Freedonia Industry Study #1370

World Prefabricated Housing

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World Prefabricated Housing, a new study from The Freedonia Group, provides you with an in-depth analysis of the major trends in the world market for prefabricated housing 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 Prefabricated Housing*. Ordering information is included on the back page of the brochure.

Brochure Table of Contents

Study Highlights

* Worldwide demand for prefabricated housing is forecast to increase 3.4 percent per year through 2004 to 1.3 million units, valued at $68 billion.

* The US and Japan, which accounted for over 70 percent of the global market for prefabricated housing in 1999, will grow at below global average rates.

* Demand for prefabricated housing in Latin America is forecast to grow at the fastest rate of any region.

* The segment of the prefabricated housing industry consisting of panelized and pre-cut homes will generate the most growth in terms of units produced.

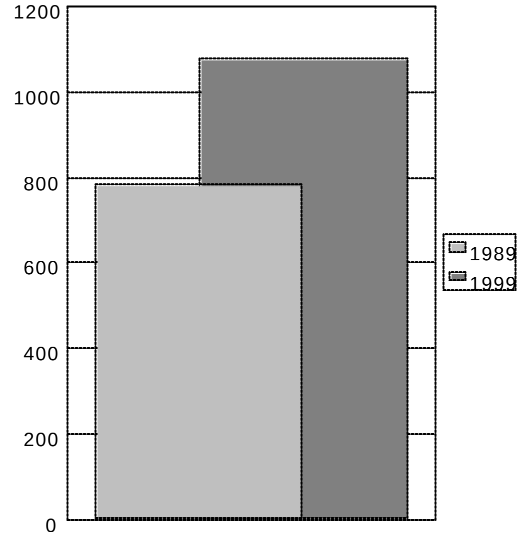
* The top firms in the industry tend to be concentrated in the countries where demand is highest -- the US and Japan. Included are Champion Enterprises, Fleetwood Enterprises, Oakwood Homes, Clayton Homes, Cavalier Homes, Sekisui House, Daiwa House Industry, Misawa Homes and Sekisui Chemical.

* Companies such as Linwood Homes and Royal Group Technologies of Canada, Hebel and Preussag of Germany, and Stately-Albion of the UK are among the more prominent firms located in other countries.

* Traditional site-built homes using some prefabricated building components (e.g., pre-hung windows or doors) are excluded from the scope of the study. Prefabricated structures used for nonresidential purposes are also excluded. Most types of temporary prefabricated houses are excluded from this study, including army or mining workers' residences. Prefabricated disaster relief homes, however, are included in the study as long as they do not have the appearance of tent-like structures and are likely to be used beyond a temporary basis.

Study Highlights

World Prefabricated Housing Demand, 1989 Versus 1999



World Prefabricated Housing Demand

(thousand units)

SUMMARY TABLE

Item	1989	1999	2004	2009	% Annual Growth 99/89	04/99
World GDP (bil 1997 US$)	27110	[illegible]				[illegible]
$ RFI/$ GDP	0.050					
Res Fixed Invest (bil 1997 US$)	1346					
prefab demand/mil $ RFI	0.58					
Prefabricated Housing Demand	782	[illegible]				3.4
United States	372					[illegible]
Japan	211					
Rest of World	199					
000$/unit	43.6					
Prefab Housing Demand (bil $)	34.1	[illegible]				[illegible]

Table of Contents

Tables and Charts are featured for each region and country. Historical data and forecasts are presented for 1989, 1994, 1999, 2004 and 2009.

For each country/region, the following is included:

Population (millions)
GDP/capita
Gross Domestic Product (bil 1997 US$)

persons per household
Households (millions)

% of GDP
Res Fixed Investment (bil 1997 US$)

starts/000 population
starts/000 households
starts/mil $ RFI

Housing Starts (000 units)
% prefabricated

Prefabricated Housing Shipments
Manufactured & Modular
Other

000$/unit
Prefab Housing Shipments (mil US$)

Market Environment

The Market Environment Section discusses key indicators that drive demand for prefabricated housing, including demographic trends, housing starts, and Freedonia's uniquely developed macroeconomic indicators.

