupational safety research

To pursue advancement of accident prevention technologies that can practically be applied to each workplace, KOSHA carries out R&D activities centered on engineering problems by subdividing the research sectors into mechanical, electrical, chemical engineering, and construction safety. With an aim to improve research capabilities, it participates in joint research projects with colleges, related research institutes, and corporations. As part of a globalization program, KOSHA has signed a joint research agreement with the National Institute of Industrial Safety (NIIS) in Japan for exchange of research staff and information.

As for mechanical safety, KOSHA carries out research on the safety of dangerous machines and apparatus, improvement of performance, and development of safety devices, and engineering measures to reduce noise and vibration. For electrical safety, the agency conducts research on the development of ground systems, prevention of electrostatic accidents, electromagnetic wave trouble and accidents, and the development and evaluation of explosion-proof electric equipment. In the case of chemical engineering safety, it carries out research into the evaluation of the risk of chemical materials, and fire and explosion prevention measures, and conducts risk assessment for temporary structures and for each construction project in the case of construction safety.

8-3. Research into occupational health

KOSHA evaluates the hazardous factors existing in working environments in detail and provides a working environment improvement guide. As a part of its efforts to solve problems related to working environments, the agency performs the Health Hazard Evaluation for working environments, evaluates the level of exposure to hazardous factors in construction and laundry sectors, and establishes measures to improve working conditions.

The occupational health research was undertaken during the past 3 years (2000 to 2002) to develop and apply occupational cerebro/cardio-vascular disease prevention models. KOSHA planed to develop health management programs for female employees during the 3-year period from 2002 to 2004.

The occupational disease research is carried out to prevent occupational diseases through early detection. In connection with this, KOSHA evaluates the neurotoxicity of employees at workplaces handling styrene, conducts biochemical evaluation of the employees exposed to styrene, conducts research into the diseases and death of employees engaged in steel making, the causes and distribution of occupational musculoskeletal disorders, and a new method of analyzing biological samples to provide early detection of disorders among employees exposed to hazardous materials.

Occupational toxicologic research is conducted to experimentally examine the inherent harmfulness of new and existing chemical substances used at worksites.
The research also provides a basis for regulation of workplaces in the manufacture and use of chemicals and the scientific data to prevent employees' occupational diseases.

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9.Accident Prevention Training

Serious safety accidents occur every year in Korea, indicating a lack of safety awareness in all areas of society. Approximately 28% of all accidents occur due to the lack of training indicating that overall safety awareness is extremely lacking in the society.
In order to promote safety awareness and support self-regulatory safety and health management, KOSHA operates user-oriented training programs that concentrate on reducing the causes of industrial accidents by education.

9-1. Project aimed at creating the self-regulatory safety management foundation

KOSHA holds safety and health seminars for managements to establish self-regulatory safety management activities. The agency induces managements to invest in safety and health by promoting management's interest in safety and health activities, contributing greatly to the reduction of industrial accidents, and promoting corporate competitiveness.

It supports to have managements be aware of the importance of safety and to build a self-regulatory safety and health foundation at workplaces by providing training program with the managements of 10 leading risky industrial sectors with less than 50 employees which accounted for approximately 71% of all industrial accidents in 2002. Training is centered on presenting cases of accidents, analyzing of their causes, and developing countermeasures.

Self-regulatory safety management training course

(Unit: persons)

	2002	2001	2000

Management safety and health seminars	2,058	1,825	4,912
Training for employers of enterprises with less than 50 employees	11,420	18,164	22,421
Total	**13,478**	**19,989**	**27,333**

9-2. Fostering safety and health specialists

As part of a specialist-fostering program, KOSHA provides practice-centered special training and correspondence courses for safety and health managers and supervisors of construction sites and manufacturing plants. It conducts inservice training to enable safety and health managers to effectively perform fieldwork.

In particular, KOSHA operates a correspondence course by mail to reduce the working hour loss and economic burden of sending personnel for group training during working hours.

Starting in the latter half of 2001, KOSHA started Cyber training programs (4 courses) through the Internet. This is to effectively keep up with social environment changes, such as the technical development of the IT sector and the rapidly increasing number of Internet users.

