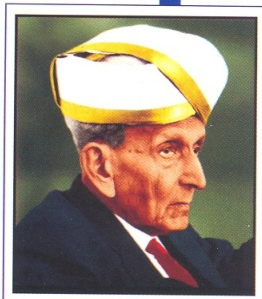


**STEEL AUTHORITY OF INDIA LIMITED
VISVESVARAYA IRON AND STEEL PLANT
BHADRAVATI - 577 301**

**SAIL IN HOUSE BUILT 530 CuM
BLAST FURNACE "CAUVERY"**



HISTORY OF VISL



Visvesvaraya Iron & Steel Plant, the latest addition to the stable of Steel Authority of India Limited is located at Bhadravati, 260 kilometers north-west of Bangalore in the State of Karnataka. The Plant and Township are nestled by the river Bhadra on three sides. The Plant covers an area of about 3.8 square kilometers and 2677 persons as on 1.10.2005. The Steel Town covers an area of 4.5 square kilometers.

The vision and foresight of late Sir M Visvesvaraya, the then Dewan of Mysore, resulted in the setting up of "Mysore Wood Distillation & Iron Works" in 1918. It became a limited Company in 1962. As a tribute to its illustrious founder, the company was renamed "Visvesvaraya Iron & Steel Limited" (VISL) on February 16, 1976. An Engineer-Statesman par excellence, he perceived Bhadravati as an ideal location for the plant amidst the forests of Shimoga.

Starting as a Wood Distillation Plant in 1918, the Mysore Iron Works commenced Pig Iron production in a charcoal Blast Furnace in 1923 to produce 60 tonnes of Pig Iron per day. A Pipe Plant was installed in 1927 to make profitable use of the Pig Iron thus produced. Mild steel production was started in 1936 and in the same year the name of the company was changed to Mysore Iron & Steel Works. Production of Ferro-Alloys began in 1942 with the addition of two small furnaces and the production capacity was augmented subsequently in 1962. Mild steel production capacity was also expanded in 1965 with the addition of two LD converters, one Electric Arc Furnace and a Blooming and Heavy Section Mill.

The plant was expanded further and diversified into the field of Alloy and Special Steels production in 1965 with the addition of Electric Arc Furnace, Combined Bar and Rod Mill and Central Heat Treatment Shop. Subsequently a modern Forge Plant was established in 1977 to produce high Alloy Steels like High Speed Steel, Tool Steels, Die Block Steel and Valve Steel etc. With this, the production capacity of Alloy and Special Steels went up to 77,000 tonnes per year.

As a step to improve the quality and yield of steel, a vacuum Degassing/Vacuum Oxygen Decarburising unit was added in 1983 and a Continuous Casting unit for blooms and billets in 1985. The company had technical collaboration with the world renowned M/s. Bohlers of Austria for twelve years. As a measure of further updating the technology, VISL utilised the services of M/s. Voest Alpine Industrial Services (VAIS), Austria, under an agreement between Steel Authority of India Limited (SAIL) and VAIS.

VISL has carved a niche for itself in the field of Alloy and Special Steels in the country. It takes care of requirement of strategic sectors like Defence, Nuclear Power Corporation, Railways etc. VISL is producing Alloy and Special Steels since 1966 and has kept pace with the developments by quickly adopting newer technologies to meet the requirements of the day and has always remained in the forefront as quality steel producer in the country.

As a long term strategy VISL installed one 530 Cu.M Blast Furnace in 1995 to produce hot metal of right quality so as to take the full advantage of BF-BOF-LRF-VD route in the production of Alloy and Special Steels.

To sustain as a leading premier Alloy and Special Steel producer short and long term modernisation proposals are in various stages of consideration.

MILESTONES

IMPORTANT

1918

Construction work started for setting up a Wood Distillation plant of 200 tonnes per day and one Charcoal based Blast Furnace of 60 tonnes per day.

1923

Mining of Iron Ore started in Kemmangundi Iron Ore Mines, a captive mine of the Company. (Production of Pig Iron started in Charcoal Blast Furnace.) General Foundry commissioned.

1927

Pipe Foundry commissioned.

1936

Steel making through Open Hearth 'A' Furnace started Light Section Mill for rolling structural steels started. (Name of the Company changed to "Mysore Iron and Steel Works".)

