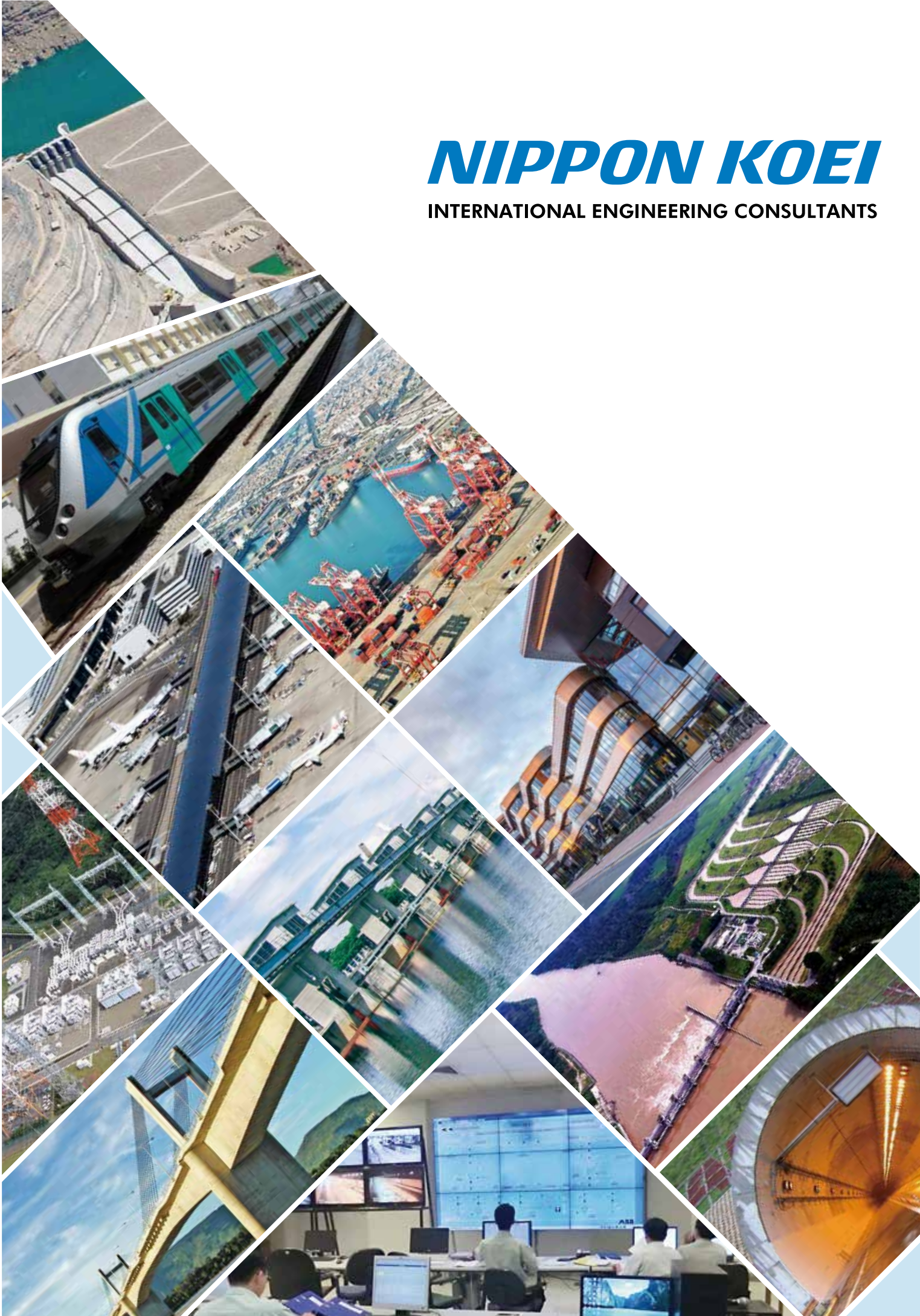


NIPPON KOEI

INTERNATIONAL ENGINEERING CONSULTANTS



Nippon Koei Offices Worldwide



For latest contact info go to website:
www.n-koei.co.jp/english/profile/company/network/

NIPPON KOEI

Company Overview

Nippon Koei is Japan's No.1 International Engineering Consultants.

Our project managers and engineers provide strong engineering solutions for our clients by planning, designing and supervising construction of infrastructure projects in the fields of energy generation, transportation infrastructure, water resources, environment, disaster management, agriculture & rural development, urban planning & architecture, and social & economic consultancy.

Over 75 years, Nippon Koei has worked on over 5,500 multi-disciplinary infrastructure projects in 160 countries all over the world.

Nippon Koei is the oldest independent consulting firm in Japan. We have been providing consulting services for economic development projects since 1946. We have a sound financial base with a total paid-in capital of over \$70 million.

Nippon Koei Group in Numbers

over
75
years in
business

Nippon Koei was established in June 1946 by international visionary Yutaka Kubota. The word "koei" is derived from the Japanese characters for "technology" and "management".

No.1
in sales

The scale of our business ranks number one among civil engineering consulting firms in Japan.

operations in
160
countries

We have conducted business in 160 countries over the years.

over
5,500
orders
per year

Nippon Koei's orders cover civil engineering consulting and power engineering businesses in both international and Japanese markets.

over
1,720
professional
engineers

With over 1,720 officially certified Professional Engineers we lead the industry in Japan and provide consulting services around the world.

over
6,160
employees

The Nippon Koei Group has 38 operating offices outside Japan, and employs a total of over 6,160 people (consolidated basis).

No.1
in the
industry

We are ranked as No.1* by virtue of our extensive participation in Japanese official development assistance (ODA) projects, throughout Asia but also in Africa, Middle East, Latin America and other regions.

* Source: Nikkei Construction, Apr. 26, 2021

over
80
patents

We now hold over 80 patents, which are applicable to various types of projects. Inventions come from our R&D Center, the only one of its size in the Japanese industry, where researchers make full use of numerical analysis, testing and experiments to advance civil engineering technologies.

4,070,500
ha
irrigated land*

*Supervision worldwide, about the area of Switzerland or Taiwan R.O.C. or Kyushu

5,600
km
railway track*

*Design and supervision worldwide, equivalent to the distance from New York City to London

13,300
km
power transmission lines*

*Supervision worldwide, over 1/4 of the circumference of the Earth

Core Competencies of Nippon Koei

Nippon Koei is a diversified consulting firm providing engineering solutions across a wide spectrum of disciplines that this brochure describes.

Energy Generation

- Hydropower
- Thermal Power Plants
- Power Transmission & Distribution Networks
- Rural Electrification
- Private Sector Hydropower
- Solar Power Generation
- Geothermal Power Generation

Transportation Infrastructure

- Railways
- Bridges
- Roads and ITS (Intelligent Transportation Systems)
- **Tunnels (NCC)**
- Transportation Planning
- Ports and Harbors & Coastal Area Works
- Airports & Aviation Services

Water Resources, Water Supply, Sewerage

- Water Resources Management
- Flood Management
- Water Supply
- Desalinization for Water Supply
- Sewerage
- Urban Drainage

Environmental Management & Disaster Management

- Environmental Management
- Environmental & Social Impact Study
- Climate Change Consulting
- Forest Management & Nature Conservation
- Solid Waste Management
- Disaster Management
- Earthquake & Tsunami Disaster Response & Preparedness
- Landslide Disaster Management

Agriculture & Rural Development

- Comprehensive Agriculture & Rural Development
- Technical Services for Irrigation Infrastructure
- Agricultural Support & Training Services
- Rural Empowerment & Institutional Development

Urban Planning & Architecture (BDP)

- Urban Planning
- Architecture

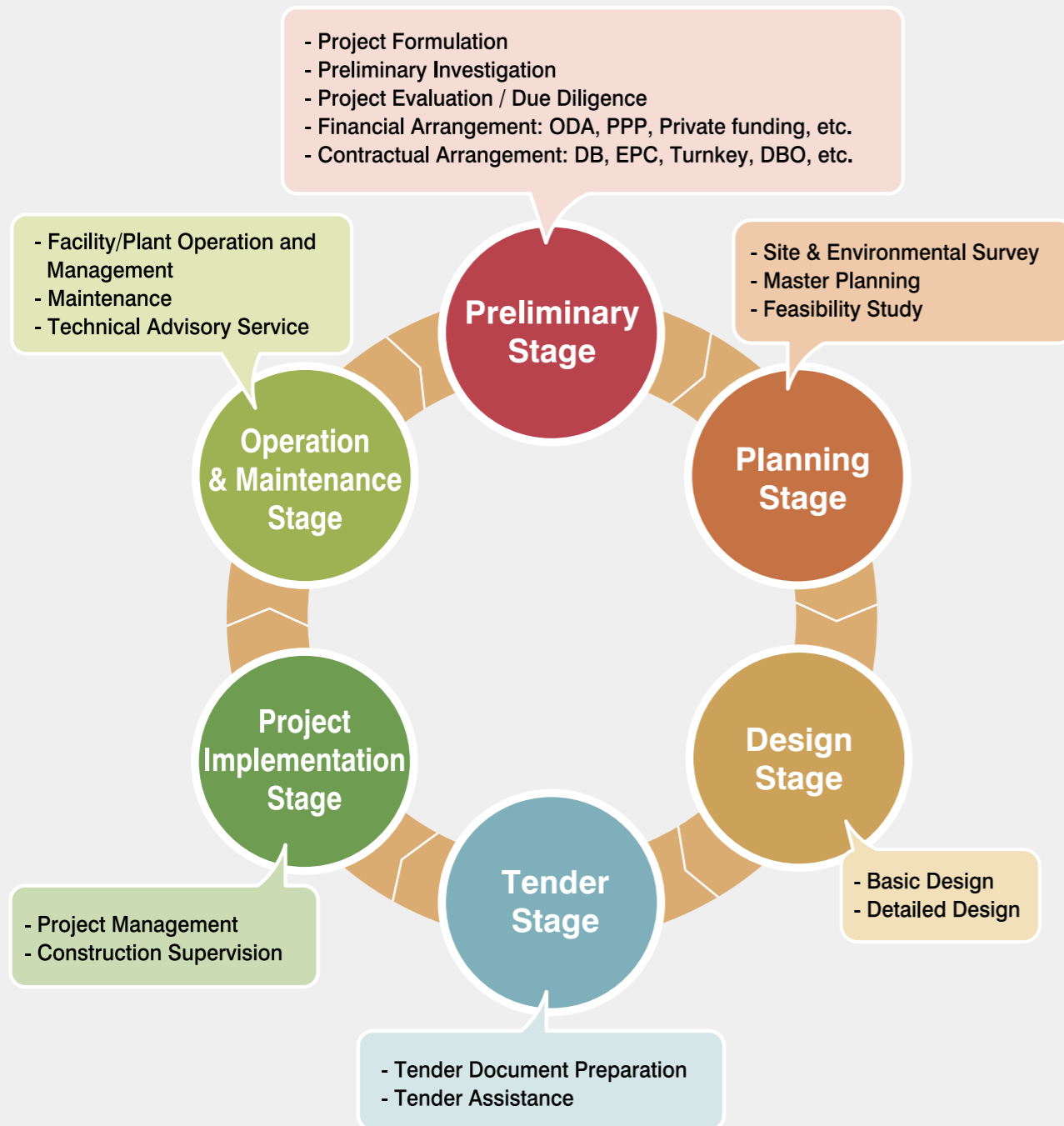
Social & Economic Consultancy (KRC)

- Development of Industrial Parks & SEZ
- Promotion of Economic Sector Development
- Accelerating Infrastructure Finance
- Ensuring Quality Education and Training for All
- Strengthening Technical and Vocational Education & Training (TVET)
- Upgrading to Universal Health Coverage (UHC) & Global Health (GH)
- Strengthening of Public Management
- Supporting Peace Building

Full Range of Project Management Services

We provide our clients with the highest quality engineering consulting services in all disciplines to take projects through all life-cycle stages from investigation to design, implementation and even operation.

Depending on project financial and contractual arrangement, we conduct all or a combination of the services shown here.

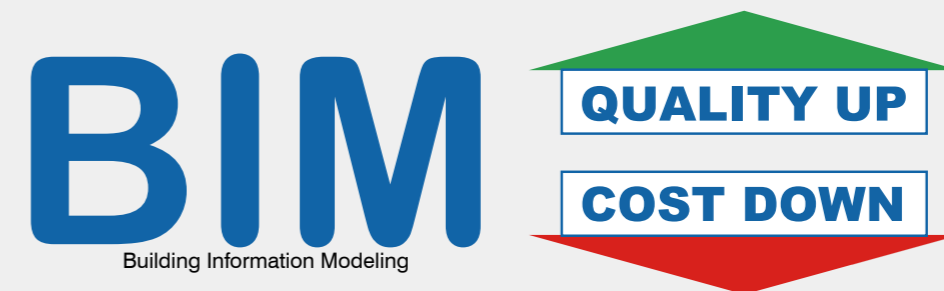


Commitment to Quality

We maintain the highest possible standards of professional expertise in valuation, design, procurement, construction supervision, and project management.