Training provided

(Unit: persons)		**2002**	**2001**	**2000**
In-service training course		526	534	573
Specialist training course		7,061	7,187	6,761
Correspondence course	Mail	3,727	4,057	3,502
	Internet	213	226	
Total		**11,527**	**12,004**	**10,836**

9-3. On-the-job safety training

KOSHA provides free on-the-job training for construction safety to help employees recognize the work-related risks and the necessity of complying with safety regulations by allowing them to physically experience injuries sustained by falling objects and falls. This involves 4 hours of experiments and practical training on 20 subjects for the construction employees and supervisors. It includes the use of the safety belts, fall-prevention nets, and safety helmets.

The Virtual Safety Training Center is an advanced training facility where viewers can use computer based virtual reality technology to tour the workplace in an industrial site where
harmful and dangerous work (press operation, transporting and work with risks of falling, etc.) is being performed and discover the risk elements through real-time 3D images.
Also, viewers can experience hazards and the process of accidents at plants or construction sites through a computergraphic 3D video.

On-the-job training provided

(Unit: persons)	2002	2001	2000
On-the-job training for construction safety at 6 sites	28,854	23,733	20,246
Virtual Safety Training Center at 4 sites	19,945	13,911	-
Total	**48,799**	**37,644**	**20,246**

9-4. Supporting safety and health training at workplaces

KOSHA operates mobile safety training buses equipped with audiovisual equipment and materials for employees at manufacturing and construction sites that cannot provide their own safety training due to the lack of space and instructors for the safety and health training. The mobile safety training bus visits each workplace to conduct on-site training.

KOSHA dispatches safety and health instructors for in-house training free of charge. Meanwhile, 20 regional head offices and area offices have independently developed appropriately 60 training programs covering port stevedoring safety and the petrochemical complex suppliers taking into account the regional situation, industrial structure, and the characteristics of previous accidents. These training programs are offered to supervisors and employees.

Safety and health training considering regional characteristics

(Unit: persons)	2002	2001	2000
Mobile safety training	98,015	90,315	91,992
In-house training	112,145	57,323	86,638
Regional specialization training	33,941	10,377	10,081
Total	**244,101**	**158,015**	**188,711**

9-5. Early safety training

To effectively prevent accidents, it is important to have students and infants systematically form a safety consciousness and develop safe habits.

As part of the early safety training program, the Safety Culture Movement Headquarters in KOSHA conducts free of charge 2 day training courses for 16 hours for the teachers of kindergarten and primary schools, and the students' parents to foster safety culture instructors having qualifications and moral influence. It also promotes children's safety awareness by supplying safety training materials and animated presentations that are appropriate for kindergarten and elementary schools.

To prevent accidents at schools and teach safety awareness and attitude to students through school courses and safety activities, KOSHA operates a model safety school

designated by the city and provincial administrations of education. KOSHA provides all training materials and instructors required for operation and conducts safety inspections,

School safety training

	2002	2001	2000
Safety instructor's training (persons)	1,508	1,367	721
Designated model safety training school (schools)	64	64	16
Total	**1,572**	**1,431**	**737**

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10.Dissemination of Safety Awareness

In order to promote the safety awareness of employees and employers, and to establish a nationwide safety culture, KOSHA is launching public relations and safety culture movement through a variety of media.

10-1.Annual Event for Occupational Safety and Health Week

KOSHA, together with the Ministry of Labor, holds events for the Occupational Safety and Health Week every year pursuant to the Occupational Safety and Health Law. This is to reward persons related to occupational safety and health for their meritorious service in the prevention of industrial accidents. An accident prevention atmosphere accompanies this campaign by exchanging accident prevention technology and making free discussions.

The Occupational Safety and Health Week events are classified into 3 major categories.

First, the Occupational Safety and Health Convention is launched to reward persons related to safety and health for their services and promote national safety awareness. This convention is held each year.

Second, the Korea International Safety and Security Exhibition is held to improve domestic accident prevention technology and exchange information on accident prevention by comparing and displaying superior safety and health-related machines and products.

Third, technical seminars are held to introduce new fieldoriented techniques and technology related to domestic safety and health, and to exchange information. These seminars have provided attendants with an ideal

opportunity to exchange accident prevention techniques.

10-2.Public relations through media

To promote the safety awareness of employees and employers, and to expand the national safety culture atmosphere, KOSHA provides safety and health information and publicizes the accident prevention activities launched by KOSHA through a variety of media such as the broadcasting, daily media and printed materials.