This information provides you with an understanding and an analysis of the climate in which the global prefabricated housing industry operates and helps you build your market strategy to sustain long-term growth.

Regulatory & Cultural Considerations

Differences in regulations (e.g., local building codes ns, health and safety regulations) and the cultural percep ve major effects upon the world prefabricated **SAMPLE PAGE** ain markets are highly resistant to prefabricated accustomed to on-site construction methods and v inferior form of housebuilding. In other countries, prefabricated housing is looked down upon as a result of unfavorable historical experiences (e.g., postwar apartment construction in Eastern Europe, prefabricated houses constructed in Israel using underdeveloped technology in the 1970s). Even the US and Japan have extremely dissimilar prefabricated housing markets. While manufactured housing is prominent in the US, heavy-gauge steel-framed prefabrication (often in the form of apartment complexes) is predominant in Japan, partly due to strict building codes concerned with seismic safety, and also as a result of land availability restrictions.

Changes in regulation can, at times, help counteract cultural biases towards prefabricated housing. For example, construction rules in the European Union were modified in the latter part of the 1990s to require greater energy efficiency for residences. Prefabricated houses tend to have better insulation and airtightness than traditional homes, a factor that was strongly marketed by manufacturers subsequent to the rule changes.

In the US, manufactured homes must meet strict safety requirements in hurricane-prone states (e.g., be able to withstand winds of up to 110 miles per hour). Although such standards raise the costs of such homes for manufacturers, they also improve the quality of the structures and help counter negative perceptions of

World Overview

This Section highlights the key issues that have affected the global prefabricated housing 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**