1938

Cement Plant commissioned

1942

Steel Foundry commissioned. Two 1500 KVA Ferro Alloy Plants started at Mysore.

1943

Open Health 'B' Furnace started.

1948

Plate Sleeper Foundry commissioned

1950

Ferro Alloy Plant shifted to Bhadravati from Mysore. 9000 KVA Ferro Silicon Furnace started

1952

First 100 t per day capacity Electric Pig Iron Furnace started.

1955

Second 100 t per day capacity Electric Pig Iron Furnace started.

1958

Cast Iron Spun Pipe Plant started.

1962

Two 12000 KVA Ferro Silicon Furnaces started. Works became a limited company on April 1, 1962. Sintering Plant started at Tanigebyle.

1964

Blooming and Heavy Section Mill commissioned. Plate sleeper Foundry started.

1965

LD plant started. First 20t Electric Arc Furnace commissioned. Oxygen & LC Plant started.

1966

6t EAF started at Steel Foundry. Induction Furnace started at General Foundry. New Refractory Department started.



MILESTONES

1967

Second 20t Electric Arc Furnace started.

1968

IAS & ICS Commissioned. 8t Electric Arc Furnace started.

1970

Combined Bar and Rod Mill started.

1971

Two new 200t per day capacity Electric Pig Iron Furnaces started.

1972

Heat Treatment Shop started.

1976

Name of the Company changed to "Visvesvaraya Iron and Steel Limited" on February 16, 1976.

1977

Forge Plant commissioned with Long Forging Machine and Forge Press.

1983

VD / VOD Unit started.

1985

CCM Commissioned.

1989

VISL was taken over as subsidiary of SAIL.

1992

LRF 1 Commissioned.

1994

Conversion of 8T EAF to LRF 2.

1995

Blast Furnace (BF) Blown in on February 24, 1995.
Certified to ISO 9002 for Forged Route in August 1995.

1996

Conversion of I 20T EAF to LRF 3.

1997

Certified to ISO 9002 for Rolled Route and Pig Iron in April 1997.

1998

VISL merged with SAIL in Dec 1998.

1999

Installed three numbers Electric Heating Tempering Furnaces.

1999

Electro Magnetic Stirrer commissioned at CCM Plant on 15.9.1999.

2003

Upgraded to ISO 9001-2000 Quality Management System.

2005

Conversion of II 20 T EAF to LRF 4



STEEL-WORKS AT A GLANCE

Area of the Plant :

1.47 square miles or 3.8 square km.

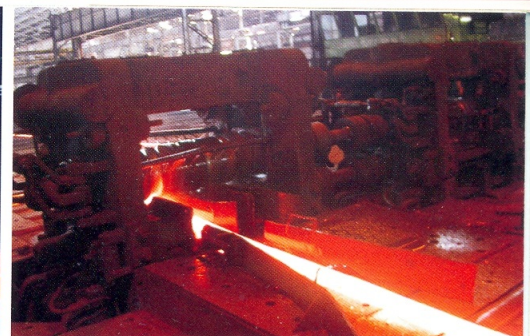
Number of employees in the Plant :

2677 (as on 01-10 -2005)

DETAILS OF PLANT AND MACHINERY

1.	Blast Furnace	:	1 No.-530 Cubic metres.
2.	Basic Oxygen Furnace	:	2 Nos.- 16-22t
	Make	:	M/s. DEMAG, GERMANY
3.	Continuous Casting Machine	:	1 No. 2 Strands
	Make	:	M/s. ISPL, Mumbai
	(with EMS-Combi type) Sizes	:	200x200, 130x130, 180x180
4.	Ladle Refining Furnace	:	4 Nos. - 17-25t each
		:	with Argon Purging and wire
		:	feeding arrangement
	Make	:	1 GEC + 2 In-house