Regarding publicity activities through broadcasting media, KOSHA strives to practice safety awareness and create a safe and healthy social atmosphere by delivering comprehensive safety and health information via TV, radio, and CATV.

KOSHA utilizes diversified daily media, such as the theater commercials, subway advertisements, bulletin boards, and large TV screens in high pedestrian traffic areas.
These activities target a mass audience to encourage widespread development of safety awareness.

In respect to press media, KOSHA holds a social gathering related to accident prevention in order to encourage social interest and participation in safety, and participants include members of the press corps, executive members of news companies, and TV drama writers.

Furthermore, KOSHA operates the Occupational Safety and Health Exhibition Hall at its headquarters to promote and educate the public about the safety message.

Public relations through media

	2002	2001	2000
Broadcasting media (parts)	169	352	237
Daily media (places)	116	405	94
Press media (times)	7,262	3,244	3,633
Exhibition Hall (persons)	12,866	11,663	2,738
Total	**20,413**	**15,664**	**6,702**

10-3. Accident-free campaign at workplaces

10-3-1. Management of participants

Employers desiring to launch an accident-free campaign must first inform all employees of its intention to take part in the campaign at the time of safety training or during regular morning calls. In addition, the employers should announce the beginning of the accident-free campaign at each workplace by means of bulletin boards installed on-site or by publishing in the company news. The employers must report the commencement of the accident-free campaign to KOSHA's regional head and area offices within 14 days from the date of

commencement.

KOSHA provides each workplace that plans to put into practice the accident-free campaign, after reporting the commencement thereof, with all necessary training materials for its efficient implementation.

10-3-2. Rewarding workplaces achieving targets

When, after reporting the commencement of the campaign, a workplace completes the required number of days or hours, the workplace reports the fact to a relevant regional head or area office within 60 days from the date targets have been achieved.

Within 14 days from the date a report of achievement is received, the area office conducts an examination to determine the appropriateness of the type of business, the established number of target accident-free hours, the calculation of the number of target days or hours, and if there are any accidents. If no discrepancies are found, the area office notifies the headquarters of the results of the examination.

If a workplace achieves a zero-accident rate at a level 1 times, 2 times, and 3 times the required criteria, the regional head and area office present an accident-free certificate to the employees of merit in the workplace. If a workplace achieves a zero-accident rate at a level at least 5 times the required criteria, the President of KOSHA presents a letter of commendation and prizes together with an accident-free certificate to the employees.

Accident-free campaign participation and achievements

(Unit: places)	2002	2001	2000
Participating workplaces	5,611	5,147	5,673
Workplaces achieving targets	1,513	1,155	1,359
Total	**7,124**	**6,302**	**7,032**

10-3-3. Development and distribution of accident-free campaign technique

To revitalize and effectively push the accident-free campaign, KOSHA has developed and distributed to each workplace helpful techniques including a 4-roud risk predicting technique, one-piint risk predicting exercise, near accident cases. Each workplace modifies and changes the technique to best suit its situation.

10-4. National safety culture movement

To revitalize safety and health activities at workplaces and to prevent industrial accidents, KOSHA has implemented an accident-free campaign as well as safety culture movement. The safety culture movement started in the latter half of 1995 and has been participated in by civilian, government and other related organizations covering all social sectors toestablish national safety culture.

The development and implementation of safety-related activities for this campaign is carried out under the

guidance of a safety culture promoting body that is made up of 7 government and 7 civilian members with one secretary. The 7 government members include the Prime Minister as Chairman, the Minister of Government Administration and Home Affairs, the Minister of Labor, and the Director of the Office of Administration and Coordination for the Prime Minister. The 7 civilian members include the Chairman of the Korea Employers Federation and the Chairman of the Federation of Korea Trade Unions.

The safety culture implementation committee, beginning in April 1996, designated the 4th (or on the following business day if the 4th falls on a holiday) of each month as the "Safety Inspection Day." The project's purpose is to increase the public safety awareness and provide monthly accident prevention and risk detection activities.