Even in the earliest phases of planning and project design, our recommended solutions are technically sound and economically feasible. When it comes to implementation, we constantly strive to deliver cost-effective designs and provide on-time commissioning. We place the client first and apply a strong teamwork approach in providing managerial support to all projects entrusted to us.

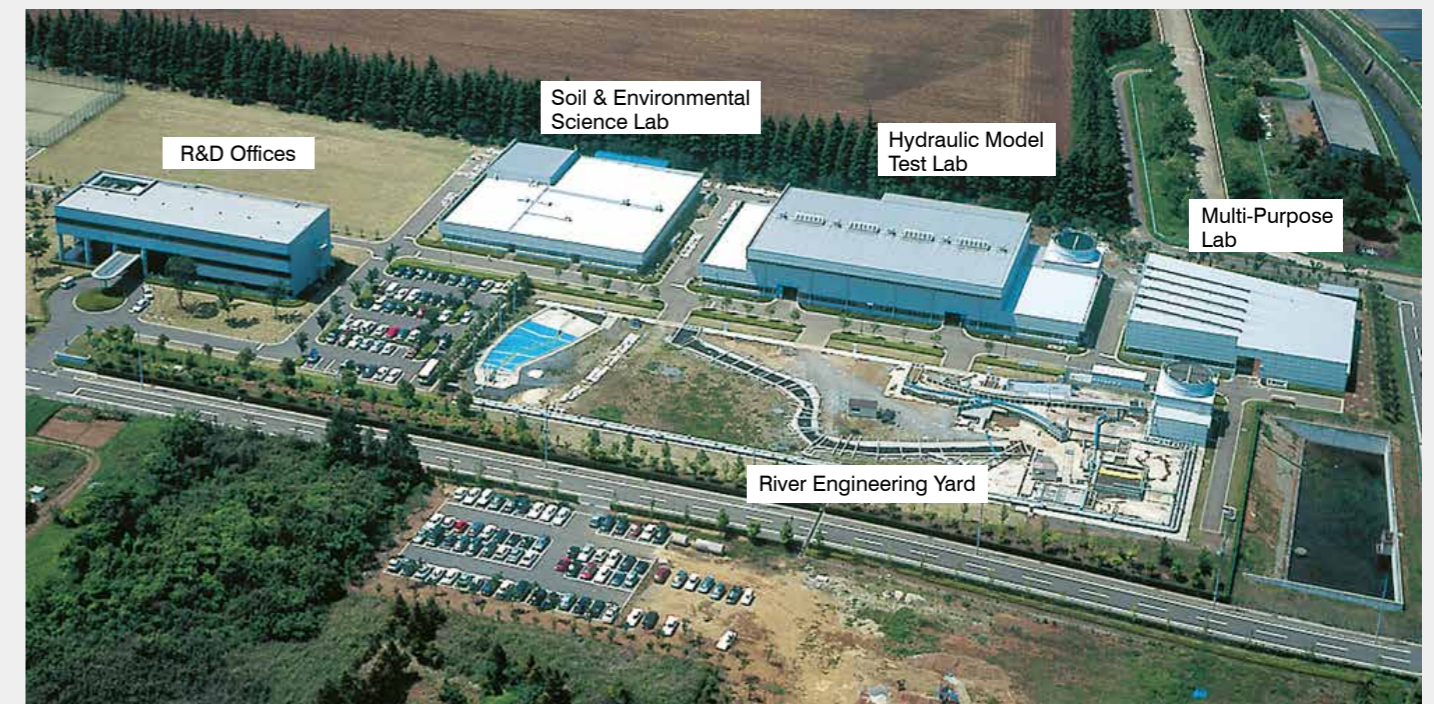
One of the high quality design tools we employ is BIM (Building Information Modeling). BIM is a technically-advanced tool used in the architecture, engineering, and construction (AEC) industry to achieve increased efficiency, increased awareness of the full project lifecycle and the increased control of workflows. It is used in almost all infrastructure areas including bridges, roads, and highways; rail transit and aviation; energy generation facilities and dams, as well as buildings. Our UK based affiliate, BDP, is a leader in BIM technology in the whole of Europe since it was the first company in the UK to be certified under BRE Global's BIM level 2 Business Systems Certification Scheme, and consequently were issued with certificate No.001.



Nippon Koei Research & Development Center

Nippon Koei has its own R&D state-of-the-art facility delivering high quality engineered solutions and appropriate countermeasures for the specific site conditions of our Clients by researching and developing new technology.

Our R&D Center, located on a 67,600 sq. meter site in Tsukuba Science City, integrates all Nippon Koei engineering research activities into one multi-disciplinary unit. Center specialists directly participate in projects, working closely with the Client's personnel at local laboratories and in the field for the development of most appropriate solutions and the transfer of technology to the Client personnel. The objective of the center is to constantly seek new engineering solutions and to make the good better, the fast faster, and the cost lower.



Nippon Koei's R&D Center located at Tsukuba Science City

Hydropower

Nippon Koei has a global track record of delivering hydropower dams and facilities. We have worked on more than 100 hydropower dams in 25 countries and have supervised construction of at least 50 of them with total 20,000 MW installed capacity.



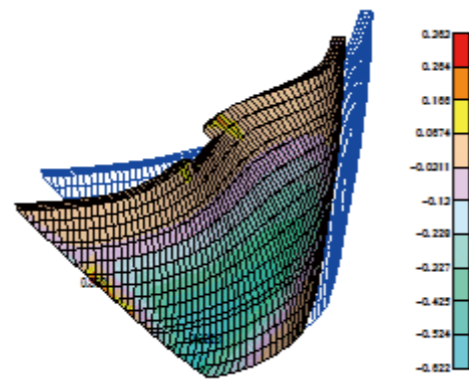
Intake weir for Sondu-Miriu Hydropower Project Kenya



Generator in Powerhouse for Son La Hydropower Project Vietnam



Asahan No.2 HPP, Indonesia



Seismic performance evaluation for dam (prepared by R&D Center)



Masjed-Soleyman HPP, Iran



Remedial works for Samanalawewa Rock fill dam, Sri Lanka

Expertise

Our Design knowledge and construction supervision experience covers all the kinds of hydropower stations and multipurpose dams.

We use the advanced tools and technologies in our own R&D Center to execute design works.

Types of Services

Dams and Intake Facilities: We evaluate alternative types of dams and intake facilities to match the actual site conditions and then to propose the most optimum one for the design.

Powerhouse: We adjust powerhouse requirements for civil, hydro-mechanical, and electro-mechanical technologies from design stage to construction stage.

Rehabilitation: We provide high quality engineering services to formulate rehabilitation plans based on the determined cause of damage, and then formulate expansion plans to suit the surrounding area.

Selected Project Experience by Installed Capacity Range

| Installed Capacity | Country | Name of Hydropower Project (HPP) | Type of Dam | Dam Height |
|--------------------|-------------|---|----------------|--------------|
| 7,100 MW | Pakistan | Bunji HPP | RCC Gravity | 200 m |
| 4,320 MW | Pakistan | Dasu HPP | RCC Gravity | 242 m |
| 2,400 MW | Vietnam | Son La HPP | RCC Gravity | 138 m |
| 2,000 MW | Iran | Masjed-Soleyman HPP | Rockfill | 100 m |
| 1,200 MW | China | Tianshengqiao No.1 HPP | CFRD | 175 m |
| 603 MW | Indonesia | Asahan No.2 HPP | Gravity & Arch | 82 m & 122 m |
| 600 MW | South Korea | Muju Pumped Storage PP | Rockfill | - |
| 400 MW | South Korea | Chungju Multipurpose Dam | CVC Gravity | 97 m |
| 160 MW | Vietnam | Da Nhim HPP | Earthfill Dam | 38 m |
| 120 MW | Lao PDR | Nam Ngum No.1 HPP | CVC Gravity | 75 m |
| 120 MW | Sri Lanka | Samanalawewa HPP (reservoir remedial works) | Rockfill | 100 m |
| 95 MW | Nepal | Kulekhani No.1 & No.2 HPP | Rockfill | 114 m |
| 60 MW | Kenya | Sondu-Miriu HPP | CVC Gravity | 18 m |
| 20 MW | China | Guanying Multipurpose Dam | RCD Gravity | 82 m |

Thermal Power Plants

Nippon Koei offers consulting services to clients in both the public and private sector for all types of thermal plants, be they conventional steam turbine, gas turbine and combined cycle or diesel. Our consulting services cover both implementing new thermal power facilities and rehabilitating old ones to provide reliable and stable power supply. We provide implementation for all project stages from planning, design, tendering to construction supervision and operation & maintenance (O&M).



Coal thermal power plant and turbine, Botswana



15 MW Diesel engine, Iraq



25 MW x 2Units, Gas turbine, Thilawa, Myanmar



33 MW x 4 Units, Coal fired Steam turbine, Morupule, Botswana

Expertise

Integrated Solutions Power Plant Consultant with a wide range of in-house experts to handle the special conditions that facilities may possibly require.

- **Port experts** for jetty planning and design when the thermal power plant is nearby the coast.

- **Railway experts** to plan the most suitable fuel supply for an inland thermal plant.

- **Water & sanitation experts** to find solutions for when a thermal plant is located far from water resources.

- **Social & environmental experts** to perform Environmental Impact Assessment (EIA) analysis and countermeasure planning.

Selected Project Experience

| Capacity | Type | Country | Project |
|--------------|---------------|-------------|--|
| 1,000 MW x 4 | Coal ST (USC) | India | Feasibility Study for Srikakulam Ultra Super Critical Coal Fired Power Plant for APGENCO (Andhra Pradesh State owned Power Generation Company) |
| 660 MW x 2 | Coal ST (USC) | Bangladesh | Construction Supervision for Matabari Ultra Super Critical Coal-Fired Power Project |
| 660 MW x 1 | Coal ST (USC) | Pakistan | Preparatory Survey for Lakhra Coal Thermal Power Plant Construction Project |
| 660 MW x 1 | Gas CHP | Uzbekistan | A High-Efficiency Cogeneration System Using Distributed Small to Medium-Size Gas Turbines (The Demonstration Project) |
| 200 MW x 1 | Oil ST | Iraq | Consulting Services for Hartha Thermal Power Station Rehabilitation Project |
| 100 MW x 2 | Coal ST | Philippines | Technical Due Diligence for 200MW class CFCB coal thermal power plant |
| 33 MW x 4 | Coal ST | Botswana | Preparatory Survey for Project for Morpule "A" Power Station Rehabilitation and Pollution Abatement |
| 25 MW x 2 | GT | Myanmar | Consulting Services for 25MW 2units Gas Turbine Construction Project in Thilawa SEZ |
| 25 MW x 1 | Gas CCGP | Myanmar | Feasibility Study on combined cycle power plant in Thilawa SEZ |
| 15 MW x 4 | Oil Diesel | Iraq | Project for construction of diesel power station |
| 5.8MW x 36 | Oil Diesel | Angola | Technical Advisory Service for Luanda City Power Plant for Angola Power Cooperation |
| — | Gas CCGP | Uzbekistan | Establishment of the Combined Cycle Gas Turbine (CCGT) Operation and Maintenance Training Center |

O&M: technical cooperation project for Operation and Maintenance, ST: Steam Turbine, CHP: Combined Heat and Power, USC: Ultra Super Critical, CCGP: Combined Cycle Power Plant

Power Transmission & Distribution Networks

Nippon Koei has more than 60 years experience in consulting services for development of power transmission networks in more than 40 countries. We have worked on a total of more than 13,000 km of transmission lines.



Brastage Substation, Indonesia



Mushviq Substation Baku, Azerbaijan



Transmission Project, Sri Lanka



Power Transmission & Distribution Networks

500 kV Sin Sakato Substation, Japan

Expertise

Extensive engineering services for power transmission network development.

Provision of reliable and stable power supply for economic growth of a country.

Network elements include overhead transmission lines, underground & marine cable lines, grid substations, and distribution lines that connect electric power generating stations and load consumption.

Types of Services

Experienced in all project stages allows us to evaluate and design transmission line routes and substation sites based on actual geographical and environmental conditions **In-house specialists** for all project stages.