- | | | | |
|----|--|---|--|
| 5. | VD/VOD
Make | : | 1 No. - 25t
M/s. Standard Messo, Germany |
| 6. | Rolling Mills | | |
| | (a) Primary Mill | : | 3 High Single Stand Blooming
(720 mm Roll dia)
3 High 3 stand Finishing
Mill (600 mm Roll dia) |
| | (b) Bar Mill | : | 3 High-520 mm single stand
Roughing Mill
One 4 stand, 32 high 440/420 mm
Roughing Mill
One 3 high 420 mm Finishing Mill. |
| 7. | Forge Plant | | |
| | (a) Hydraulic Forging Press
Make | : | 1 No.-1600t
M/s.DEMAG-MEER, GERMANY |
| | (b) Long Forging Machine
Make | : | 1 No.Type SXP-25
M/s. GFM, Austria. |
| | (c) Power Hammer
Make | : | 1 No.- 1000 Kgs
M/s. New Standard Eng. Co., Mumbai. |
| 8. | Heat Treatment Shop | | |
| | (a) Dual Fired Bogie Hearth
Annealing Furnaces
Make | : | 11 Nos. - 30 t each
M/s. OFU, Germany. |
| | (b) Dual Fired Bogie Hearth
Hardening & Normalising
Furnaces
Make | : | 2 Nos.
7.5 t each
M/s. OFU, Germany. |
| | (c) Electric Annealing Furnaces
Make | : | 1 No. - 10 t
M/s. MAKSAAL, Hyderabad. |
| | (d) Electric Tempering Furnaces
Make | : | 4 Nos. - 6 t each
M/s. MAKSAAL, Hyderabad. |
| 9. | Oxygen Plant
Make | : | 30 t/day
M/s. BHPV, Visakhapatnam |



QUALITY ASSURANCE



CHEMICAL LABORATORY

- a) Optical Emission Spectrometers
 - Spectro Lab M-8 - German make
 - Atom Comp 800 - Jarrel Ash - USA make
- b) Carbon & Sulphur Analysers
 - CS 244 - LECO - USA make
 - CS 230 - LECO - USA make
- c) Hydrogen Analyser
 - RH 101 - LECO - USA make
- d) Oxygen, Nitrogen & Hydrogen Analyser
 - TCH 600- LECO - USA make

METALLURGICAL LABORATORY

- a) Universal Testing Machine
 - 1000 kN capacity - AVERY, UK make
- b) Metallurgical Microscopes
 - Model MeF2 - Reichert, Austria make
 - Model Invertoscope M - Carl Zeiss, German make
- c) Image Analyser
 - Epiphot M 200 - Nikon, Japan make
 - Image Analysis Software - CLEMEX, Canada make
- d) Microscopic Sample Preparation Equipments
 - Sample Mounting Press - BUEHLER, USA make
 - Automatic Grinding and Polishing Machine - BUEHLER, USA make
- e) Electrolytic Polishing and Etching unit and Portable Microscope
- f) Brinell, Rockwell and Vickers Hardness Testing Machines
- g) Magnaflux Testing Machine

SHOP FLOOR TESTING EQUIPMENT

- a) Ultrasonic test equipments
 - USK-7D - 2 Nos. - Karutkrammer, Germany
 - EX-100 - 2 Nos. - E E C
 - EX-10 - 1 No. - E E C
- b) Radial Hardness Testing Machine
 - Otto Wolpert, Germany
- c) Dynamic Hardness Tester
- d) Eddy Current Tester - Technofour
- e) Spectroscope - Metascope
- f) Magnaflux Testing Machine

COMMITMENT TO QUALITY

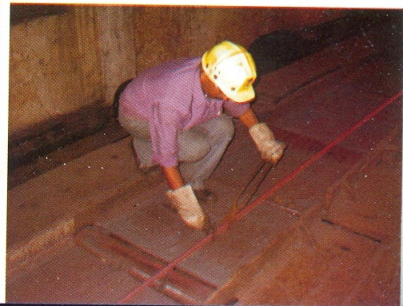
Quality has always been the hallmark of VISL products. Its commitment to Quality is reflected in the Quality Policy which aims at customer focus, employee involvement and continual improvement in Quality to achieve customer satisfaction.

Considering the advantages of building Quality into every operation instead of looking for the same only at the final stage of product, VISL adopted Total Quality Process in April 1990 to be able to do the right thing right, the first time and all the time.

