New study finds:

- Worldwide demand for heavy construction equipment is projected to rise 5.3 percent annually through 2005 to $87.4 billion
- The major factor fueling growth through 2005 will be ongoing economic recovery and expansion within the developing nations of Asia/Pacific and Latin America
- The three leading producers -- Caterpillar (US), Komatsu (Japan) and CNH (based in the Netherlands, but operating as a subsidiary of Fiat of Italy) -- account for close to a third of total global demand
World Heavy Construction Equipment, a new study from The Freedonia Group, provides you with an in-depth analysis of the major trends in the world market for heavy construction equipment and the outlook for product segments -- critical information to help you with strategic planning.

This brochure gives you an indication of the scope, depth and value of Freedonia's new study, World Heavy Construction Equipment. Ordering information is included on the back page of the brochure.

Brochure Table of Contents

Study Highlights .................................................................2
Study Table of Contents and List of Tables and Charts ...........4
Sample Pages and Tables from:
  Market Environment .....................................................6
  World Supply and Demand .............................................7
  Supply and Demand by Country & Region ...................8
  Market Share ...............................................................9
  Company Profiles ........................................................10
  List of Companies Profiled ......................................11
  Forecasting Methodology ..........................................12
  About the Company .....................................................13
  Advantages of Freedonia Reports ..............................13
  About Our Customers ...............................................14
  Related Studies ..........................................................15
  Ordering Information ...............................................16
Worldwide demand for heavy construction equipment is projected to rise 5.3 percent annually through 2005 to $87.4 billion.

The major factor fueling growth through 2005 will be ongoing economic recovery and expansion within the developing nations of Asia/Pacific and Latin America.

Future prospects are favorable in China, where construction equipment demand will benefit from that nation’s aggressive industrialization efforts, and Eastern Europe, as countries there continue their transformation to market economies, attracting increased foreign investment.

The greatest growth in output will be in developing countries -- particularly in Asia and Latin America -- the continuation of a long-term trend, slowed in recent years by disruptive events like the Asian financial crisis.

The three leading producers -- Caterpillar (US), Komatsu (Japan) and CNH (based in the Netherlands, but operating as a subsidiary of Fiat of Italy) -- account for close to a third of total global demand.

* Excluded from the scope of the study are certain products sometimes considered to be construction equipment, including log splitters, dredging machinery, pile driving equipment and aerial work platforms. Also excluded is used heavy construction machinery of all types.
Study Highlights

World Heavy Construction Equipment Demand
(million US dollars)

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<th>Item</th>
<th>1995</th>
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<th>2005</th>
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<td>$ construction equipment/000$ GFI 9.0</td>
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Sample Table

Order form on last page
I. EXECUTIVE SUMMARY

Summary Table ................................................................. 3

II. ECONOMIC & MARKET ENVIRONMENT

General ................................................................. 4
World Economic Outlook ............................................. 5
Recent Economic Performance ................................. 6
World Economic Overview ......................................... 9
Table - Gross Domestic Product by Region ............. 10
World Fixed Investment Outlook ............................. 10
Table - Fixed Investment by Region ...................... 13
Chart - World Heavy Construction Equipment/Fixed
Investment Relationship ........................................ 14

World Demographic Outlook ................................. 15

World Population Outlook ....................................... 15
Table - Population by Region ............................... 16
Urban Population Outlook ...................................... 17
Table - Urban Population by Region .................. 18

Pricing Patterns ................................................ 18
Table - Heavy Construction Equipment Pricing Patterns ....... 20
Technology .......................................................... 21

III. SUPPLY & DEMAND

General ............................................................... 23
World Heavy Construction Equipment Markets .... 24
Regional Markets .................................................. 24
Table - World Heavy Construction Equipment
Demand by Region ........................................... 25
Chart - World Heavy Construction Equipment
Demand by Region, 2000 .................................. 26
Rental and Leasing Markets .................................. 26
World Heavy Construction Equipment Production .... 28
Producing Countries ........................................... 28
Table - World Heavy Construction Equipment
Shipments by Region ......................................... 30
Chart - World Heavy Construction Equipment
Shipments by Region/Country, 2000 ..................... 31
Products .......................................................... 31
Table - World Heavy Construction Equipment
Demand by Type .............................................. 32
Loaders ......................................................... 32
Off-Highway Trucks & Tractors ......................... 34
Cranes & Draglines .......................................... 35