Major achievements

(Unit: sites)	2002	2001	2000
Safety culture organization	18	18	18
[Safety Inspection Day] event held	635	303	512
Total	**653**	**321**	**530**

10-5. Publication and Distribution of Technical Information Materials

In addition, in order to ensure that self-regulatory safety management can be effectively implemented at medium and big-sized workplaces, KOSHA operates its self-regulatory safety club that provides safety and health information and materials required for safety management, such as "monthly Training Materials", publicity materials, and audio and video training aids. The self-regulatory safety club began operation in May 2001. Currently, there are a total of 1,184 members: 436 (36.8%) manufacturers and 748 (63.2%) construction companies. Self-regulatory safety management support In order to revitalize safety activities at workplaces and encourage self-regulatory safety management, KOSHA distributes necessary safety and health materials for each industrial sector to relevant workplaces. These materials include periodicals, pamphlets, posters, booklets, stickers and videos. Multimedia materials are also available via computer for easy access by employers and employees.

Periodicals include monthly publications : Safety and Health, Safety Guide, and biweekly Safety and Health Information. The monthly Safety and Health contains safety and health
technologies and information required for self-regulatory safety management and is distributed to some 10,000 big and small-sized workplaces. The monthly Safety Guide is
distributed to honorary occupational safety inspectors, the leader of workplace safety. The biweekly Safety and Health Information (70,000copies) provides safety and health news and accident prevention information to small-sized workplaces.

Special materials are published and distributed in pamphlets, posters, booklets, stickers, and audiovisual

materials. The audiovisual materials include video, transparency and display panels, which are used as training materials for safety and health education at workplaces.

Recently, KOSHA has developed and is distributing multimedia materials in CD-ROM and videotape formats to enhance the utilization of safety and health materials through computers. E-mails and magazines are created and distributed through on-line system.

Korea is experiencing a rising trend in foreign employees so special technical materials are being developed to assist them in accident prevention. The safety and health materials developed for foreign employees contain accident prevention technologies related to accident-prone machines, equipment and facilities. These materials, developed in the form of pamphlets, posters, video and display photo panels, also contain fundamental knowledge on industrial accident prevention for foreign employees. These materials have been translated into 8 languages: English, Chinese, Indonesian, Bengali, Vietnamese, Thai, Sri Lankan and Uzbeg.

Safety and health materials published

(Unit: types)	2002	2001	2000	1999
Periodicals	3	3	3	3
Non-periodicals	366	413	677	456
Total	**369**	**416**	**680**	**459**

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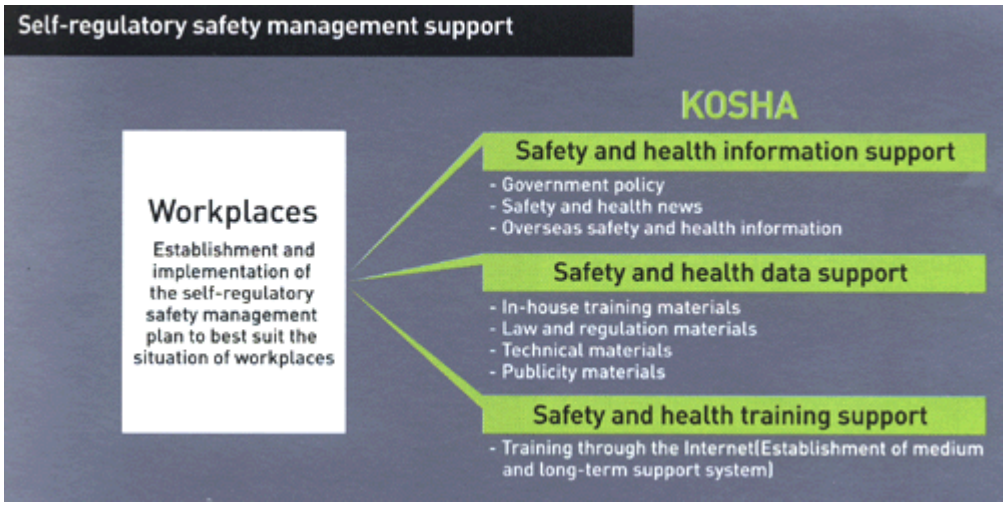

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11.International Cooperation

The international trend in occupational safety and health is to strengthen self-regulatory safety and health management of enterprises and unify the international safety and health standards. In line with this, international trade regulations regarding the technical standards for protecting the life, health and environment of the importing nation and its people are being strengthened. To cope with these changes, KOSHA introduces advanced technologies in all fields by entering into an agreement and building a cooperative partnership with foreign safety and health institutes and international organizations. As a member of OECD, the agency established innovative programs in the safety and health field and assists Asian countries in establishing similar programs based on Korea's accident prevention technologies and support system. International Cooperation

11-1.Cooperation with major advanced countries and organizations

In its quest for improvements in accident prevention technology, KOSHA is conducting cooperative projects in various fields with advanced accident prevention institutions.