Advanced tools and technologies for planning and design stages, such as PSS/E, DigSILENT, PS-CAD, E-TAP, and SIMDIST for network analysis, and PLS-TOWER, PLS-CADD for transmission line design.

Selected Project Experience showing Transmission Line Distance Range

| Line Distance | Country | Project |
|---------------|-------------|---|
| 1,106 km | India | Simhadri & Vizag Transmission System Project |
| 330 km | Vietnam | Ham Thuan - Da Mi Hydropower Project (with the Associated Transmission Line and Substations) |
| 322 km | Bangladesh | West Zone Power System Development Transmission Line Project |
| 300 km | Lao PDR | Greater Mekong Power Network Development Project |
| 240 km | Afghanistan | Emergency Infrastructure Rehabilitation and Reconstruction Project (Part B: Power Component) – Transmission Line Heiratan – Pule-Khumri |
| 200 km | Lao PDR | Southern Region Power System Development Project |
| 174 km | Sri Lanka | Transmission & Grid Substations Development Project |
| 102 km | Peru | Electric Frontier Expansion Project (II) |
| 64 km | Indonesia | Peusangan 1 & 2 Hydroelectric Power Development Project |
| 50 km | Kenya | Sondu/ Miriu Hydroelectric Power Project |
| 48 km | Nepal | Transmission Component of Rural Electrification, Distribution & Transmission Project |

Rural Electrification

Nippon Koei is a leader in bringing renewable energy & electrification to rural and remote areas to raise the quality of life and the educational level for children. We make use of renewable energy sources such as wind, solar and mini hydro generation not only for independent off-grid, but also for on-grid networks. We have completed projects in over 35 countries in Asia, Africa, and Latin America.

Selected Project Experience

- Bhutan** Green Power Development Project (Off-Grid Rural Electrification)
- India** Special Assistance for Project Formation for Renewable Energy Development Project
- Pakistan** Special Assistance for Project Sustainability for Rural Electrification Program
- El Salvador** Formulation of a National Renewable Energy Master Plan
- Peru** Master Plan Study for Rural Electrification by Renewable Energy in Republic of Peru
- Ghana** Preparatory Study for Master Plan on Rural Electrification Using Renewable Energy
- Kenya** Preparatory Survey for Renewable Energy Promotion Program in Africa (II)
- Georgia** Renewable Energy Development Project
- Mongolia** Rural Power Supply by Renewable Energy (Wind & Solar)



Rural Power Supply by hybrid Wind & Solar, Mongolia



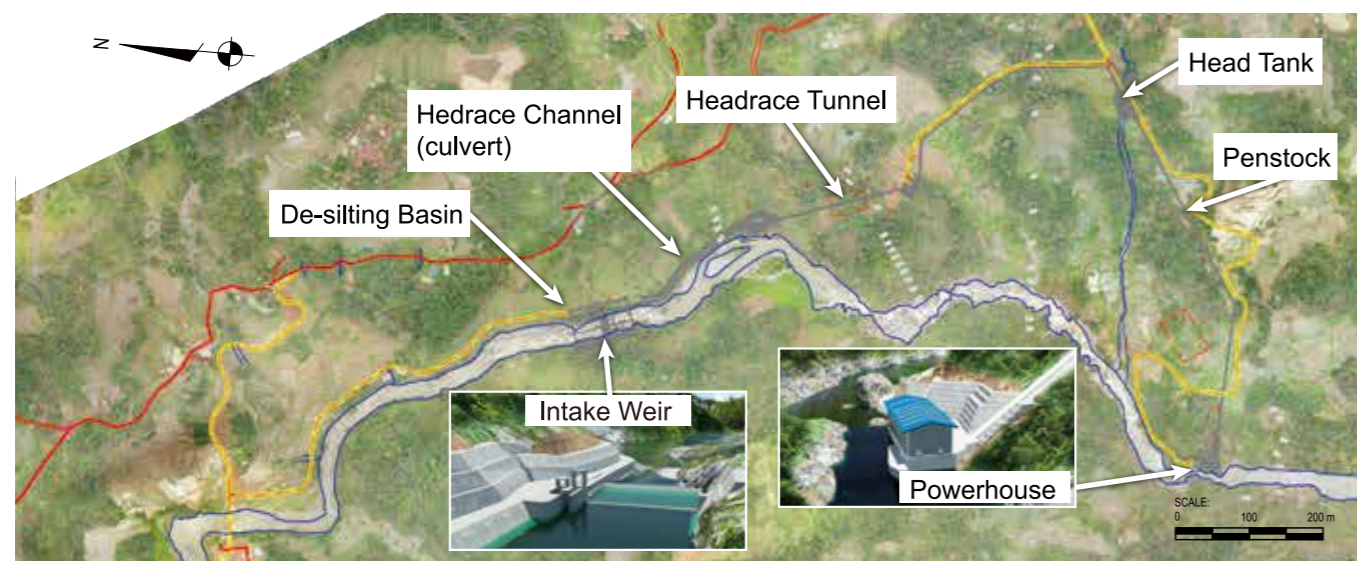
West Zone Power System Development, Bangladesh

IPP Hydropower

Nippon Koei provides all the know-how for private firms to become independent power producers (IPP). Our high quality technical services cover all the project stages (as shown below) that are necessary for private companies to develop IPP facilities. We have completed over 20 projects in this new field internationally and in Japan.



Shinsogi Mini Hydro Project, Japan



Layout map and 3D modelling of Cikaengan Mini Hydro Project, Indonesia

Our Services by Project Stage

| Project Stage | Our Services |
|-----------------|---|
| Site Evaluation | We assist site evaluation of the project from the technical point of view |
| Planning | We study and evaluate the feasibility of projects including consideration of financing such as Public Private Partnership (PPP) |
| Design | We design stable and economical structures based on structural analysis, stability calculation and hydraulic calculation |
| Construction | We provide technical advisory service such as structural calculation for economical design and proposal of countermeasures to construction problems |
| Assessment | We assess hydropower structures, propose improvement plan of operation and maintenance and provide rehabilitation plan for extension of life |
| Investment | We invest and manage small hydropower projects as Independent Power Producer (IPP) by using our sophisticated technologies and experience |

Solar Power Generation

Nippon Koei has managed projects from planning to commissioning through our comprehensive services based on our integrated expertise over more than 70 years. We have installed solar power generation facilities in developing countries around the world. Our services include proposing the best solution for connection to grid in view of financial aspect and also providing operation and maintenance instruction for the engineers who were not familiar with the facilities through lectures and on-the-job training at site.



Jordan solar project



Pakistan solar project

Selected Project Experience

- Indonesia** Rural Area Photovoltaic Hybrid Systems Utilization Study
- Lao PDR** Intl Joint Substantive Experiment & Development in Solar Power System
- Jordan** Reduction of Greenhouse gas and Economic Growth Compatibly through Solar
- Ghana** Human Resource Development for Disseminating PV System
- Madagascar-Namibia-Tanzania** Rural Electrification and Water Supply by Solar Power
- Brazil** Rural Electrification Project with Photovoltaic Technology
- Belize-Bolivia-Uruguay** Clean Energy Promotion Using Solar Photovoltaic System
- Lesotho-Malawi-Kazakhstan**

Geothermal Power Generation

Nippon Koei provides high quality geo-scientific and engineering consulting services to geothermal developers, investors, plant operators and financial institutions. Our services cover all life cycle stages from project formulation, investigation, financial arrangement, design and tendering, and even construction supervision and operation & maintenance.



Geothermal manifestation at Laguna Colorada geothermal power plant area, Bolivia



Geochemical survey at Tendaho geothermal area, Ethiopia



Geophysical survey at Hanle geothermal area, Dibouti

Services to Governments and Public Entities

- Establishing a national plan to introduce and promote geothermal energy development
- Establishing a national master plan for geothermal energy development

Services to Private Companies

- Assistance to formulate and promote geothermal power projects followed by pre feasibility study, drilling supervision, feasibility study, design and construction supervision
- Operation and maintenance of geothermal power plant as an Independent Power Producer

Selected Project Experience

- Indonesia** Prefeasibility Studies on Geothermal Power Development in East Nusa Tenggara
- Myanmar** Prefeasibility Studies on Binary Geothermal Project in Tachilei
- Djibouti** Data Collection Survey on Geothermal Development
- Ethiopia** The Project for Formulating Master Plan on Development of Geothermal Energy
- Bolivia** Laguna Colorada Geothermal Power Plant Construction Project
- Colombia** Prefeasibility Studies for Macizovolcanico del Ruiz Geothermal Field
- St Vincent & Grenada** Data Collection Survey on Geothermal Development

Railways

Nippon Koei offers a full range of engineering services to efficiently implement railway construction projects. Our experience covers the planning, development of new railways, rehabilitation and upgrading of existing railways, as well as the complex integration of railway subsystems.

TRANSPORTATION



NKDM Association (Nippon Koei-NK India-DMRC-MOTT UK-MOTT India-DDC)

Conceptual design of elevated station of Dhaka MRT Line 6, Bangladesh



3D Computer Graphic image of Panama Monorail



Western Dedicated Freight Corridor Project, Delhi-Mumbai, India
Viaduct with PSC girders span of 56 x 19.8m for WDFC



Track laid at LC No.72 near Bhagega

Services

Subsystems engineering study include telecommunications, signaling, traction power supply, train operation, depots and workshops, rolling stock, as well as interface control with the environment surrounding the railway.

Soft Component study such as institutional setup, restructuring, reform, safety, and efficiency enhancement of existing railway operators.

Selected Project Experience by Railway Type

MRT (Mass Rapid Transit)/ Urban Railway

- Indonesia** Jakarta MRT North-South Line Project
- Indonesia** Jakarta MRT East-West Line Project
- Thailand** Bangkok Blue Line Extension Project
- Vietnam** Ho Chi Minh City MRT Project
- Bangladesh** Dhaka MRT Line 5 and Line 6
- Pakistan** Karachi Circular Railway Project
- Egypt** Cairo Metro Line4 Project
- Tunisia** Tunis South Suburban Line Electrification Project

High Speed Railway & Shinkansen

- Vietnam** Hanoi-Ho Chi Minh City High Speed Railway Project
- India** Ahmedabad-Mumbai-Pune High Speed Railway Project

Electrification Project

- Tunisia** Tunis South Suburban Line Electrification Project

Intercity Railway

- Cambodia** Whole Cambodian Railway Rehabilitation Project
- Thailand** Denchai - Chiang Rai Railway Project
- India** Delhi-Mumbai Semi-High Speed Train Project

Freight Railway

- Indonesia** Coal Transportation Railway for Private Company
- India** Western Dedicated Freight Corridor Project (Delhi - Mumbai)
- Mongolia** East West New Line Project

Monorail/LRT

- India** Delhi Monorail Project
- Brazil** Sao Paulo Monorail Project
- Panama** Panama Monorail Project



Tunis South Suburban Line Electrification Project, Tunisia
(All Rights Reserved, SNCFT)



Construction of Ho Chi Minh MRT Line No.1, Vietnam

Bridges

Nippon Koei's bridge engineering expertise is second to none, with experience ranging from short-span, low-clearance bridges to long-span, high-elevation, structurally complex bridges crossing great rivers and straits, and congested junctions in urban areas. We have designed and built hundreds of bridges all over the world.



Rades-La Goulette Bridge, Tunisia



Design of Kushimoto Bridge, Japan

Expertise

Complex bridge projects such as those that cross major rivers, link islands, permit ship passage, face complex configuration constraints, and cross precipitous terrain.

Bridge types: concrete bridges, steel bridges, arch bridges, cable stayed bridges, etc.