For each country/region, the following are given:

Population
$GDP/capita
Gross Domestic Product
% fixed investment
Gross Fixed Investment
$construction equipment/000s GFI
Construction Equipment Demand
Loaders
Off-Highway Trucks & Tractors
Cranes & Draglines
Graders, Rollers & Related
Mixers, Pavers & Related
Parts & Attachments
net exports
Construction Equipment Shipments
Pricing Patterns

Heavy construction equipment machinery prices are a critical determinant of demand throughout the world. In developing countries, they are typically the dominant purchasing criteria. The cost of a new construction machine can range from about $50,000 to well over $1 million. For example, Komatsu’s PC1800-6 crawler excavator has a list price of $2 million. Intense competition, the availability of used equipment discounted 30 to 60 percent below new machinery prices, difficulties in obtaining needed financing and the option to rent equipment on an as-needed basis all contribute to buyers’ price sensitivity for new machinery in many areas. The mature nature of the construction equipment industry and lack of brand loyalty among many users also contribute to the role that pricing plays in buying decisions.

Factors influencing the cost of construction machinery within a country include local inflation trends, pricing patterns for other industrial products (especially related construction products), level of local demand, local availability of...
World Supply & Demand

Section highlights the key issues that have affected the global heavy construction equipment market over the past ten years and summarizes contributing growth factors.

This information helps you:

- Focus your sales and marketing efforts on high growth areas.
- Propose new areas for development.

Cranes & Draglines

Global sales of construction cranes and draglines (including excavators) are projected to rise at a 5.2 percent annual rate through 2005 to $12.7 billion. The pace of increase for construction machinery and earthmoving equipment matches overall heavy equipment demand because these products -- which are used to dig, move and position materials -- have a broad range of applications in both construction and mining operations.

Construction cranes are primarily used to lift and position large objects, carrying cement hoppers for building concrete columns, erecting large process tanks in chemical facilities, setting metal beams in bridge construction, etc. With the use of such attachments as dragline buckets, clamshells and magnets, cranes can be used for material handling and earthmoving applications as well. Cranes are generally categorized according to the type of boom employed (lattice or telescopic) and can be truck-mounted and/or designed to operate in rough terrain or all-terrain environments. Draglines are a special type of excavating crane featuring a bucket dropped from a boom and dragged along by a cable. Much product development activity in recent years has focused on improving crane safety, with producers incorporating dual brake systems, lever locks, crane overweight limiters and collision preventing devices. In 2001, for example, Liebherr began offering SMIE's AC30 anti-collision system, which can monitor up to 20 tower cranes at a site and prevent the jib or counter-jib of each crane operating at one height from hitting the ropes of those above it.

Excavators are mainly employed in earthmoving applications, being used to dig building foundations and trenches, although they are also used to lift small pieces of equipment and materials when a crane is not readily available. Excavators are available in several designs, with the most popular being the crawler-mounted hydraulic excavator. Cable type excavators (usually referred to as shovels) are available in several designs, with the most popular being the crawler-mounted hydraulic excavator. Cable type excavators (usually referred to as shovels) are available in several designs, with the most popular being the crawler-mounted hydraulic excavator.

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These Sections analyze supply and demand for heavy construction equipment by type for 40 countries and six regions.

### Chile

Demand for construction machinery in Chile is forecast to advance at a 6.8 percent annual rate through 2005 to $535 million, a little below the forecast pace for Latin America overall but a substantial improvement from the 1995-2000 period. Gains will be stimulated by a dramatic increase in fixed investment/construction activity, aided by government privatization efforts. For example, Codelco announced in July 2001 that it plans to build a biotechnology plant to dissolve copper concentrate. Other notable projects include construction of a highway between Santiago and Talco (with work scheduled to start in 2002), building of the TransChile natural gas pipeline (construction scheduled to begin in 2003) and construction of 16 privately financed water treatment plants (scheduled to be completed by 2009). Heavy equipment demand will be restrained by faster economic growth in other Latin American nations, limiting the availability of foreign funding for construction projects.