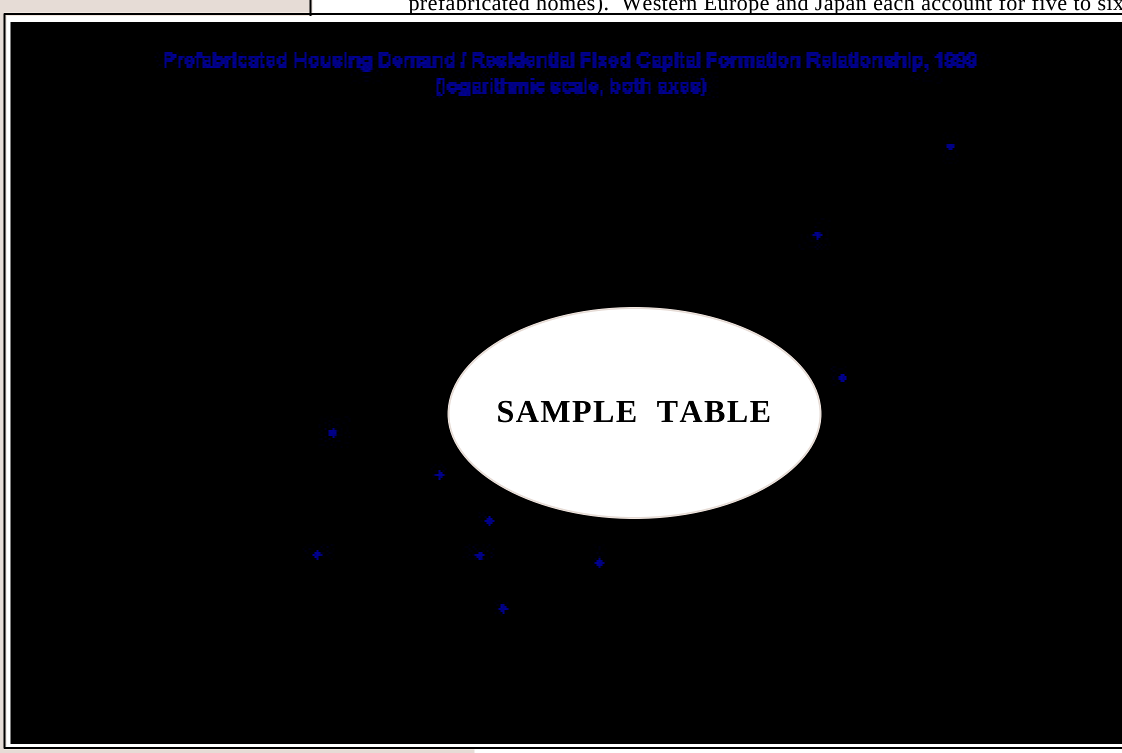
SUPPLY & DEMAND

Manufactured & Modular Housing

SAMPLE PAGE

Manufactured housing production is p… transpor-tation of completed homes made with … difficult and expensive. Additionally, because of t… transport, manufactured housing production is restricted to countries that have sophisticated highway and road transportation networks. Modular homes are relatively easier to transport and consequently more countries produce these. Even modular homes, however, require a significant amount of prefabrication in factories and transportation is difficult in containers or boxes, so most developing countries (as well as many developed nations) do not have the skilled labor or infrastructure to produce them. In countries with small domestic markets for prefabricated housing, manufacturers are not able to attain sufficient economies of scale to produce either manufactured or modular homes.

As a result of all these factors, the US supplies over 80 percent of worldwide manufactured and modular homes (as opposed to less than 55 percent of all prefabricated homes). Western Europe and Japan each account for five to six



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Supply & Demand by Country & Region

These Sections analyze supply and demand trends in each country and region.

ASIA/PACIFIC

Australia - Outlook

Demand for prefabricate ... cted to grow 1.5 percent per year through 2004 ... market, low population growth and an aging p... w growth in demand. Nevertheless, prefabricated ... ast to grow faster than overall housing starts, thereby further increasing the penetration level, as more Australians look for affordable and easy-to-construct homes.

SAMPLE PAGE

...tralia is forecast to advance 1.5 percent ...Unit shipment growth will slightly lag ...n net imports. Manufactured and ...count for a larger share of overall ...y other country in the world except the ...e accounted for by other forms of ...tralia boasts numerous small-scale ...h significant exports to the Asia/Pacific ...st of such companies, Fairweather ...XPORT SERIES brand consists of ...locales in which they are to be erected,

WESTERN EUROPE

France - Supply & Demand

Prefabricated hous... 0 units in 1999. This figure represents only 3... g market, indicating a relatively small m... housing in the country. French consumers tend t... crete as housing construction materials over wooden construction, like many other countries in Western Europe.

SAMPLE PAGE

Shipments of prefabricat... million. The vast majori... consist of panelized and ... log homes also popular i... for vacation homes. Imp... prefabricated housing in... arrive from neighboring ...

Chile - Prefabricated Housing Supply & Demand
(thousand units)

Item	1989	1994	1999	2004	2009
Housing Starts	84				
% prefabricated	14.2				
Prefabricated Housing Demand	11.9				
net exports	0.1				
Prefabricated Housing Shipments	12.0				
Manufactured & Modular	1.2				
Other	10.8				
000$/unit	8.3				
Prefab Housing Shipments (mil US$)	100				

SAMPLE TABLE

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**
- **market leaders**
- **mergers & acquisitions**
- **cooperative agreements**
- **manufacturing & product development**
- **marketing & distribution**
- **competitive strategies**

Product Development

Despite the cost, time and energy efficiency advantages that prefabricated housing can have over site-built homes, product innovations are essential in keeping them an attractive alternative. In developed countries, innovations usually entail the addition of high-end features or larger floor plans to attract the more well-off consumers. For example, Cavalier Homes' customers can select such home amenities as fireplaces, ceiling fans, stere ... gles, vinyl sidings, small patios, computers, satellite dis ... ters. Other companies offer a diverse range o ... d skylights to extra rooms and washing machines.