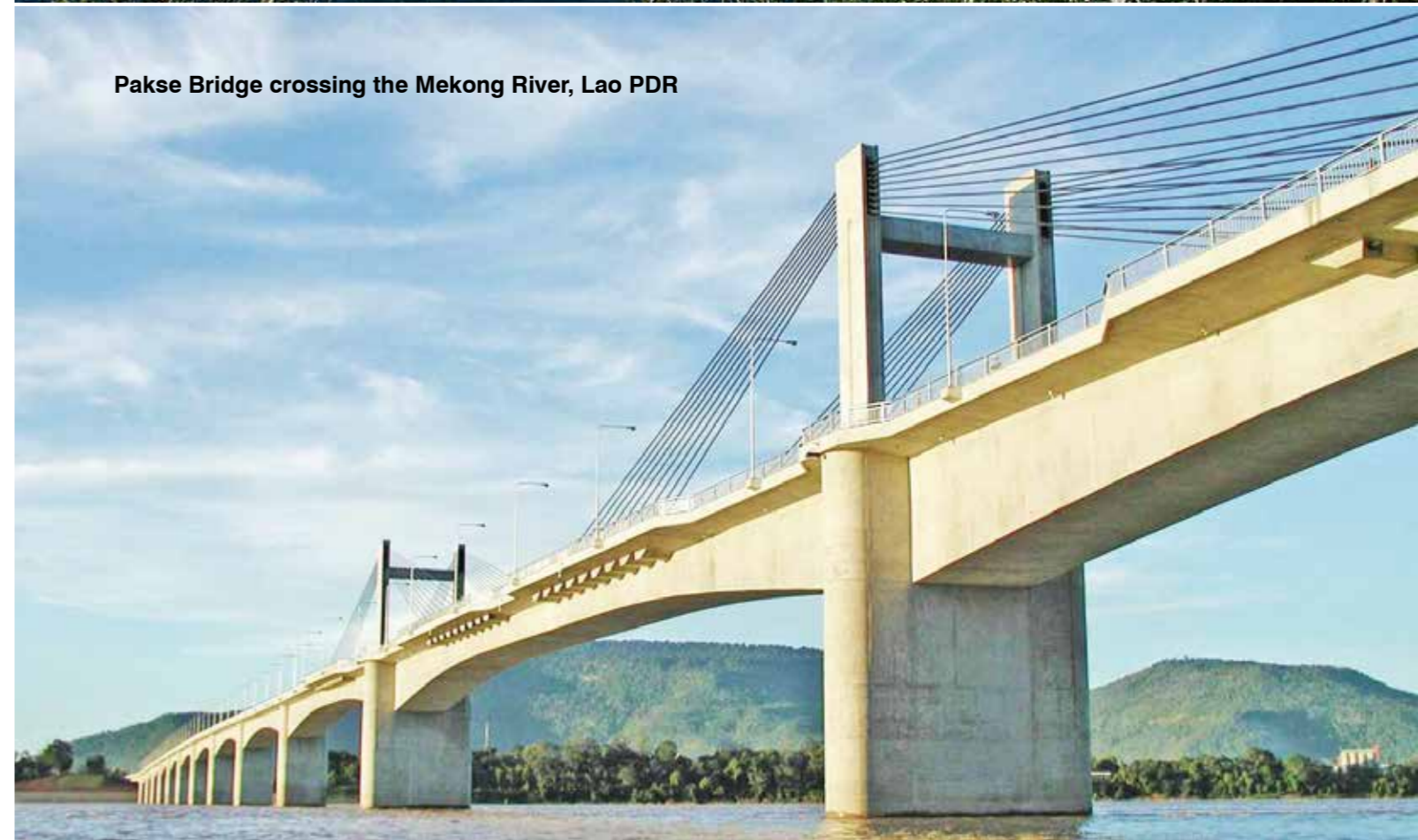
Recognition: Our bridges have been recognized for exceptional application of technology, engineering and aesthetic quality and safety.

In-depth Database: We maintain our own database of seismic activity, natural disasters, and weather conditions around the world including design capabilities of local firms.

Advanced Tools: We reinforce our own technical skills for design with advanced methods such as 3-D analysis, finite element method, dynamic analysis, and landscape simulation technology to create aesthetically pleasing bridges.

Selected Project Experience

| | |
|------------------------|---|
| Cambodia | Construction of Mekong Bridge |
| Lao PDR - Thailand | Second Mekong International Bridge Construction Project |
| Myanmar | New Thaketa Bridge Construction Project |
| Papua New Guinea | Rehabilitation of bridges on the Highlands Highway |
| Philippines | Rehabilitation and Maintenance of Bridges along Arterial Roads Projects |
| Vietnam | Can Tho Bridge Construction Project |
| Bangladesh | Meghna and Meghna Gumti Bridge Construction Project |
| India | Nizamuddin Bridge Construction on NH-24 |
| Sri Lanka | Construction of New Mannar Bridge and Improvement of Causeway |
| Jordan | Construction of King Hussein Bridge |
| Malawi | Mangochi Bridge Reconstruction Project |
| Tanzania-Rwanda | Construction of Rusumo International Bridge and One Stop Border Post Facilities |
| Ecuador - Peru | New Macara International Bridge Construction Project |
| El Salvador | Emergency Reconstruction of Bridges on Arterial Roads |
| Bosnia and Herzegovina | Construction of Dobož Bridge and Modrica Bridge |



Pakse Bridge crossing the Mekong River, Lao PDR

Roads

Nippon Koei has more than four decades of design and construction management experience from transcontinental highways, high-capacity high-speed urban highways and viaducts to rural roads. We have planned, designed and supervised construction of road projects in over 50 countries.

Key Strengths

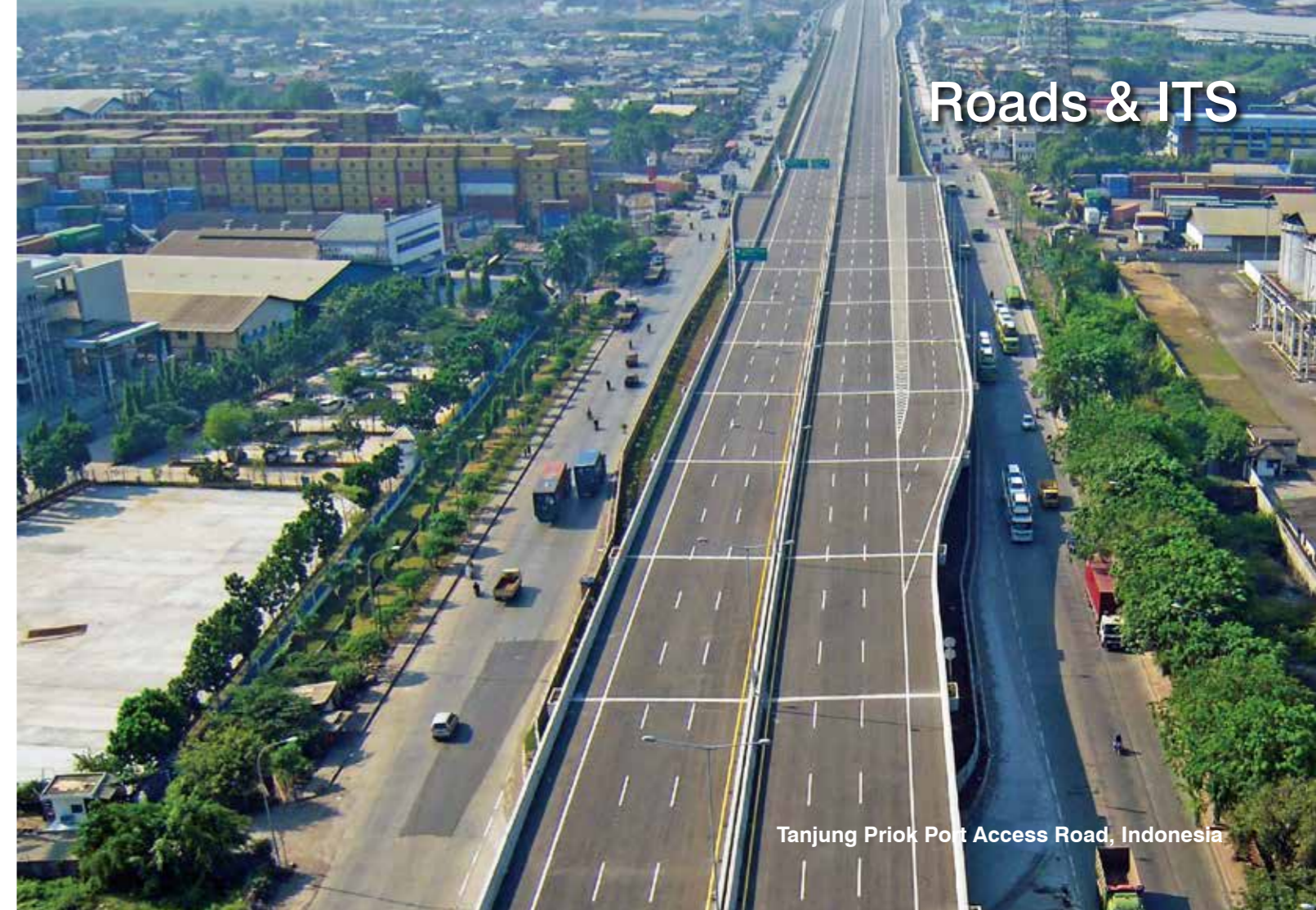
In-house pool of highly skilled engineers, years of accumulated experience and application of cutting-edge engineering technology in road and tunnel projects.

Rural Area Strengths

We focus to protect the social environment and road structures by the use of flood control and road disaster management.

Selected Project Experience

| | |
|--------------------|---|
| Philippines | Subic-Clark-Tarlac Expressway Project |
| Vietnam | North-South Expressway Construction Project |
| India | Construction of Eight Lane Expressway in Hyderabad City |
| Pakistan | Pakistan Transport Plan Study (Pilot Implementation) |
| Sri Lanka | Colombo Baseline Road Construction |
| Afghanistan | Kandahar- Kabul Road Construction |
| Morocco | Construction of the Mediterranean Bypass |
| Turkey | Bozüyük - Mekece Road Improvement Project |
| Swaziland | Northern Main Road Construction Project (MR 5 & MR 6) |
| Uganda | Kampala Flyover Construction and Road Upgrading Project |
| Kazakhstan | Western Kazakhstan Road Network Rehabilitation Project |



Roads & ITS

Tanjung Priok Port Access Road, Indonesia

ITS (Intelligent Transportation Systems)

Nippon Koei has provided complete ITS (Intelligent Transportation Systems) technology to allow mega-cities to address their transport problems such as chronic traffic congestion and accidents, air pollution, inadequate capacity of public transportation services, unregulated parking and poor logistics.



ITS equipment at Hai Van Tunnel Operation Control Center, Vietnam

ITS Services

Complete solutions for the road system to reduce inefficiencies in existing road infrastructure through dissemination of traffic information and improved traffic control. Our services include planning, design and construction supervision works for ITS implementation.

ITS Elements

- Traffic monitoring
- Control and management system
- Electronic toll collection system (ETC)
- Fiber optic and wireless network systems.

Selected Project Experience

| Country | Project | MP* | TMS* | HTMS* |
|------------------|---|-----|------|-------|
| Indonesia | Tanjung Priok Access Road Construction Project Phase I | | ● | ● |
| Vietnam | North-South Expressway Construction Project (HCMC - Dau Giay Section) | | ● | ● |
| India | Introduction of ITS on Road Network in Hyderabad Metropolitan Area | ● | ● | ● |
| India | The Master Plan Study on the Intelligent Transport System (ITS) in Bengaluru and Mysore | ● | | |
| Brazil | Introduction of Intelligent Transport Systems | ● | | |
| Japan | Electronic Communication Facilities for the ITS in Toyooka Area | | | ● |

*Notes: MP = ITS Mater Plan, TMS = Toll Management System, HTMS = Highway Traffic Management System



Sindhuli mountain road, Nepal

Tunnels

Nippon Koei together with its tunnel specialist subsidiary Nippon Civic Consulting Engineers (NCC), are leaders in the field of tunnel engineering and engineering solutions to natural obstacles, offering total tunnel solutions all over the world. It is noteworthy that our tunnels in Japan survived without any major damage during the massive Tohoku and Hanshin Earthquakes.



Hai Van Tunnel, Vietnam

Specialties

TBM shield tunnels, immersed-tube tunnels, and cut-and-cover underground structures in urban areas as well as conventional tunnels through hills and mountains.

We excel at designing shield tunnel segment linings in technically challenging settings that require special tunneling machines such as the Multi-Face (MF) and rectangular types.

Our tunnels always address the six basic quality concerns: security, 100- years durability, earthquake-resistance, load capacity, waterproofing, and fire-resistance.

NCC is the only company in Japan offering technical support for an advanced monitoring system that underpins maintenance management and ensures tunnel durability.

About NCC

For over half a century, NCC has worked in countless tunnel projects for roads, railways, underground reservoirs, waterways, drainage, common-ducts, and pipelines across Japan, Asia, Europe, and Africa.

We cover all project phases from the design of tunnel management systems and traffic control equipment for securing user safety and smooth traffic operations in the vicinity of the tunnel and the wider road network.

We also provide rational repair and reinforcement of existing tunnels to extend their economic life. We are active in research and development for the continual advancement of the technology used in their construction.