Shipments of construction machinery from factories in Chile will continue to rise at a 11.4 percent annual rate through 2005 to $60 million. Domestic demand in Chile and regional export markets will not be enough to prevent a widening of the country’s trade deficit, as offshore producers intensify their marketing efforts throughout Latin America.

Chile’s construction machinery manufacturing capabilities are limited, with the bulk of domestic production consisting of small and mid-sized equipment, parts and attachments. Industry shipments grew at a 14.5 percent annual rate between 1990 and 2000, aided by an influx of external investment during the early and mid-1990s following the advent of economic reforms. The industry was able to continue expanding rapidly when domestic demand weakened in recent years by boosting export sales. Nevertheless, the country remains dependent on imports for over 90 percent of its construction equipment requirements.

### Italy - Heavy Construction Equipment Supply & Demand (million U.S. dollars)

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<td>8.7</td>
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<td>Construction Equipment Demand</td>
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<td>Loaders</td>
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Industry Structure

Gain a better global understanding of your competition and analyze your company's position in the industry with information about:

- industry composition
- market share
- product development
- manufacturing
- mergers & acquisitions
- industry restructuring
- cooperative agreements
- marketing & distribution
- financial requirements

INDUSTRY STRUCTURE

Marketing & Distribution

The importance of marketing and distribution as competitive tools has increased in recent years, as a consolidating heavy construction equipment supplier base attempts to target an even more geographically dispersed customer base. Of particular importance are manufacturers' sales networks, which often include both independent and company-owned dealers or distributors. In addition to price, after-sales service and parts supply are primary purchasing considerations for construction machinery, as downtime on a construction or mining site is costly. Maintaining a widespread sales/servicing network with dealers located close to key customers allows for economies of scale in marketing and distribution to almost as great an extent as in manufacturing. For example, Caterpillar's global dealer network, for which the company maintains over 2,000 parts distribution facilities worldwide.

A strong service network also increases the likelihood that replacement parts -- which account for a sizable portion of industry revenues -- will be purchased from the equipment manufacturer and not a third party. One example of an action taken to strengthen a producer's sales/service network is the October 2000 opening of a new Komatsu parts depot in Las Vegas, Nevada to support distributors in the western US and improve customer service. This facility allows the firm to ensure improved parts availability without having to increase distributor parts inventories.

Another key competitive tool is customer financing services, particularly in areas where funds are difficult to obtain from other sources. In Russia, for example, both CNH and Caterpillar have launched financing programs to provide contractors with an affordable way to upgrade aging construction machinery fleets. Most heavy equipment manufacturers offer some form of financing, usually both wholesale financing to dealers and retail financing to end users. Wholesale (or floor plan) financing allows dealers to maintain a representative inventory of...
The Profiles Section analyzes 37 companies active in the world heavy construction equipment industry. These profiles represent a sampling or cross-section of the types of companies involved in the industry.

Divisions, subsidiaries, joint ventures, etc., are discussed under appropriate parent companies.

Sources for profiles included:

- Information provided by key staff members in the respective companies
- Annual reports
- 10-K reports
- Security analysts reports
- Corporate product literature

Liebherr-International AG
Rue de l’Industrie 19
1630 Bulle
Switzerland
41-26-913-3111
http://www.liebherr.ch

Liebherr-America Incorporated
4100 Chestnut Avenue
Newport News, VA 23605
757-245-5251

Liebherr-International is a holding company with subsidiaries that operate in two product sectors: Construction Machinery and Other. The Company had 2000 sales of $3.7 billion ($2.6 billion to Western Europe; $132 million to Eastern Europe; $113 million to the Near and Middle East; $496 million to the Americas; $78 million to Africa; and $230 million to the Far East and Australia). Liebherr-International employed 19,415 in 2000.