SAMPLE PAGE

Material innovations have also been used successfully by companies to improve prefabricated housing standards. In the case of DuraKit Shelters of Canada, this process went even further, creating the world's first pre-cut cardboard house designed for uses as a remote home, a vacation cottage or disaster-relief housing. The company manufactures kit houses using special waterproofed, three-layer corrugated cardboard panels, which snap into heavy-duty vinyl extrusions. Each structure comes with a five-year guarantee, although the company believes that they may have a useful life of 30 years with careful maintenance. As of November 2000, the company was still seeking building code approval in Canada, with the US to follow.

In the 1990s, prefabricated housing developments increasingly focused on environmental and energy conservation concerns. Some of this has happened as a result of stricter government regulation regarding those two matters, but companies have also found it beneficial to advertise these benefits of prefabricated housing in general. For example, Daiwa House (Japan) manufactures a line of homes known as KANKYO KOBO that are designed to be environmentally

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Company Profiles

The profiles section analyzes 44 companies active in the world prefabricated housing 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**

Daiwa House Industry Company Limited
3-5, Umeda 3-chome
Awaza, Nishi-ku
Kita-ku, Osaka 530
Japan
816-6342-1402

SAMPLE PAGE

Daiwa gments: Residential Homes, Commercial Buildin Operations. Daiwa has over 100 retail offices in Ja FY 2000, consolidated sales were $9 billion, and the Company employed 16,245.

Sales for the Residential Homes segment in FY 2000 were $6 billion. Daiwa produces single-family homes, multifamily homes and apartment complexes at 13 Japanese manufacturing facilities. The Company's homes feature barrier-free living spaces, crime-prevention systems and energy conservation devices designed to lower heating and electrical bills. Daiwa's homes also have noise-suppressing walls, and garbage-processing systems that reduce waste. The Company's KANKYO KOBO line of homes is designed to be environmentally friendly. Solar cells power the houses' electrical equipment, rainwater is collected and recycled for use in the homes' toilets and the garbage processor allows organic wastes to be separated and recycled individually.

In 1999, Daiwa launched several home designs. For example, OS bungalows are designed for the elderly and feature fewer steps, carpeted floors and a central-plan layout that allows access to all rooms. The URBAN RENTAL and LIVING LR apartment complexes and multifamily homes are marketed to a cross-section of the population. The LA GRAND RALCHE line of luxury, two-story family homes features a large central living room that is the center of the first floor, and a master

Companies Profiled

Asahi Kasei Corporation
  Asahi Chemical Industry
Aussie Houses Pty Limited
Bien-Haus AG
Bonneville Industries
Bovelle Homes
Carl Platz GmbH & Company
Cavalier Homes Incorporated
Champion Enterprises Incorporated
  Phoenix Land Development
Clayton Homes Incorporated
Coachmen Industries Incorporated
  All American Homes
  Mod-U-Kraft Homes
Container Conversions & Repairs Pty Limited
Daiwa House Industry Company Limited
ELK Fertighaus AG
Fleetwood Enterprises Incorporated
  Piedmont Housing
Hanse Haus GmbH
Hebel AG
Honkarakenne Oyj
Jelovica Lesna dd
Kampa-Haus AG
  Novy-Haus Produktionsgesellschaft GmbH
Kent Homes
Kewo Markenhaus GmbH
Lindal Cedar Homes Incorporated
Linwood Homes Limited
Lissett Residentials Limited
Manor Park Homes
Misawa Homes Company Limited
Modulex Incorporated
National House Industrial Company Limited
NCL Industries Limited
Nelson Lumber Company Limited
Oakwood Homes Corporation
Omar Homes Limited
Palm Harbor Homes Incorporated
Pathfinder Park Homes Limited
Preussag AG
  Algeco Group
Quality Manufactured Homes
RMC Group plc
  Ytong Holding AG
Royal Group Technologies Limited
Sekisui Chemical Company Limited
Sekisui House Limited
Skyline Corporation
Stately-Albion Limited
Viceroy Homes Limited
Wausau Homes Incorporated