Tokyo Rinkai Immersed Tube Tunnel, Japan



Rehabilitation of Ahmed Hamdi Tunnel under Suez Canal, Egypt



Bosphorus Straits (Marmaray) Shield Tunnel, Turkey

Selected Project Experience

| | |
|------------------|--|
| Indonesia | Basic design of Jakarta Mass Rapid Transit System, South-North Line |
| Thailand | Construction supervision of MRT Blue Line Extension construction project |
| Vietnam | Hai Van Tunnel, and Basic Design of Ho Chi Minh City Urban Mass Rapid Transit (UMRT) Line-1 |
| Egypt | Subway Line No.4 from middle Cairo to Pyramids area, passing under the Nile River, Rehabilitation of Ahmed Hamdi Tunnel under Suez Canal |
| Qatar | Feasibility study of Abu Hamour sewage tunnel |
| Turkey | Detailed design railway immersed tunnel under Bosphorus Strait |
| Brazil | Technical advisor of tender documents of San Paolo Metro Line No. 4 |
| China | Verification of the detailed design of Shanghai Metro, Yangpu Line |
| Japan | Tokyo Bay Aqua-Line Expressway Tunnel & Tokyo Port Seaside Road Tunnel |
| Korea | Technical advisory services of Seoul Metro Line No. 7 |

Transportation Planning

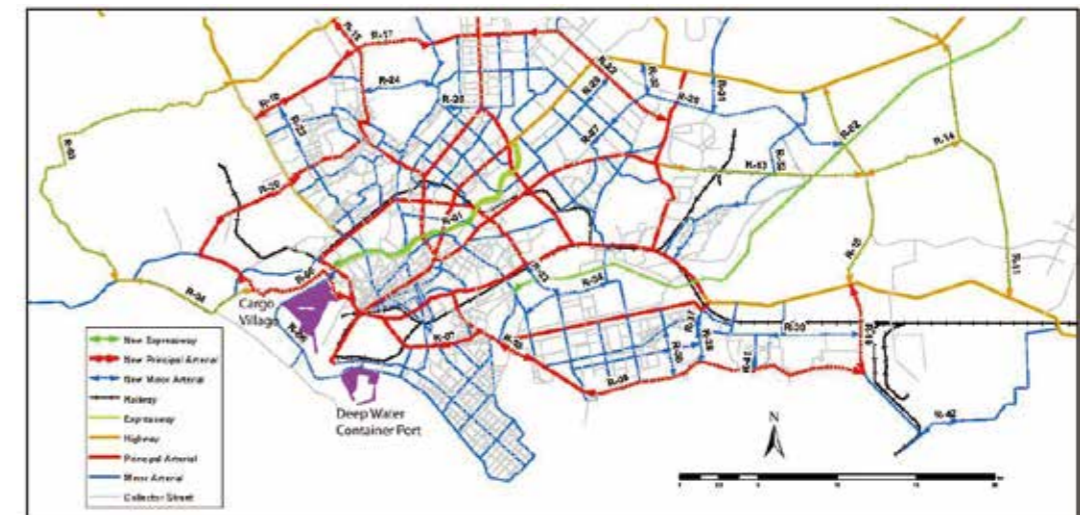
Nippon Koei's comprehensive technical knowledge of all modes of transport including roads, railways, airports and sea ports as well as logistics, etc. positions us to solve the problems associated with transportation systems such as traffic congestion, unregulated transport operation by the public, and insufficient traffic management.



Improved road system capacity in Hanoi, Vietnam to cope with rapid population and vehicle growth

Services

- Formulation of road traffic master planning with a view of the future city image, and support for formulation of road network and public transport network plan.
- Enhance and strengthen the traffic and transport capability of officials and technicians.
- Various technical services related to road traffic planning, such as forecasting and evaluating for the effects of road improvement, analysis of traffic/logistics movement, consideration of traffic management measures, traffic safety program and public transport planning.



Plan for Road Network 2030 and Deep Water Container Port for Karachi, Pakistan (source: JICA study report)

Selected Project Experience

| Country | Project | Road | Bus/Rail | Airport | Port |
|-------------------|---|------|----------|---------|------|
| Indonesia | Master Plan Study on Multiple-Airport Development for Greater Jakarta Metropolitan Area | | | ● | |
| Myanmar | Disaster Rehabilitation and Disaster Prevention Measures of Yangon Port | | | | ● |
| Bangladesh | Dhaka Integrated Traffic Management Project | | | | |
| Pakistan | Planned for Road Network 2030 and Deep Water Container Port for Karachi | ● | ● | | |
| Pakistan | Industry Development (Investment Climate Improvement in Karachi) | ● | | | |
| Nicaragua | Project for Urban Development Master Plan for Managua City | ● | ● | | |

Ports and Harbors & Coastal Area Works

Nippon Koei is a leading Port consultant. We have completed over 50 major ports expansion projects including national port planning, container terminals, general/bulk/industrial cargo ports for oil & gas, coal, LNG, etc., and fishery harbors. We also implement conservation of coastal areas and beaches, and development of inland waterway transport networks.

TRANSPORTATION



Lach Huyen Port Construction Project, Vietnam (on-going) (source: JICA study report)



Callao Port, Peru

Services

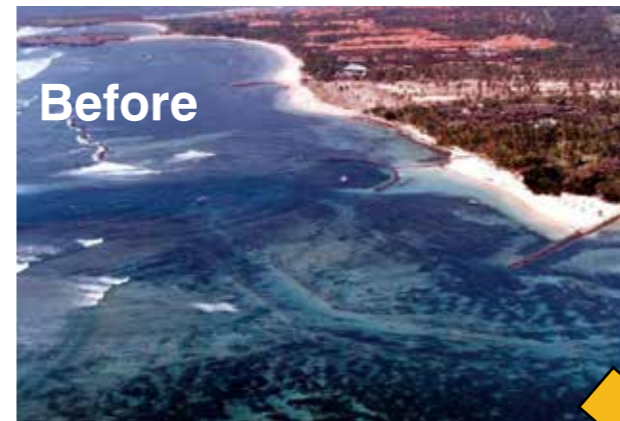
- Port planning, survey, feasibility study, basic and detailed designs, tender document preparation, and construction supervision.
- Disaster risk management services for ports and waterfront residences.

Advanced Technology

Nippon Koei maintains its own R&D Center with hydraulic model and laboratory for mathematical models simulations, and tsunami, cyclone, and ship movement simulations.

Selected Project Experience by Category

| | | |
|---|-------------|--|
| Port Expansion | East Timor | Dili Port |
| | Indonesia | Tanjung Priok & Ujung Pandang Ports |
| | Philippines | Feeder Ports |
| | El Salvador | La Union Port |
| | Peru | Callao Port |
| | Iraq | Umm Qasr & Khor Al-Zubayr Ports |
| Container Terminal | Cameroon | Douala Port Container Terminal |
| | Croatia | Rijeka Port |
| | Myanmar | Yangon Port (Thilawa) |
| General/Bulk/Industrial Cargo Port Development | Vietnam | Hai Phong Port, Van Phong Intl Transshipment Terminal, Cai Mep-Thi Vai Intl & Lack Huyen Ports |
| | Cambodia | Sihanoukville Port |
| | Thailand | Map Ta Phut Industrial Port |
| | Bangladesh | Matarbari Coal Power, Matarbari Port |
| | Brazil | Itaqui Port & Pecem Port |
| Coastal Area Development | Uruguay | LNG Receiving Port |
| | Indonesia | Bali Beach Conservation |
| | Tuvalu | Pilot Gravel Beach Nourishment against Coastal Disaster |
| | Mauritius | Coastal Protection and Rehabilitation |
| Disaster Risk Management | Indonesia | Ache Province and Affected Area in Northern Sumatra |
| | Myanmar | Yangon Port and Main Inland Water Transport |
| | Maldives | Tsunami Recovery, Rehabilitation and Development |
| | Sri Lanka | Tsunami Affected Area of Southern Region |
| Fishery Port Development | Indonesia | Larantuka Fishery Harbour |
| | Sri Lanka | Galle and Tangalle Fishery Harbors |
| | Tanzania | Dar es Salaam Fish Market Complex |



Before

Coastal Area Works



After

Restoration of sandy beach and improvement of landscape and usage of beach (Nusa Dua, Bali)

Airports & Aviation Services

Nippon Koei is particularly experienced in the field of Airport engineering having planned and engineered over 70 airport projects in 30 countries.



Mandalay International Airport, Myanmar



Kansai International Airport, Japan
(Photo: Kansai Airports)

Services

- **Our comprehensive engineering approach** is based on dependable project formulation, interdisciplinary expertise, and advanced technology that takes account of impacts other economic sectors such as urban and regional development, industry, tourism, and the environment.
- **Our management.** We manage total aviation services such as field surveys and investigations, planning, pre-feasibility, and feasibility studies, traffic demand forecasts, navigation procedure planning, economic and financial analysis, environmental and social assessments, computer-aided simulation analyses, detailed design, construction supervision, and transfer of technology.

Expertise

We have worked on projects and engineered new construction, expansion, and modernization of airports of various categories and capacities, from domestic and regional to international airports handling various types and sizes of aircraft.

We also have planned and designed:

- Airport civil engineering facilities
- Buildings
- Satellite Communication/ Navigation/ Surveillance (CNS)
- Air Traffic Management (ATM) facilities
- Aviation security including rescue fire fighting (RFF) facilities
- Other service facilities

Selected Project Experience by Project Type

New Airport Development

| | |
|-------------------|--|
| Indonesia | Jakarta Metropolitan Multiple Airport Development (New Karawang International Airport) |
| Myanmar | New Hanthawaddy International Airport |
| PNG | New Rabaul Airport |
| Thailand | Don Meuang & Suvarnabhumi International Airports |
| Bangladesh | Bangabandhu Sheikh Mujib International Airport |
| India | New Dholera International Airport |
| Guatemala | New Guatemala City International Airport |
| China | Shanghai Pudong International Airport |

Transport Master Plan

| | |
|-----------------|--|
| ASEAN | ASEAN Strategic Transport Plan |
| Tanzania | Comprehensive Transport and Trade System |

CNS/ATM

| | |
|---|---|
| Myanmar | Improvement of Nationwide Airport Safety and Security |
| Philippines, Vietnam, Lao PDR, Cambodia etc. | |

Improvement of Existing Airport

| | |
|-------------------|--|
| Indonesia | Makassar International Airport |
| Lao PDR | Vientiane International Airport |
| Myanmar | Mandalay International Airport |
| Vietnam | Tan Son Nhut International Airport |
| Bangladesh | Hazrat Shahjalal International Airport |
| Sri Lanka | Bandaranaika International Airport |
| Kenya | Jomo Kenyatta International Airport |
| Madagascar | Ivato International Airport |
| Micronesia | Phonpei International Airport |
| Ukraine | Boryspil International Airport |
| Japan | Narita International Airport |
| Japan | Tokyo International Airport (Haneda Airport) |
| Japan | Kansai International Airport |

Aviation Security

| | |
|------------------|---|
| Indonesia | Improvement of Nationwide Airport Safety and Security |
| Indonesia | Contingency Exercises on Airport Security |



Pohnpei International Airport, Micronesia

Water Resources Management

Nippon Koei has over 60 years experience in executing projects for water resources development and management projects. We have formulated nationwide water resources development master plans for Korea, Malaysia, Philippines, Vietnam, Kenya, etc. and have implemented hundreds of water resources projects all over the world.

Expertise

Our expertise in the water resources services ranges from water policies, legislation and institutional reforms to design and implementation of water resources facilities such as dams, barrages, and sluice gates.

Services

- **Comprehensive water resources development and management plans** from small river basin to national level for optimum use of water resources and ecosystem conservation under the concept of Integrated Water Resources Management (IWRM).
- **Win-win solutions among stakeholders** including local communities, central and local government, NGOs and private sector.
- We propose and implement **adaptation and mitigation alternatives** to address climate change issues including drought and flooding.

Selected Project Experience

Integrated Water Resources Management

- Indonesia** Citarum River Basin, Brantas River Basin
- Philippines** Pampanga River Basin & Bicol River Basin
- Bangladesh** Whole Delta River Basin
- Pakistan** Munda Dam
- Macedonia** All River Basins

Water Resources Existing Facilities Rehabilitation

- Indonesia** Brantas and Solo River Basin

Water Transmission Projects

- Malaysia** Pahang - Selangor Raw Water Transfer Project
- Ecuador** Chone-Portoviejo River Basin Water Resource Development

Climate Change Impact Project

- Indonesia** Brantas and Musi River Basin



Perjaya Headworks, Komerung Irrigation Project, Indonesia

Flood Management

Nippon Koei is highly experienced and possesses specialized expertise in the field of flood damage mitigation. We have solved a diverse array of flood damage problems through both structural and non-structural measures.