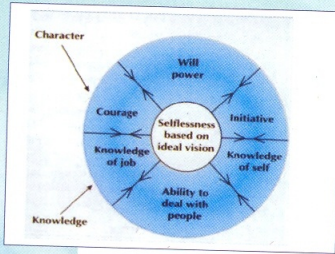
By then the industries world over, in particular the EC countries and also many in India, were working on installation of an internationally recognised Quality Assurance System conforming to ISO-9000 series of standards which would help in delivering products of consistent Quality to the customers. Adopted by International Organisation for Standardisation (ISO) in 1987, these system standards aim at ensuring that the goods produced and services rendered by an organisation have an inherently good quality which is continually improved.

ISO-9000 standards are complementary to TQP. Implemented together on a continuous basis they can lead to the ultimate goal of zero defects.

As a step towards total Quality, VISL has obtained certification to ISO 9002-1994 standard for production of Alloy and Special Steels through Forged route in 1995 and for Rolled route & Pig Iron in 1997. VISL has upgraded the QMS to ISO-9001:2000 in February 2005.



HUMAN RESOURCES



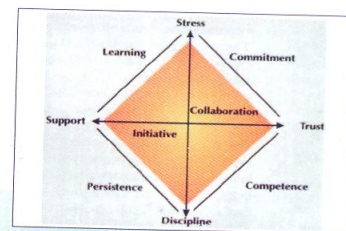
Human Resources Development (HRD) in VISL is not merely limited to training of the employees but is aimed at overall development of employees in all fields. A new entrant to the organization is given necessary training like induction training, class room training and on the job training to equip them to handle challenges in their work. The experienced and committed workers of VISL are ever ready to acquire more skill and competency in their job. Multi skill training activity is a prime thrust in all our training activities.



A culture of team work and creativity has been encouraged through the Suggestion Award Scheme "SURABHI", Special Award Scheme and Quality Circles. The creative talent of our employees has been harnessed for improvement of various operational and maintenance practices. It is no mean feat that a small Plant like VISL has bagged Prime Minister's Shram Award as well as Vishwa Karma Award for 14 employees. VISL team has won the second place in the grand final of the Mega Steel Quiz "CRUCIBLE 2005" held at Bhilai in September.



Large number of employees are communicated about the tasks, targets and performances of the Company in a periodic communication exercise conducted by our Chief Executive. Employees suggestions during these meetings to achieve task and targets are followed up and implemented by a high power committee.





TOWNSHIP

The quaint township with its red tiled roof quarters radiates an aura of old world charm. The tree lined avenues, stone paved footpaths and preservation of original landscape are tributes to beauties of nature. The parks and gardens with well manicured lawns and abundance of Gullmohar trees add colour to the environment.

A number of schools, colleges and professional institutes are providing quality education for younger generation. Temples, Churches and Mosques located in the Township provide spiritual awareness and establish our commitment to communal harmony.

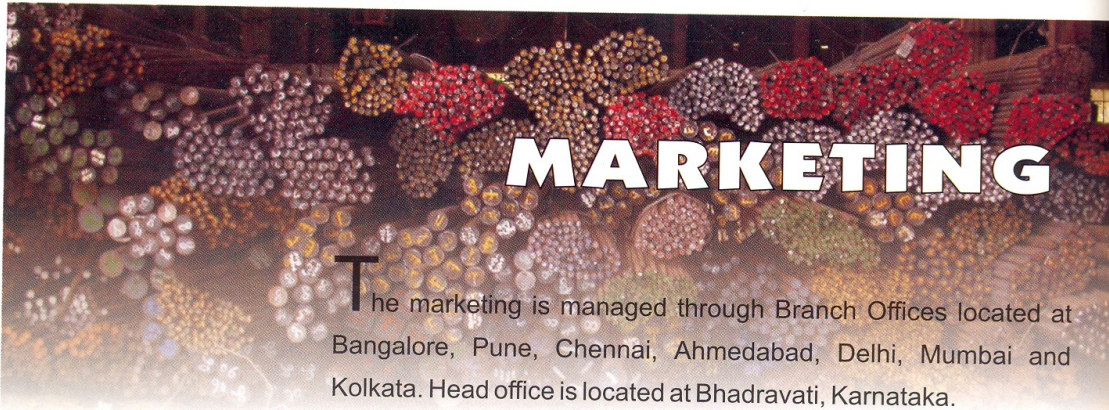
A well-equipped hospital with experienced doctors and paramedics takes care of the health requirement of all citizens.