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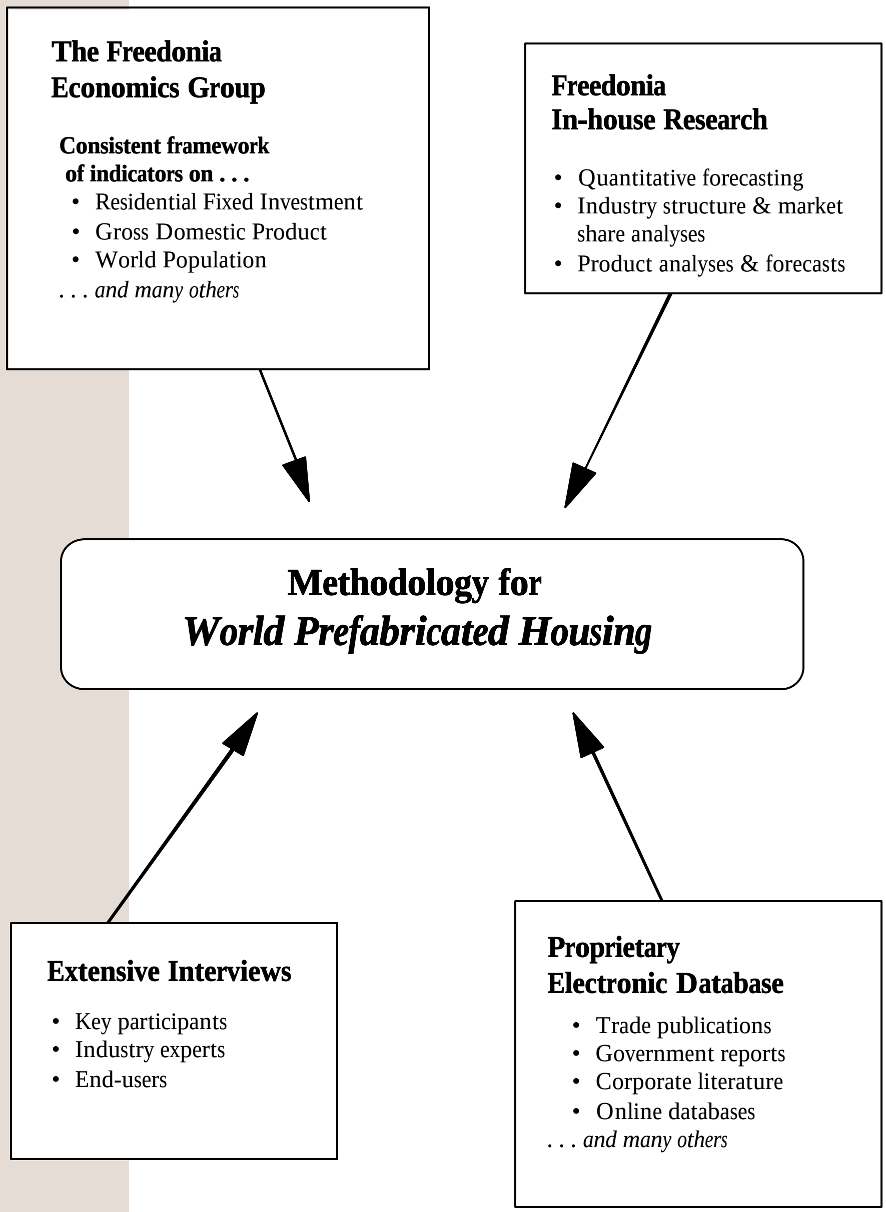
Forecasting Methodology

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.



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Since 1985, Freedonia has published over 1,500 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.

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- ***World Insulation***
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- ***World Major Household Appliances***

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Freedonia's analysts can tap into an extensive in-house electronic database containing corporate literature (including private company information), trade publications, government reports and many other sources of information.