Non-structural measures have aimed at alleviating flood damages and building community disaster management system have included land use management, land improvement and resettlement, flood forecasting and warning & evacuation systems, and training and education of local engineers and residents

Structural measures for flood management schemes have included dams, retarding basins, river improvement, diversion floodways, channel widening and drainage improvement. We use multi-sector approach considering forest and cropland protection on upper basin to mitigate flood water on lower basin.



Warning Center for Flood Control Dam, Philippines

Selected Project Experience

River Improvement Project

- Indonesia** Solo River & Madiun River
- Philippines** Pampanga River & Agusan River
- Brazil** Itajai River

Disaster Prevention Project

- Philippines** Mt. Pinatubo & Mt. Mayon
- Nepal** Kulekhani River Basin

Flood Management and Mitigation Project

- Philippines** Agno, Cagayan, and Cavite River Basin
- Sri Lanka** South Western Area
- Tunisia** Mejerda River Basin

Flood Forecasting and Warning System

- Philippines** Agno, Bicol, Cagayan & Pampanga River Basins
- Bangladesh** Whole Country

Countermeasures for Sedimentation Project

- Indonesia** Wonogiri Dam, Brantas River Basin
- Philippines** Taarlac River



Intake, Lower Solo Improvement Project, Indonesia

Water Supply

Nippon Koei has engineered planning, design and construction supervision of wide range of urban and rural water supply facilities including water intakes, water transmission pipelines, pumping stations, reservoirs, water treatment plants and distribution networks in more than 20 countries.



Huachipa Water Treatment Plant, Peru

Services

- Hydro-geological study (groundwater development)
- Community development
- Technical transfer / training
- Institutional development
- NRW (Non Revenue Water) and leakage water reduction programs
- Asset information management
- Water tariff structural study
- Advisory service for water business management and efficient facility operation
- Formulation of PPP (Public and Private Partnership) projects
- Consulting services for financial, environmental, social and institutional issues
- Urban area planning
- Water resource development related to water supply projects

Selected Project Experience

- Indonesia** Water Supply in Gunungkidul Regency of Yogyakarta Special Territory
- Philippines** Water Supply and Sewerage System Development in West Zone of Metro Manila (PPP Study)
- Vietnam** Nhon Trach Water Supply Project (Phase-1 and Phase-2)
- India** Hogenakkal Water Supply & Fluorosis Mitigation Project
- Jamaica** The Kingston Metropolitan Area Water Supply Project
- Peru** Lima Marginal Areas Sanitary Improvement Project (Phases I, II and Huachipa System)
- Peru** Study for Development of Water Supply and Sanitation System in Amazon
- Libya** Great Man-made River Project
- Morocco** Morocco Rural Water Supply
- Turkey** Greater Istanbul Water Supply II - Melen System
- Japan** Kohoku Reservoir and Pumping Station Construction Project

Desalination for Water Supply

Nippon Koei has provided planning and design for desalination plant projects in Africa, Middle East and India with the capacity of 40 to 400 MLD. The facilities included intake, pre-treatment (membrane, sand filter), high pressure pump and RO filter.

Selected Project Experience

- Indonesia** Water Supply in Gunungkidul Regency of Yogyakarta Special Territory
- India** Preparatory Survey for Seawater Desalination Plant Project in Chennai (400 MLD)
- Maghreb** Data Collection Survey on Infrastructure Development in Maghreb Region
- Cape Verde** Water Supply System Development Project in Santiago Island (20 x 2 MLD)
- Senegal** Preparatory Survey for Mamelles Seawater Desalination Plant Construction Project (100MLD)
- Sub-Saharan Africa** Survey on Feasibility of Desalination Projects in Sub-Saharan Africa
- Other Countries** Advisory Services for Desalination Plant Project in South Africa (100 MLD)



RO Unit, Water Supply System Development Project in Santiago Island, Cape Verde

Sewerage

Nippon Koei has engineered planning, design and construction supervision of wide range of sewerage facilities including trunk sewers, pumping stations and wastewater treatment plants in many countries on five continents.



Juan Diaz Wastewater Treatment Plant, Panama City and Bay Sanitation Project, Panama

Services

Water quality simulation of public water bodies, diagnosis and reinforcement design of existing sewer lines, asset information management, sewerage tariff structural study, advisory service for efficient facility operations, and formulation of PPP (Public and Private Partnership) projects.

We also offer consulting services for financial, environmental, social and institutional issues related to the project implementation and O&M.

Expertise

Our staff have extensive expertise in water environment conservation, hydrology, hydraulics, structural design including anti-earthquake design, soil mechanical engineering, treatment process design, mechanical/ electrical design and project management.

Selected Project Experience

- Indonesia** Greenland International Industrial Center (Advisory Service for Basic Design and Detailed Design)
- Thailand** Study on Water Recycle Project for Water Supply in Pattaya
Sewage Sludge Treatment/Disposal and Reclaimed Wastewater Reuse
- Vietnam** PPP Study on Project for Yen Xa Wastewater Treatment Plant
Drainage Project for Environment Improvement in Hanoi (Stage-1, Truc Bach, Kim Lien WWTP)
Drainage Project for Environment Improvement in Hanoi (Stage-2, Bay Mau WWTP)
Hai Phong City Environmental Improvement Project (I)
Ha Long City Water Environment Improvement Project
- Morocco** Sewage System Development Project (Phase I & II)
- Qatar** Doha West Sewage Treatment Works Project
- Panama** Panama City and Bay Sanitation Project
- Peru** Supervision for the Design, Construction and Commissioning of the Works for the Taboada Wastewater Treatment Plant, Taboada
- Ukraine** Bortnychi Sewage Treatment Plant Modernization Project
- Japan** Water Quality Simulation and Projection of Tokyo Bay

Inventions

Nippon Koei is not only applying advanced technology, we are inventing it.

- To prevent the overflow of trash into public water bodies during rainfall, we have invented the combined sewer overflow (CSO) control device. It is increasingly being applied in Japan, Korea and European countries since it has no power requirement, and has easy maintenance and low initial and O&M costs.
- Another device can prevent sedimentation and clogging in sewer pipes by using water pressure to automatically topple the gate and flush the system. The flush gate (our invention) is installed in manholes and is being applied in Japan and Southeast Asian countries to ease O&M pipeline work.

Urban Drainage

Nippon Koei is well-known in planning, design and construction supervision of large-scale urban drainage systems including drainage channels, culverts, storage facilities, control gates, and pumping stations in more than 15 countries.



Drainage Pumping Station (90 m³/s), Drainage Project for Environment Improvement in Hanoi, Vietnam

Services

- Rainfall and runoff analysis
- Drainage network modeling
- Flood simulation
- Planning and design for drainage system
- Advisory service for efficient facility operations
- Environmental, social and institutional issues related to the project implementation and O&M

Expertise

We have extensive expertise in large-scale deep underground structures such as:

- Shield tunnels
- Underground rivers
- Underground storm water reservoirs (as big as 8.5 m diameter, 45 m depth and 1500 m length)
- Large scale drainage pumping station (90 m³/s).

We also are experienced in the fields of urban area planning, hydrology, hydraulics, structural design including anti-earthquake design, soil mechanical engineering, mechanical/electrical design and project management.



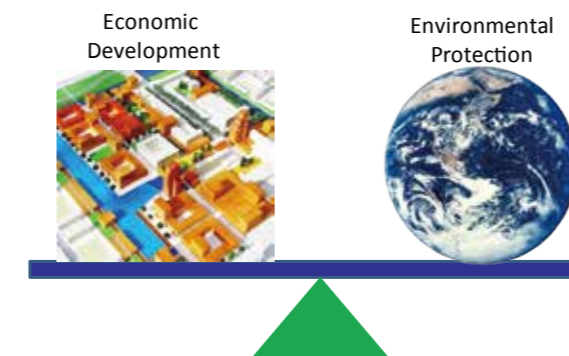
Drainage Pipe Installation, Greater Colombo Flood Control & Environmental Improvement Project, Sri Lanka

Selected Urban Drainage Projects

| | |
|------------------|---|
| Indonesia | Plan for Major Drainage and Small lakes Management in Jabodetabek Bopumjurb Area |
| Vietnam | Drainage Project for Environment Improvement in Hanoi (Stage 1&2) |
| Vietnam | Construction Investment of Sewerage and Drainage Components under Haiphong City Environment Improvement Project |
| Vietnam | Hai Phong City Environmental Improvement Project (I) |
| Vietnam | Second Ho Chi Minh City Water Environment Improvement Project |
| Sri Lanka | Greater Colombo Flood Control & Environmental Improvement Project (Phases 1, 2 and 3) |
| Bolivia | Master Plan for Pruvial Drainage in La Paz |
| | Study on Construction of Underground Flood Retention Ponds in DKI Jakarta |
| Japan | Egawa Stormwater Storage Tunnel Construction Project |
| | Samezu-Katsushima Wastewater and Stormwater Pumping Stations Construction Project |

Environmental Management

Nippon Koei has prepared sound policies that strike the delicate balance of environmental protection with economic development. Where development is moving at a rapid pace, we plan to minimize environmental degradation. Where environmental degradation has already occurred, we make plans for remediation so that areas become safe for development.



Services

Nippon Koei is well-known worldwide for the quality of its consulting services in environmental management, water, air, land/soil, as well as addressing global environmental issues such as climate change. Our services include capacity development for relevant administrators and stakeholders concerned with environmental management.

Expetise

We have in-house specialists in the various environmental fields required for all types of environmental management projects to propose proactive measures to avoid significant irreversible negative effects, and reverse environmental degradation.

Selected Urban Drainage Projects

| | |
|------------------|--|
| Indonesia | Project on Strengthening Environmental Management Capacity of Local Governments |
| Myanmar | Project for Capacity Development in Basic Water Environmental Management and EIA System in Myanmar |
| Vietnam | Project for Strengthening Capacity of Water Environmental Management in River Basin |
| Vietnam | Project for Green Growth Promotion in Halong Bay Area, Quang Ninh Province |
| Egypt | Regional Environmental Management Improvement Project |
| Kenya | Project for Improvement of Environmental Management Capacity in Nakuru |
| Uruguay | Project on Water Pollution Control and Management of Water Quality in the Santa Lucia River Basin |

Environmental & Social Impact Study

Nippon Koei has conducted a wide range of environmental and social impact studies in the planning and design stages of many types of infrastructure development projects to avoid or mitigate negative impacts from projects.

Services

We offer a wide spectrum of expert knowledge covering fauna and flora, air, water and soil quality, anthropology, sociology, and rural development to solve environmental issues in a project.

Expertise

We ensure the efficient implementation of infrastructure projects and the acquisition of their environmental clearance all over the world based on our long-term experience in environmental, social, safety and health impact studies, particularly:

- Strategic Environmental Assessment (SEA)
- Environmental and Social Impact Assessment (ESIA)
- Environmental Management Plan
- Environmental Monitoring Plan
- Stakeholder meeting
- Land Acquisition and Resettlement Action Plan (LARAP) all over the world.



Monitoring unit railway noise level for Environmental and Social Impact Assessment for Dedicated Freight Corridor Project, India

Selected Urban Drainage Projects

| | |
|----------------|--|
| Myanmar | Preliminary Study on Environmental & Social Impact Assessment (ESIA) for Gas Fired Plant Development Project |
| Myanmar | Technical Assistance for Preparation of Resettlement Work Plan |
| India | Preparatory Survey for Western Dedicated Freight Corridor Transportation Project |
| India | Technical Support for Preparation of Environmental Social Impact Assessment Frameworks |
| Egypt | Preparatory Survey on Greater Cairo Metro Line No.4 |
| Kenya | Master Plan for Development of Mombasa Special Economic Zone |
| Zambia | Southern Area Transmission System Improvement Project |
| ASIA | JICA Study for the Capacity Enhancement of Safeguard System |

Climate Change Consulting

Nippon Koei is one of the few one-stop consulting services in the field of climate change. Our services range from policy making to project implementation involving mitigation (energy reduction) and adaptation activities (science-based policy adjustments like CDM, JCM & REDD+).