As for cooperation between Korea and Japan, KOSHA entered into a cooperation agreement regarding occupational diseases with Japan in April 1992, but in 1998 it was converted into a civilian cooperation backed up by the Japan Industrial Safety and Health Association (JISHA). From this new cooperation, KOSHA pursued cooperative projects with JISHA including cooperative research of KOSHA staff in Japan and consultation with Japanese experts in Korea. Process safety and advanced research techniques thus acquired have contributed to the prevention of industrial accidents at domestic workplaces.

In December 1996, an agreement was signed between KOSHA and the National Institute for Occupational Safety

and Health of the U.S. Since that time, KOSHA has dispatched several experts to NIOSH for training and joint research in the field of epidemiological hazard evaluation and development of amine analyzing method. In addition, an expert from NIOSH visited Korea to provide consulting services. These cooperative projects have contributed to the introduction of advanced research techniques and improvement of accident prevention technologies.

Cooperation agreement on occupational safety was signed between Korea and Germany in July 1987. Starting in 1995, the Korea-Germany cooperative project was converted to civilian level, and KOSHA has introduced new technologies such as risk assessment, explosion-proof inspections, crane safety, Product Liability, and electromagnetic wave safety from the German TUV Rheinland /Berlin-Brandenburg, Berufsgenossenschaften and Physikalisch-Technische Bundesanstalt to upgrade the accident prevention technologies.

Starting in 2000, KOSHA sought to form a cooperative coalition with other North European countries such as the National Institute for Working Life of Sweden and Finnish Institute of Occupational Health. Cooperative projects are being implemented for technical information exchange and joint researches for fields such as occupational disease diagnosis and epidemiological survey, biological monitoring, and ergonomics. KOSHA experts have dispatched to conduct these joint research efforts.

11-2.International safety and health activities

KOSHA has cooperated with many foreign accident prevention organizations and international bodies to improve the domestic occupational safety and health levels and globalize safety and health technologies.

KOSHA signed a cooperation agreement with the world leading accident prevention agencies such as the National Safety Council of the U.S., Berufsgenossenschaften of Germany, TUV Rheinland/Berlin-Brandenburg of Germany, German Physikalisch-Technische Bundesanstalt, and German Bundesanstalt fur Arbeitsschutz und Arbeitsmedizin. Under the agreements, KOSHA has provided and acquired accident prevention technologies and information including latest policies.

In order to globalize safety and health, it has also maintained good relationship with international organizations such as the International Labor Organization, International Standard Organization, Organization for Economic Cooperation and Development, and Asia Pacific Occupational Safety and Health Organization and exchanged technologies and information and hosted international seminars.

Since 1993, KOSHA has been participating in the Technical Committee related to occupational safety and health of the International Standard Organization and International Electrotechnical Commission (IEC)-Cranes (ISO TC 96), Machine vibration (ISO TC 108), Air quality (ISO TC 146), Construction/electric equipment (ISO TC 64), Electric safety of machinery (IEC TC44), and Lightning arrestor (IEC TC37). The agency has always taken an active role in the meetings as Korea's representative and is currently serving as a manager of the special

committees. It is contributing to the establishment of international standards by organizing the exchange of technical information and presenting Korea's position in the formation of policies.

In addition, KOSHA annually attends OECD general assembly meetings and other forums such as ISO and IEC as Korea's representative or as a secretary in international activities related to the prevention of major industrial accidents. The agency presented its opinions to OECD Expert Group Meeting by collecting domestic examples under the theme Construction of an Integrated Safety, Environment, and Quality Management System.

KOSHA attends the annual APOSHO general meeting to promote the balanced development of safety and health in the Asia Pacific region, exchange of information, and understand among all parties. It also operates the APOSHO homepage as the Chairman of the Technical Committee.

11-3.Contributions to Asian countries

KOSHA makes a commitment as a member of OECD to provide safety and health technology assistance to Asian countries. In September 1999, KOSHA entered into an agreement with Mongolia and other Asian countries to provide on-site technical
guidance, exchange information, and train visiting Mongolian safety personnel.