ENVIRONMENT SAFEGUARD

As a part of modernisation and to safeguard the environment, VISL has undertaken necessary schemes to mitigate environmental pollution. This aspect is in-built in all new schemes that are being implemented.





The marketing is managed through Branch Offices located at Bangalore, Pune, Chennai, Ahmedabad, Delhi, Mumbai and Kolkata. Head office is located at Bhadravati, Karnataka.

OUR PRODUCT RANGE INCLUDES

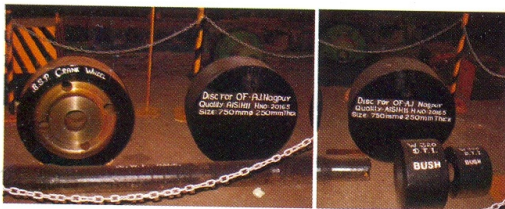
- **Alloy and Special steels**
Tool steel, Ball Bearing steel, Die steel, Free Cutting steel, Carbon Steel, Case Hardening steel, Construction steel, Spring steel, Nitriding steel, Soft Magnetic Iron, High temperature steel, etc.,
- **Value added products**
Machined components like CRM Rolls, Rollers, Shafts, Rings, Bright Bars, Crane Wheels, Pre-Cups and Flats for Defence Units.
- **Stamped items**
Grate Bars, Beater arms, etc.
- **Pig Iron**
Both Basic grade and Foundry grade.



GRADES OF STEELS MANUFACTURED

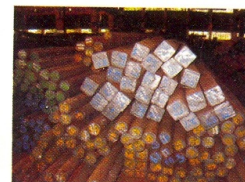
Die Steel, Tool Steel, High Temperature Steel, Nitriding Steel, Ball Bearing Steel, Free Cutting Steel, Spring Steel, Carbon & Alloy Construction Steel, Soft Magnetic Iron, etc.

Alloy and Special Steels are supplied as per National and International specifications like IS, AISI, SAE, DIN, EN, BS, JIS, GOST, etc.



ROLLED PRODUCTS

- A. **Primary Mill**
 1. Rounds 70 to 140 mm in steps of 5 mm
 2. Billets 60, 63, 65 mm to 140 mm in steps of 5 mm
 3. Special Section: 64, 96, 100, 105, 120, 140 mm billets for Defence.
 4. Flats: 50 mm to 100 mm thickness and 155 to 300 mm width.
 5. Blooms: 145-250 mm.
- B. **BAR MILL**
 1. Rounds 20, 22, 23, 24, 25, 26, 27, 28, 30, 32, 34, 35, 36, 37, 38, 39, 40, 42, 43, 45, 48, 50, 52, 53, 55, 56, 60, 63 and 65 mm.
 2. Billets 36, 40, 44, 45, 50, 53, 55 and 56 mm
 3. Flats 10 - 20 mm thickness and 70 to 120 mm width.



CONTINUOUS CAST BLOOMS

Blooms 130, 180 and 200 mm

FORGED PRODUCTS

A. PRESS

1. Tool Steels : 201 - 600 mm rounds
2. Die Blocks : 200 mm and above square and rectangular sizes upto 2,50,000 sq.mm. cross section area, one of the sides limited to 800 mm max. Maximum weight per piece 2.50 tonnes.
3. Carbon & Alloy Constructional Steels : 201 - 600 mm rounds
201 - 550 mm Broken Corner squares.
4. Flats
 - (a) Carbon & Alloy Constructional Steels : Min. thickness 150 mm
Min. width 200 mm
Max. width 500 mm
One of the sides Limited to 500 mm max.
Width to thickness ratio 3:1 max.
 - (b) Tool Steels : Min. thickness 150 mm
Min. width 200 mm
Max. width 400 mm
Width to thickness ratio 3:1 max.

Note : Other than the above, shapes like stepped shafts, rolls, rings, discs are made against specific enquiries.

B. LONG FORGING MACHINE

Maximum weight per piece 1.0 t

1. 70 - 200 mm rounds
2. 100 - 150 mm squares

Heat treatment of rolled/forged Products

- Annealing
- Normalising
- Spherodised annealing
- Hardening and tempering

Further details can be obtained from our Marketing Department at Bhadravati or from any of our Branch Offices.