Large energy savings using high-efficiency advanced technology centrifugal chiller for factory air-conditioning, Indonesia

Services

- Assistance in the formulation on climate change adaptation and mitigation with infrastructure development activities, etc.
- Assistance in the implementation of the climate change adaptation and mitigation plans
- Feasibility study of mitigation schemes such as CDM (Clean Development Mechanism) and the Japanese JCM (Joint Crediting Mechanism)
- Developing a mitigation methodologies and facilitating the process of registration on JCM / CDM projects
- Assistance in the project formulation through climate change activities



Energy reduction with high efficiency factory boiler, Indonesia



Stakeholder's consultation workshop to identify and adapt to global warming, Indonesia

Selected Project Experience

- Indonesia** JCM Feasibility Study and Project Formulation on Energy Saving by High-efficiency Centrifugal Chiller. Boiler, etc. Support of Climate Change Mainstreaming to Local Government in Indonesia
- Myanmar** JCM Project Formulation Study through City-to-City Collaboration between YCDC and Kawasaki city
- Thailand** JCM Planning Study on Saving Energy by introducing electric power generation saving system into Sky train
- Vietnam** JCM Project Planning Study on Saving Energy by introducing optimum pumps in water purification plant
- JCM Feasibility Study on Energy Efficiency Operation for Ships
- India** Consideration of Climate Change Mitigation by Modal shift on Dedicated Freight Corridor (DFC)
- Kenya** JCM Feasibility Study on Energy Saving by Micro Flush Toilet
- LAC & SIDS** Assistance for Sustainable Development and Climate Change Mitigation in Latin America Countries (LAC) and Small Island Developing States (SIDS)

Forest Management & Nature Conservation

Nippon Koei is a leading consulting firm in providing a comprehensive approach to sustainable forest management and nature conservation. We have a reputation for quality services in planning, designing, and implementing projects for forest management and nature conservation.



Project staff giving instruction on how to maintain the nature trail in the Varirata National Park, PNG.



Anzali wetlands, Iran

Services

Comprehensive, effective, practical and site-specific solutions from expertise not only in the fields such as forestry, forest-engineering, agro-forestry, and biodiversity, but also in community empowerment and livelihood development.

Project operation and management, institutional development, and capacity building for watershed management, community-based forest management, in-land and coastal protected area management, wetland management, and also include biodiversity conservation.

To strengthen the financial mechanisms for sustainable forest management with physical and institutional development:

- REDD+ (Reduction of Emission from Deforestation and forest Degradation) Plus
- PES (Payment for Ecosystem Services)



Nursery management conducted by the local communities, Timor-Leste

Selected Project Experience

Forest Management

- Indonesia** Data Collection Survey on Forest and Peatland Fire Control and Peatland Restoration in Indonesia
- Vietnam** Improving Payment for Forest Ecosystem Service Implementation
- Vietnam** Restoration and sustainable management of protection forest in 12 central provinces from Thanh Hoa to Binh Than
- India** Project Management Services for Rajasthan Forestry and Biodiversity Project (Phase II)
- Malawi** Conservation and Sustainable Management of Dzलयыма Forest Reserve
- Peru** Capacity Development for Forest Conservation and REDD+ Mechanisms

Wetland Conservation

- Iran** Anzali Wetland Ecological Management Project
- Myanmar** Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyadaya Delta
- El Salvador** Integrated Wetland Management in Olomega and El Jocotal Lagoons

Biodiversity Conservation

- Papua New Guinea** Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas
- Brazil** Jalapao Region Ecological Corridor Project

Solid Waste Management

FACILITIES

We provide services to address the hot-button solid waste issues of our times such as privatization of solid waste management and regional management of solid waste generated in several municipalities. We have assisted many local governments to prepare integrated solid waste management master plans.

Master Plan

Our master plans have included related infrastructure such as waste transfer station, recycling center, incinerator and sanitary landfill including equipment for handling waste. We have also provided the services for capacity improvement for operation and maintenance.

Expertise

We are particularly skilled at facilitating communication with waste generators and stakeholders where change in behavior is the key to better management of the waste stream.

Selected Project Experience

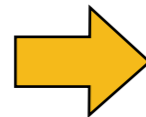
- Indonesia** Regional Solid Waste Management Mammasata Project in South Sulawesi Province
- Myanmar** Feasibility Study of Installation, Operation and Maintenance of Waste to Energy (WTE) Plant in Greater Yangon
- Palau** Technical Cooperation Project for Improvement of Solid Waste Management
- Vietnam** GIA Minh Solid Waste Treatment Complex Under Hai Phong Sewerage, Drainage & Solid Waste Management
- Vietnam** Supply of Equipment for Waste Management in Hanoi City
- Vietnam** Technical Cooperation Project: Implementation Support for 3R Initiative of Hanoi City for Cyclical Society
- Nepal** Solid Waste Management for Kathmandu Valley
- Kenya** F/S on Nairobi Solid Waste Management Project
- Brazil** Feasibility Study on the waste treatment project cooperated with local condition in Greater Curitiba
- Cuba** Integrated Management Plan of Municipal Solid Waste in Havana City
- World Bank** World Bank, Solid Waste Management Holistic Decision Model, Kawasaki [Japan], Atlanta [USA], Kathmandu [Nepal], Shanghai [China], Lahore [Pakistan], Buenos Aires [Argentine], Sarajevo [Bosnia and Herzegovina], Conakry [Guinea], Amman [Jordan]



Project for Improvement of Solid Waste Management, Palau

3R SYSTEMS

Nippon Koei promotes integrated solid waste management through appropriate facilities and 3R systems (reduce, reuse, recycle). We are recognized for exceptional application of source separation of solid waste, coordination with stakeholders, and financial arrangements. Our expertise is based on accumulated knowledge and experience in more than 30 countries.



E-waste Reverse Logistics Improvement Project in Brazil

Selected Project Experience

- Mozambique** The Project for Promotion of Sustainable 3R Activities in Maputo
- Brazil** Project for E-waste Reverse Logistics Improvement (shown in photos above)
- Dominican Republic** Project for Institutional Capacity Development on Nation-wide Solid Waste Management in Dominican Republic
- Peru** Feasibility Study of the Project for Solid Waste Management in Peru

Solid Waste Management FACILITIES

3R SYSTEMS FOR SOLID WASTE MANAGEMENT



Project for Improvement of Solid Waste Management, Palau



Project for Promotion of Sustainable 3R Activities in Maputo, Mozambique

Disaster Management

Nippon Koei has developed and proven technologies that have put us in the forefront of contributions to disaster management initiatives over the last 50 years. We have significantly improved the capacity of national crisis management planning and protecting the integrity of country infrastructure in the face of natural disasters. We cover all aspects of disaster management from preparedness to emergency response and recovery.



Disaster site investigation, Japan

Disaster Risk Assessment Services

- Our risk assessment services include analyzing disaster history, performing a highly accurate disaster hazard analysis, evaluating the physical conditions, socio-economic, and environmental features, and disaster vulnerability. We use this as the basis for efficient and effective disaster prevention activities and organization of disaster management system and crisis management plan.
- We also offer realtime monitoring, geological survey measurement & dynamics analysis, design engineering, construction supervision, plans for managing floods and sediment, comprehensive plans for crisis management & mobilization of local community resources, etc.

Selected Project Experience

- Philippines** Study on Comprehensive Disaster Prevention around Mayon Volcano
- Sri Lanka** Capacity Development for Landslide Mitigation
- El Salvador** Capacity Development of the Department of Climate Change Adaptation and Strategic Risk Management for Strengthening of Public Infrastructure (GENSAI)
- Guatemala, Costa Rica, etc.** Capacity Development for Disaster Risk Management in Central America Phase 2 (BOSAI-2)

Earthquakes & Tsunami Disaster Response & Preparedness

Nippon Koei has provided consulting service for earthquake and tsunami disaster response and preparedness. Our services include risk analysis such as model simulation, damage estimation, and developing recovery and evacuation plans.



Earthquake impact in Nepal 2016



Disaster Investigation and Design Works for Tsunami Disaster in Iwate, Japan



NK Volcanic Ash Monitoring device at Sakurajima, Japan

Services

Our services are unique for each project. For example, in the project on earthquake disaster risk management for Almaty City in the Republic of Kazakhstan, we conducted earthquake scenarios from geological surveys including ground survey and active fault survey, risk assessment including damage estimation of residents, buildings, infrastructures, lifelines and establishment of earthquake disaster management plan and formulation of a community based earthquake disaster risk management plan.

As an example of recovery, rehabilitation and development in the project for tsunami affected area of Sri Lanka, we formulated the plan of recovery and reconstruction of urgent facilities and prepared long term redevelopment plan for the tsunami affected area.

We also offer the service of capacity building of all levels of central governments, local governments and communities with share the Japanese experience in disaster management in order to build a disaster-resilient country or region.

Selected Project Experience

- Indonesia** The Urgent Rehabilitation and Reconstruction Support Program for Aceh Province and Affected Areas in North Sumatra
- Maldives** The Study on Tsunami Recovery, Rehabilitation and Development
- Nepal** Study on Earthquake Disaster Mitigation in the Kathmandu valley
- Sri Lanka** Recovery, Rehabilitation and Development Project for Tsunami Affected Area of Southern Region
Tsunami Affected Communities Rehabilitation Program in North-East Sri Lanka
- Armenia** Project for Seismic Risk Assessment and Risk Management Plan
- Kazakhstan** Study on Earthquake Disaster Risk Management for Almaty City

Landslide Disaster Management

Over the last 50 years, Nippon Koei has significantly improved the capacity of countries to respond and plan against debris flows, slope instability, landslides, avalanches and falling rocks (caused by abnormal torrential rain, large-scale earthquakes, and volcanic eruptions) that threaten a country's vital economic infrastructure lifelines, especially road networks.



Three major Countermeasure against the Landslides and Slope Protection works . Shinduli Road Sec II, Nepal.

During disasters, we provide experienced professional engineers to make rapid site reconnaissance and risk assessment, and promptly respond with a series of engineering design analyses, emergency restoration, and permanent measures based on our extensive experience and know-how.

Consulting Services

We offer such as providing information and hazard maps, risk evaluations, recommend traffic restrictions, disaster information to road administrators and users, and also provide technical assistance for future disaster prevention and disaster recovery.



1 Crib works with rock bolt (L=3m)



2 Anchor works for Landslides



3 High intensity Net with rock bolt for erosion control

Selected Project Experience

- East Timor** Project for the Capacity Building in Road Maintenance
- Malaysia** Study on Slope Disaster Management for Federal Roads
- Philippines** Study on Disaster Risk Management for Sediment-related Disaster on Selected National Highways
- Nepal** The Project for Countermeasures for the Landslides on Shinduli Road (Section II)
Study on Disaster Risk Management for Narayangharh - Mugling Highway
- Sri Lanka** Pilot Project for Countermeasures against the Landslides and Falling Rocks.
- El Salvador** Support for countermeasures against the landslides on Pan American High-way in Metropolitan area.
- Honduras** Preparatory Survey for the Landslide Prevention Plan for the Honduras National Highway - Route 6
- Armenia** Study on Landslide Disaster Management
- Armenia** Pilot Project for Countermeasures against the Landslides with horizontal drainage works

Comprehensive Agriculture & Rural Development

Over the last 50 years, Nippon Koei has managed 300 agriculture and rural development projects in 50 countries. These have improved the living standards of many rural communities all over the world.



Training project for rice production, Rwanda

Services

We provide a full range of in-house expertise in the fields of agronomy, land use, agro-economy, marketing, agro-processing, irrigation and drainage, other rural infrastructure, agricultural research and extension, credit and other supporting systems, etc. In all our development projects, we ensure that environments are preserved. Our approach includes a long-term commitment to capacity building.

Integrated Services at regional and national levels:

- Sustainable, environmentally sensitive agricultural policies dissemination of technical innovations
- Carefully designed agriculture & rural development programs,
- Awareness of local, national and international market place realities
- Special attention to agrarian, social, economic and ethnic aspects of rural communities

Selected Project Experience

| | |
|--------------------|---|
| Philippines | Agrarian Reform Infrastructure Support Project I & II & III |
| Sri Lanka | Pro-Poor Economic Advancement and Community Enhancement (PEACE) Project |
| Palestine | Project on Improved Extension for Value-Added Agriculture in Jordan Rift Valley |
| Madagascar | Study on Rural Development and Watershed Management in South-West Alaotra |
| Senegal | Project for Improvement of Productivity in Irrigation Scheme in Valley of Senegal |

Technical Services for Irrigation Infrastructure

Our technical services for irrigation infrastructures include all development stages such as studies, planning, design, construction supervision, water management, operation & maintenance, and also include various kinds of infrastructures such as dams, head works, groundwater wells, canals, and related irrigation facilities as well as establishment and strengthening of water user associations.