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Some of Freedonia's customers in the prefabricated housing industry include: Champion Enterprises, Asahi Kasei Corporation and Sekisui Chemical.

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World Insulation

The world market for thermal and acoustical insulation products is analyzed in this study. It covers man-made vitreous fibers (fiberglass and mineral wool), foamed plastics (e.g., polyurethane, polystyrene) and other insulation materials (e.g., cellulose, perlite and vermiculite). The study presents historical demand data for 1989, 1994 and 1999 and forecasts to 2004 and 2009 by material, geographic region and key country. The study also examines the market environment, details market share and profiles key firms
#1375. . . . . 1/01. . . . . $4,500

Paints & Coatings

Demand for paints and coatings in the US will reach 1.5 billion gallons in 2004. Durable equipment coatings will lead gains based on expanding US durables production and robust growth in coatings exports. Solid increases are also forecast for aerospace coatings due to gains in aircraft production and the maintenance requirements of the existing fleet. This study analyzes the $17 billion US paints and coatings industry to 2004 and 2009 by type and application. It also profiles key firms and evaluates market shares.
#1303. . . . . 8/00. . . . . $3,700

Insulation

Thermal and acoustical insulation demand in the US will reach $6 billion in 2004. The best growth will be found in appliance, equipment and HVAC uses, based on efforts to reduce energy use and machinery noise, and improve indoor air quality. Foamed plastic will be the fastest growing insulation material, with fiberglass remaining the largest type by weight. This study analyzes the US insulation industry to 2004 and 2009 by material, market and region. It also profiles key firms and presents market share data.
#1248. . . . . 4/0. . . . . $3,600

World Major Household Appliances

World demand for major household appliances will increase at a relatively healthy pace (by recent historical standards) through the early years of the new century, as recovering demand within the developing nations offsets generally sluggish growth within the mature markets of the industrialized world. This study analyzes the major household appliances industry to 2003 and 2008 by type and geographic region, and for over 20 individual countries. The study also presents market share and profiles selected companies.
#1218. . . . . 2/00. . . . . $4,400

World Plastic Pipe

World demand for plastic pipe will grow over 5% per year, driven by construction activity in Europe and Asia/Pacific, and rising use in conduit, drainage and sewers, and natural gas pipelines worldwide. Plastic pipe will supplant other materials based on its light weight, corrosion resistance and generally lower installation costs. This study analyzes the world plastic pipe industry to 2003 and 2008 by resin, geographic region and 21 major countries. The study also profiles key companies and presents market share data.
#1200. . . . . 12/99. . . . . $4,600

World Paints & Coatings

Current dollar gains in world paint and coating demand will exceed 4% annually. Water-based, powder, electrodeposition and radiation curable coatings will lead gains in the stronger growing industrial sector. In architectural paints, major trends include the ongoing shift to emulsion-based latex paints over solvent-based oil paints. This study examines the $64 billion world paint and coating industry to 2003 and 2008 by type, market, region and key country. It also profiles key firms and evaluates market shares.
#1183. . . . . 11/99. . . . . $4,300

Prefabricated Housing

The cost advantages of factory production will aid US demand for prefabricated housing, which will account for over one-third of all housing starts in 2003. Growth will be constrained, however, by a downturn in housing starts. Regional demand will rise fastest in the South, which accounted for over half of the market in 1998. This study analyzes the $20 billion US prefabricated housing industry to 2003 and 2008 by type, market and region. It also profiles key firms and presents market share data.
#1177. . . . . 10/99. . . . . $3,500

World Heavy Construction Equipment

World demand for construction machinery will grow nearly 6% annually, driven by further economic recovery in a number of Asian countries. European fixed investment will be helped in part by reduced cross-border transaction costs of a single currency, while some cyclical slowing will be found in the US and UK. This study analyzes the $70 billion world heavy construction equipment industry to 2003 and 2008 in over 40 countries and subregions. The study also details market share and profiles key firms.
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