During 2002, KOSHA invited 15 public service personnel and industrial safety-related persons from 7 countries, including China and Vietnam, under the sponsorship of the Korea International Cooperation Agency of the Ministry of Foreign Affairs and Trade.
The invitees learned advanced accident prevention technologies at training sessions held by KOSHA.

11-4.Overseas training

To promote the expertise and technical levels of KOSHA experts, KOSHA provides short and long-term training to many of its staff. Training is mainly divided into shortterm training aimed at acquiring new technologies related to accident prevention, and long-term training where KOSHA dispatches its staff to overseas master and doctorate courses to foster experts in accident prevention.

Since its foundation, KOSHA has dispatched its staff to Germany and Japan for short and long-term training. For long-term training, KOSHA sent a total of 21 persons to the master and doctorate programs on industrial safety and health to many prestigious universities including Indiana University of the U.S. and Sheffield University of England and other schools. In 2002, KOSHA dispatched 41 staff to overseas training institutes, nd there are currently 4 master degree students and 2 doctorate degree students attending U.S. universities.

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1.Accidents by year

The occurrence of industrial accidents and occupational diseases is closely related to the increase in working people and industrial development.

The number of industrial accidents was extremely low during the 1960's in the early stages of economic growth. Since the 1970's, when full-scale economic development began; however, industrial accidents and occupational diseases have emerged as a serious social problem.

Industrial and technological innovations during the 1980's brought rapid changes to the working environments, which led to an increase in industrial accidents and occupational diseases.

Thanks to changes in safety awareness at the workplace and the government's steady industrial accident prevention activities, the number of cases began to gradually decline. In 1998 and 1999, however, when the nation's economy underwent dramatic shifts due to the IMF crisis, the number of cases showed rapid decrease, which was followed by slight increase. When the workplaces eligible for industrial accident compensation were expanded to include those with one or more employees in July 2000, the number of casualties significantly increased in 2001 and 2002.

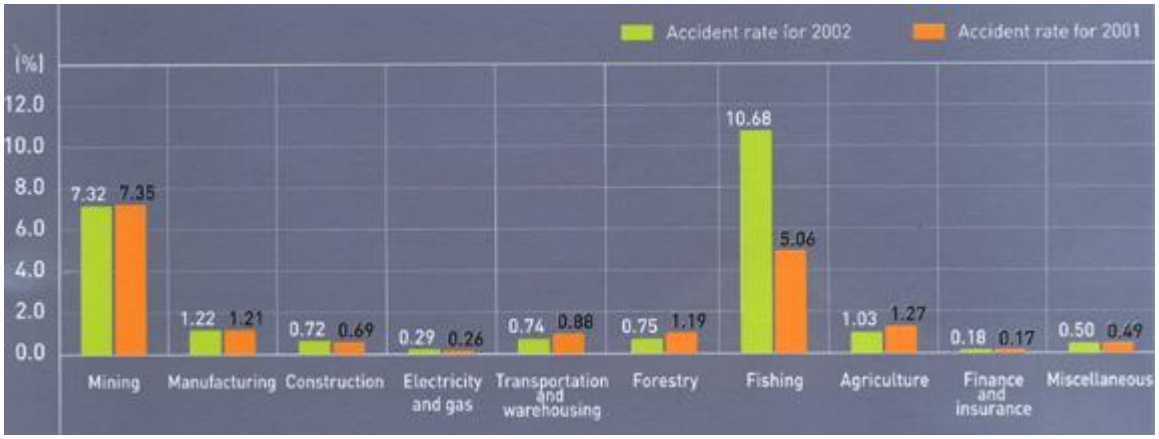
2.Occupational diseases by year

New types of occupational diseases and cerebrovascular and heart diseases have increased due to a broader utilization of new chemical substances by the manufacturing industry and the expanded workplaces eligible for

industrial accident compensation. During 2002, the number of occupational disease patients increased due to the increased burden of physical injuries.

3.Accident rate by industry

There was no significant change in accident rate compared with 2001. The accident rate in the fishing industry, however, has more than doubled to 10.68% compared with 5.06% in the previous year.



Fatality rate per 10,000 persons has not shown any big changes in most industries compared with that of the year before. But the fatality rate per 10,000 persons in the fishing industry was 134.12%, or double that of 2001.