Perjaya headworks construction Stage I, Indonesia



Main canal of Komenring irrigation project (59,148 ha), Indonesia

Selected Project Experience

| | |
|------------------|--|
| Indonesia | Komenring Irrigation Project |
| Nepal | Sunsari Morang Irrigation Project |
| Sri Lanka | Walawe Irrigation Upgrading and Extension Project Phase II |
| Syria | East Meskene Irrigation Project |
| Tanzania | Mwega Smallholder Irrigation in Morogoro Region |
| Peru | Majes Siguas Irrigation Project |

Agriculture Support & Training Services

We provide agricultural support and training services to upgrade the knowledge, technical skills, local organizations and technical support services for farmers and local communities based on our extensive expertise for crop diversification, farm product development, marketing, credit schemes, and technical and management training. We also assist design and implement information management systems using tools such as GIS to promote more effective and sustainable use of natural resources.



Training for parachute transplanting for paddy, Sri Lanka



Training for diversified agriculture, India

Selected Project Experience

| | |
|--------------------|--|
| Indonesia | Improvement of Rice Post Harvest and Marketing in Farmer Groups |
| Philippines | Rural Farmers Agrarian Reform Support Credit Program |
| Thailand | Export Oriented Crop Promotion Sustenance |
| India | Technical Cooperation Project for Crop Diversification in Himachal Pradesh |
| Senegal | Promotion of Artisanal Activities through One Village One Product Program (OVOP) |
| Bolivia | Improvement of Agricultural Products Marketing System in Santa Cruz |

Rural Empowerment & Institutional Development

We empower beneficiaries by strengthening of agricultural and irrigation cooperatives, assisting rural communities to develop the skills and confidence to participate in development programs, and assisting rural institutional reforms with government agencies.



Empowerment of women's group, India



Farmers group tour to learn from successful fields, Kenya

Selected Project Experience

| | |
|------------------|---|
| Sri Lanka | Increasing Integrated Management Capacity on Irrigation Sector |
| Palestine | Improvement of Local Governance System (Community Empowerment Component) |
| Ethiopia | Capacity Building Programs for Community-Based Irrigation Dev in Central Oromia |
| Kyrgyz | Community Empowerment Project in the Issyk-kul Oblast |
| Peru | Project for Improving Livelihood of Small-scale Farmers in Cajamarca |

Urban Planning & Architecture

Nippon Koei merged with BDP, one of the world's best known interdisciplinary design practices. Together we are positioned internationally to provide design solutions for urban planning and development, offering engineering consultancy with architectural services.



Palace of Westminster

BDP has been awarded the full interdisciplinary contract for client advisory services to help ensure the safe and secure future of the Palace of Westminster. The interdisciplinary appointment is for architecture, civil and structural engineering, building services engineering, interior design, landscape architecture, lighting design, acoustics and planning.

The Palace of Westminster is a Grade I listed building and one of the most iconic and significant buildings in the world. Together with Westminster Abbey and St Margaret's Church, it is part of the UNESCO Westminster World Heritage site. Because of the size and layout of the Palace, it is thought to be the biggest and most complex renovation programme ever undertaken in Europe.

ABOUT BDP

BDP designs and creates outstanding places for people. With teams of architects, engineers, designers and urbanists we work from studios throughout the UK, Ireland, the Netherlands, UAE, India and China, on projects around the world. We have won over 900 awards for design quality.

We work across all the major sectors and collaborate with our clients to realize their aspirations, placing the user at the heart of the design process to create places spaces that energize and nurture the people who use them.

BDP is recognized as a leader and early adopter of new technologies and is a specialist of Building Information Modeling (BIM) which uses ICT to produce major cost savings and better building outcomes for clients.

SECTOR COVERAGE

- Education
- Healthcare
- Heritage
- Housing
- Leisure & Culture
- Retail
- Science, Research & Technology
- Sport
- Transport
- Urbanism
- Workplace

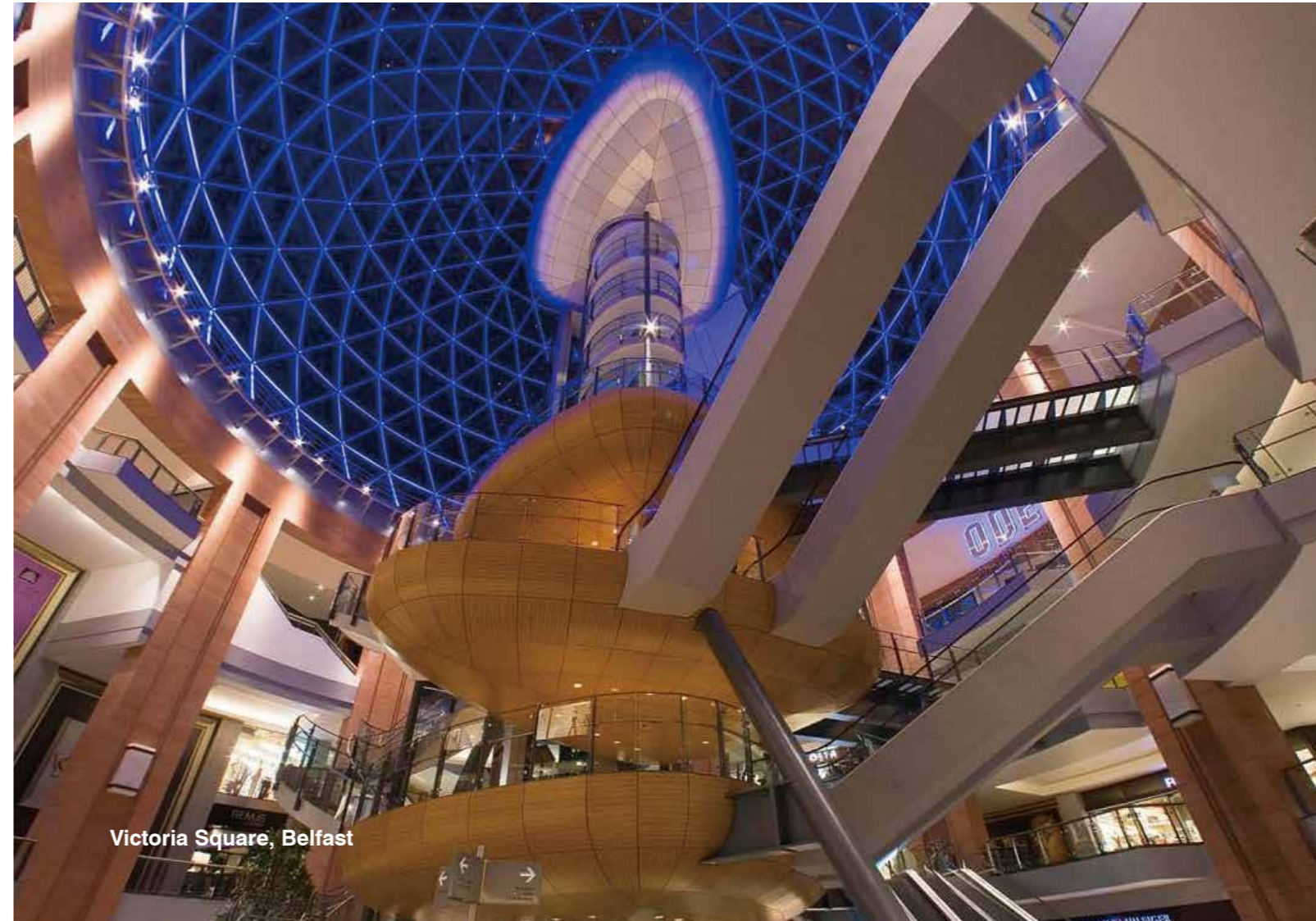
SERVICES

- Urbanism
- Architecture
- Civil & Structural Engineering
- Building Services Engineering
- Interior & Graphic Design
- Lighting
- Acoustics
- Sustainability

Urban Planning & Architecture



Liverpool ONE Masterplan



Victoria Square, Belfast



National Children's Hospital, Dublin



Roche Headquarters, Welwyn



Tonbridge School Library



Whitechapel Crossrail Station, London

Development of Industrial Parks & SEZ

Over the last 30 years, Nippon Koei has planned development of Industrial Parks & Special Economic Zones (SEZ) in more than 20 countries in Asia, Middle East, Africa and Latin America.



Long Duc Industrial Park, Vietnam



KOTA DELTAMAS GIIC, Indonesia

Services

- Our services have included planning, design, construction supervision, maintenance, addressing environmental and labor related issues, and formation of detailed marketing promotion plans to attract private sector investors, including Japanese manufactures. We also prepare internal regulations such as effluent standards, architectural standards, infrastructure development rules, etc.
- We also have provided all the required infrastructure sectors, including earthworks, road, drainage, water supply, sewerage, electricity and communication systems.

Selected Project Experience

| Country | Project | Area |
|-----------|--------------------------------------|--|
| Indonesia | KOTA DELTAMAS GIIC | 1,300 ha industrial, 1,700 has Residential & ommercial |
| Cambodia | Sihanoukville Port SEZ | 70 ha development |
| Laos PDR | Vientiane Industrial Zone | 690 ha development |
| Myanmar | Thilawa SEZ | 2,400 ha development |
| Vietnam | Long Duc Industrial Park | 270 ha development |
| Vietnam | Phu My 3 Industrial Specialized Park | 990 ha development |
| Vietnam | Thang Long Industrial Park | 274 ha development |
| Sri Lanka | Seethawaka Industrial Estate | 168 ha development |



Phu My 3 Industrial Specialized Park, Vietnam

Social & Economic Consultancy

Nippon Koei's subsidiary, Koei Research & Consulting Inc. (KRC), provides socio-economic consultancy for countries to enhance their growth and development in seven areas outlined below.



One-Stop Service Center at Thilawa Special Economic Zone, Myanmar



Training by project counterpart pediatrician on Emergency Obstetrics Care for midwives, Philippines

| Consultancy Area | | Selected Project Experience |
|---|-------------|---|
| Promotion of Economic Sector Development Improvement of economic strength and job creation | Myanmar | Advisory Service and Capacity Building for Thilawa SEZ Management Committee |
| | Africa | Investment Promotion for Africa Region (Cameroon, DR Congo, Ethiopia, Ghana, Kenya, Rwanda, Zambia) |
| | Mozambique | SME Development through One-Village One-Product Approach |
| | Mongolia | Management Consultants' Service for TSL SME Development |
| Accelerating Infrastructure Finance Public-Private Partnerships (PPP) and Development Finance | Indonesia | PPP Network Enhancement Project |
| | Thailand | Preparatory Survey for Freight Railway Services (PPP-F/S) |
| | Vietnam | Preparatory Survey on BRT and Station Area Development Project (PPP-F/S) |
| | Philippines | Philippines Study on Institutional Improvement for PPP |
| Ensuring Quality Education and Training for All Quality and equality improvement in education at all levels | Philippines | Supporting Senior High School Program in Technical Vocational High Schools |
| | Morocco | Promoting Education with Equity and Quality (PEEQ) |
| | Uganda | Secondary Science and Mathematics Teachers' Programme |
| | Mozambique | Expansion of New Curriculum of Teacher Training Institute (IFP) |
| Strengthening Technical and Vocational Education & Training (TVET) Assurance of the relevancy of technical education to the industrial sector | Rwanda | Strengthening the Capacity of Tumba College of Technology Phase-2 |
| | Sudan | Strengthening Vocational Training System Targeting State Vocational Training Centers |
| | DR Congo | Strengthening the Capacity of National Institute of Professional Preparation |
| Upgrading to Universal Health Coverage (UHC) & Global Health (GH) Viable solutions towards UHC and GH that address the current issues and challenges of the healthcare system | ASEAN | Strengthening the ASEAN Regional Capacity on Disaster Health Management |
| | Vietnam | Basic Information Survey for BHSP and Provider Payment Mechanism |
| | Philippines | Cordillera-wide Strengthening of the Local Health System for Effective and Efficient Delivery of Maternal and Child Health Services |
| | Mongolia | Establishment of Hospital Management and Medical Services at Japan-Mongolia Teaching Hospital |
| Strengthening of Public Management Improvement of their public management at both national and local levels | Indonesia | Strengthening COE (Center of Excellence) Program for PDAMs |
| | Palestine | Improvement of Local Finance System |
| | Ghana | Financial Management Improvement Project of Ministry of Food and Agriculture |
| | Malawi | Capacity Enhancement in Public Sector Investment Programming Phase II |
| Supporting Peace Building Comprehensive approach for peace consolidation | Afghanistan | Improvement of Literacy Education Management in Afghanistan |
| | Sudan | Strengthening Peace through the Improvement of Public Services in Three Darfur States |

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