In 2000, sales for the Company's Construction Machinery sector were $2.3 billion. The sector's products are organized into three lines: construction and mobile cranes; excavators, crawlers, loaders and mining trucks; and concrete equipment. Moreover, the Company manufactures parts for construction machinery. For example, Liebherr Machines Bulle SA (Bulle, Switzerland), a subsidiary, is engaged in the production of diesel engines, hydraulic components and transmissions.

Liebherr is the seventh largest manufacturer of heavy construction equipment in the world, with a three-percent market share in 2000.

Construction & Mobile Cranes -- In 2000, product developments included two new lines of cranes: TT and H. Combined sales for construction and mobile cranes in 2000 were $1,415.
Freedonia does not just collect and reprint data; Freedonia develops data. Our analysts thoroughly investigate an industry by extensively interviewing key industry participants and analyzing information from sources such as associations, government and trade literature. Once this research is complete, Freedonia establishes one set of forecasts. All writing, editing and forecasting is done in-house to assure quality and consistency. In cases where data does not exist, Freedonia develops the data based on input/output ratios, bills of materials and flow charts. The following chart summarizes Freedonia’s methodology.
The Freedonia Group, Inc. is a leading international industry study/database company. Since 1985, Freedonia has published over 1,600 titles covering areas such as plastics, chemicals, coatings and adhesives, building materials, industrial components and equipment, health care, packaging, household goods, security, and many other industries.

Freedonia has produced a wide variety of titles, including:

- World Diesel Engines
- World Bearings
- Prefabricated Housing
- Power & Hand Tools

Because Freedonia is a reliable information source, our forecasts are cited in numerous publications such as The Wall Street Journal, The Financial Times and Construction Marketing Today.

In-house operations

Because all of our staff work at the same location, interaction between analysts and departments provides a strong system of checks and balances.

Consistency

Our Economics Group develops indicators that are used by all analysts. Therefore, every Freedonia study is based on a consistent set of economic assumptions (GDP, global population, fixed investment, etc.).

Reliable forecasts

Because all of our forecasts consider the environment in which a product or industry is operating, as well as threats and opportunities to the market, Freedonia forecasts are reliable indicators of future performance.

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All studies are produced by conducting interviews with key industry participants and end-users.

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Typical purchasers of Freedonia studies:

- Key Executives
- Corporate Planners
- Market Researchers
- Financial Analysts
- Information Centers
- New Product Developers
- Merger & Acquisition Specialists

Since 1985 we have provided research to customers ranging in size from global conglomerates to one person consulting firms. More than 90% of the industrial companies in the Fortune 500 use Freedonia research to help with their strategic planning.

Some of Freedonia's customers in the heavy construction equipment industry include: Atlas Copco AB, Caterpillar Incorporated, Deere and Company, and Hitachi Limited.
**World Diesel Engines & Parts**

World diesel engine demand will grow 5.5% annually through 2005. Gains will be driven by the lower price of diesel fuel relative to gasoline in Western Europe, and the greater fuel efficiency of diesel engines versus gasoline engines in general. The stationary segment (e.g., industrial, power generation) will grow the fastest worldwide. This study analyzes the US$73 billion world diesel engine industry to 2005 and 2010 by application, region and for 26 countries. It also details market share and profiles key firms.

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**Prefabricated Housing**

US demand for manufactured, panelized, modular and precut housing will outpace site-built housing through 2005, when prefabricated will account for 30% of all housing starts. The cost advantages of factory production such as improved scheduling, bulk purchasing of materials, and insulation from weather delays will aid demand. This study analyzes the US$73 billion world diesel engine industry to 2005 and 2010 by application, region and for 26 countries. It also details market share and profiles key firms.

#1476 . . . . . . . . 10/01 . . . . . . . . . $4,500

**Diesel Engines & Parts**

US demand for diesel engines and parts will grow 4.8% through 2005. Value gains will be propelled by technological innovations resulting from rising emissions standards. Opportunities for growth will also be driven by demand for niche products such as power generation and mining equipment, as well as further development of the light-duty trucks market. This study analyzes the US$14 billion US diesel engine industry to 2005 and 2010 by product and market. It also evaluates market share and profiles key firms.

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