Fatality rate
(Per 10,000 persons for 2002)
Fatality rate
(Per 10,000 persons for 2001)
(%)
240.0
200.0
160.0
120.0
80.0
40.0
0.0
228.49
228.14
2.24
2.43
2.41
2.70
3.45
2.43
3.00
3.98
2.01
2.08
134.12
66.39
3.22
4.52
1.46
0.96
1.54
1.47
Mining
Manufacturing
Construction
Electricity and gas
Transportation and warehousing
Forestry
Fishing
Agriculture
Finance and insurance
Miscellaneous

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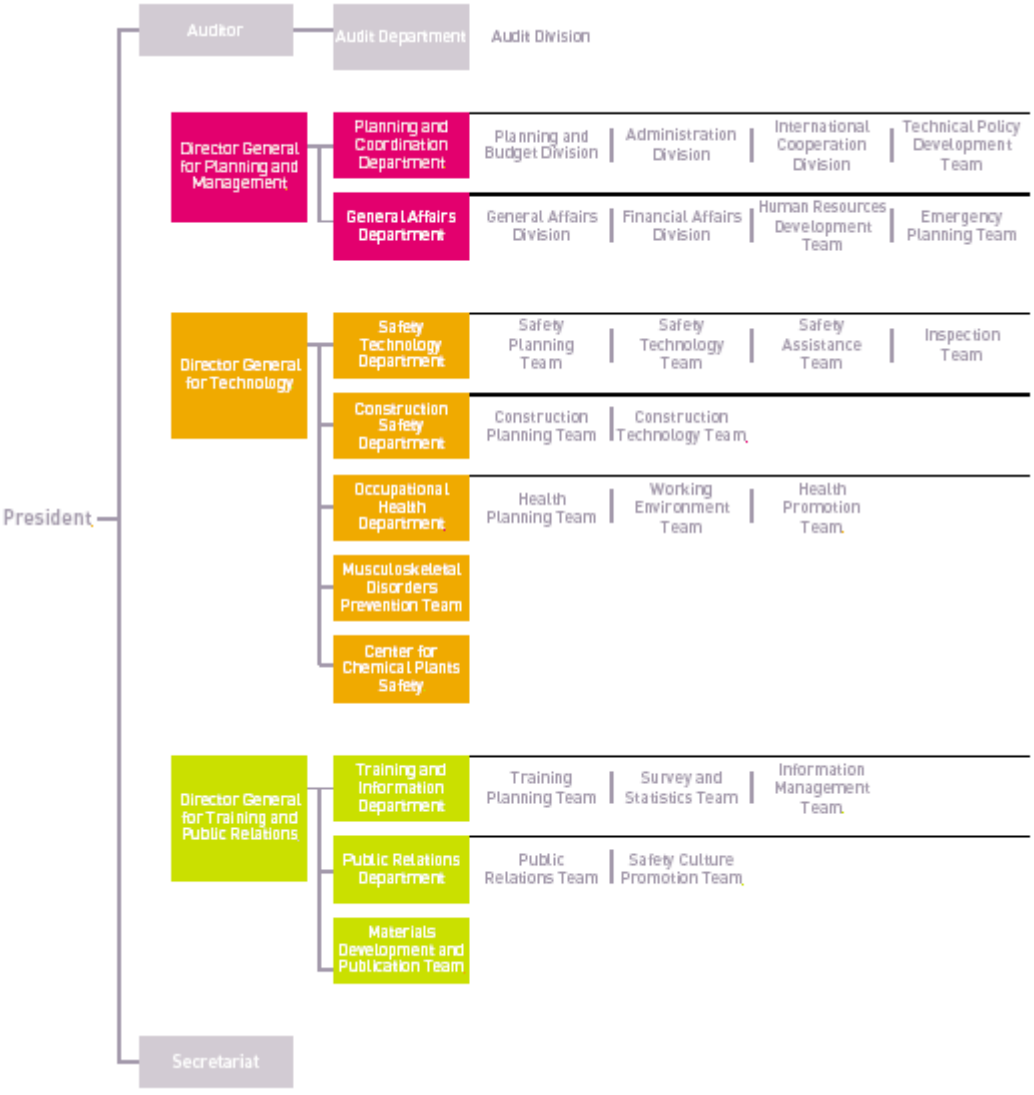
1.Organization Chart