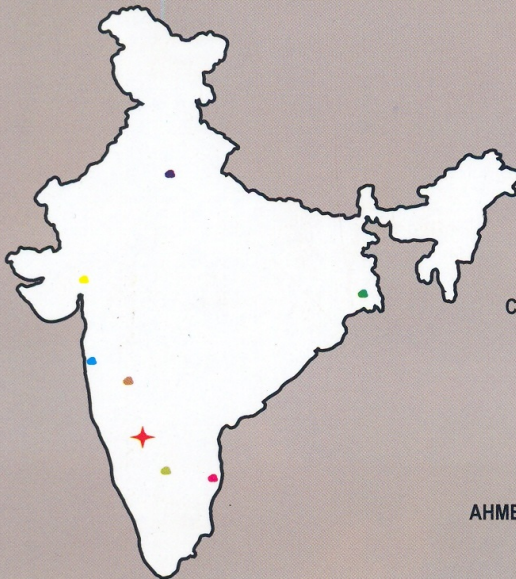
STEEL AUTHORITY OF INDIA LIMITED VISVESVARAYA IRON AND STEEL PLANT

BHADRAVATI-577 301

Phone: EPABX : (08282) 271620 - 29 (10 Lines) Extn. :2051 - 58, Fax: 271432 / 271308

E-mail: edvisl@sancharnet.in, edvisl1@dataone.in, mktngvisl@dataone.in, mktngvisl@yahoo.com

VISL BRANCHES



VISL STOCK YARDS

Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
Survey No. 92,
Near Wakad Police Station,
Tathawade - Taluka Mulshi,
PUNE - 411 033.
Tele Fax : (020) 22934009
e-mail: bmpvislsy@pn3.vsnl.net.in
* *

Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
CMO Stockyard, Sathangadu,
Manali, CHENNAI - 600 068.
* *

Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
BSO-Khodiya, Khodiya Village,
District Gandhinagar,
GUJARAT - 382 421.
Phone : (079) 23971058/23971059
* *

BANGALORE

● Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
'VISL HOUSE', 6th Floor,
8, J.C. Road,
BANGALORE - 560 002.
Phone: (080) 22222834
22222384. Fax:(080) 22222746
e-mail: bngvisl@bgl.vsnl.net.in
* *

PUNE

● Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
IIIrd Floor, 'Kunal Plaza', No. 42, B.P. Road,
Chinchwad,PUNE - 411 019.
Phone: (020) 56111566/56111571
Fax: (020) 27474571
e-mail: bmpvisl@pn3.vsnl.net.in
* *

CHENNAI

● Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
State Bank of Mysore Building,
IV Floor, No.231, N.S.C. Bose Road,
CHENNAI - 600 001.
Phone: (044) 25342087
Fax: (044) 25341001
e-mail: vislchen@sify.com
* *

AHMEDABAD

● Steel Authority of India Limited
CMO, Visvesvaraya Iron & Steel Plant,
BSO-'Bandhan', GHB Complex,
Ist Floor, Near Ankur Bus Stop, Naranpura,
AHMEDABAD - 380 013.
Phone: (079) 27434190/27482063
Fax: (079) 27472570
e-mail: manojksaha21@rediffmail.com
* *

NEW DELHI

● Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
407 (4th Floor),
No.11, Bhikaji Cama Bhavan,
Bhikaji Cama Place, NEW DELHI - 110 066.
Phone : (011) 26101708
Fax: (011) 26182771
e-mail: visldel@bol.net.in
* *

MUMBAI

● Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
208-209, Dalamal Towers, 'A' Wing,
II Floor, Plot No. 211, Nariman Point,
MUMBAI - 400 021.
Phone: (022) 22823975
Fax: (022) 22823975
e-mail: vislmum@vsnl.com.
* *

KOLKATA

● Steel Authority of India Limited
Visvesvaraya Iron & Steel Plant,
No.46-C, 'Everest House', VI Floor,
Chowringhee Road,
KOLKATA - 700 071.
Phone: (033) 22888672
Fax: (033) 22885633
* *