1-1.Head Office



1-2.Affiliated organization

* Occupational Safety and Health Research Institute


* Occupational Safety and Health Training Institute


* Regional Head Offices (Seoul, Busan and Gwangju)- 17 Area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2.List of Industrial Registered Property Rights of hazardous working environment

2-1.Summary

(Unit : cases)	Patent	International Patent	Utility Model	Design	Trademark
Registered	16	-	54	4(4)	20 cases in 8 types
Pending	31(22)	(2)	6	-	-
Total	**47(22)**	**(2)**	**60**	**4(4)**	**20 cases in 8 types**

2-2. Industrial Registered Property Rights during 2002

Patent : 7 cases	Organization	Remark
Preventive and analyzing system and method based on the analysis of human-error related accidents at chemical plants.	OSHRL	KOSHA research project for 1998
Static electricity removing apparatus using soft X-ray	OSHRL	KOSHA research project for 1998
Inflammable gas detector and method for operation	OSHRL	Research service
Elevator brake system	Occupational Safety and Health Training Institute	International patent peding
Digitalized universal meters	OSHRL	KOSHA research project for 1999
Electric leakage detector	Safety Technology Dept.	-
Device for removing remaining blocks form the clamping part of the block loading system	Safety Technology Dept.	T.F.Team
Safety device for removing residue form the inside of	Safety Technology Dept.	T.F.Team

cement silos.		
Resistance type grounding condition indicator	Safety Technology Dept.	-
Grounding condition indicator	OSHRL	-
Automatic braking system for centrifugal dryer	Safety Technology Dept.	T.F.Team
Centrifugal dryer	Safety Technology Dept.	T.F.Team
Overturning prevention safety ladder	Safety Technology Dept.	T.F.Team
Foreign matter removing device for metal processing rollers	Safety Technology Dept.	T.F.Team
Construction footing member supporting device	Construction Safety Dept.	-
Locking device for crusher	Safety Technology Dept.	T.F.Team
Bottle collision prevention/aligning system	Occupational Health Dept.	-
Stanchion fixture for safety guard rail and safety belt hanger	Construction Safety Dept.	-
Small sheathing wall for pipeline excavation	Construction Safety Dept.	-

Design : 3 cases	**Organization**	**Remark**
Tow truck for disabled car	Safety Technology Dept.	T.F.Team
Truck with built-in engine lift jack	Safety Technology Dept.	T.F.Team
tow truck for sheet-metal vehicle	Safety Technology Dept.	T.F.Team

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3.Training Courses

Total : 45 courses	No. of courses	Course title
Safety management	9 courses	Qualifications of the workpalce safety and health instructors
		Implementation of accident free campaign
		Handling of industrial accidents and establishment of improvement plans
		Human error prevention (Ergonomics)
		Ergonomic improvement at workplaces
		Prevention of fires and explosions
		Transporting safety
		Qualifying KOSHA 18001 evaluators (Manufacturing)
		Refreshing for KOSHA 18001 evaluators (Manufacturing)
Safety engineering	13 courses	Press and shear inspectors
		Crane inspectors
		Chemical facility inspectors
		Protection of overcurrent (High class)
		Grounding electric equipment
		Prevention electric fires and explosion-proof safety
		Equipment maintenance and installation management
		Analysis of risks and operation
		Analysis of accident frequency
		Analysis of accident investigation results
		Process safety management self-inspection
Construction safety	10 courses	Construction lift safety
		On-the-job training for manufacturing supervisors
		Safety related to temporary works
		Qualifying KOSHA 18001 evaluators for construction industry
		Examination of harmfulness and hazard prevention plan
		Safety related to shoring works
		Safety related to blasting
		Bridge construction work design

	Construction manager
	Training for field construction supervisors (Elementary class)
	Training for field construction supervisors (Middle class);
	Training for field construction supervisors (High class)
	Qualifying local exhaust system inspectors
	Noise/vibration management
	Ventilation principles and local exhaust system design
	Simple repeated work and VDT work management
	Working environment improvement
	Technique of utilizing safety and health information
Occupational health 13 courses	Casualty rescue and emergency action
	Health promotion (Stress management)
	Easy Occupational health training
	Safety related to work in closed areas
	Prevention and management of back pain
	Occupational medicine, speciall I
	Occupational nursing, speciall III