

# Evolving Risk Management

Larsen & Toubro Limited, India  
Stockholm, 12<sup>th</sup> June 2008

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# ABOUT LARSEN & TOUBRO LIMITED



- **Founded in 1938 by two Danish engineers - Henning Holck-Larsen and Soren Kristian Toubro**
- **India's premier Engineering & Construction Conglomerate - Vision to become an Indian multinational**
- **Track record of success in projects for Hydrocarbons, Infrastructure & Power**
- **Professionally managed company. Customer-focused approach**
- **L&T Group Manpower - June 07: 45000+**
- **Consolidated Net Revenues of USD 5.20 Bn, PAT of USD 550 Mn**
- **AAA Credit Rated**
- **Committed towards corporate social responsibility, environment protection and implementation of safety measures**

**(2006-07)**

<b>Group Turnover</b>	<b>USD 5 Bn approx.</b>
<b>No. of employees</b>	<b>20,000</b>
<b>Assets</b>	<b>USD 1.1 Bn +</b>
<b>Ownership</b>	<b>FIs &amp; Public</b>

# L&T- consolidated financials- summary

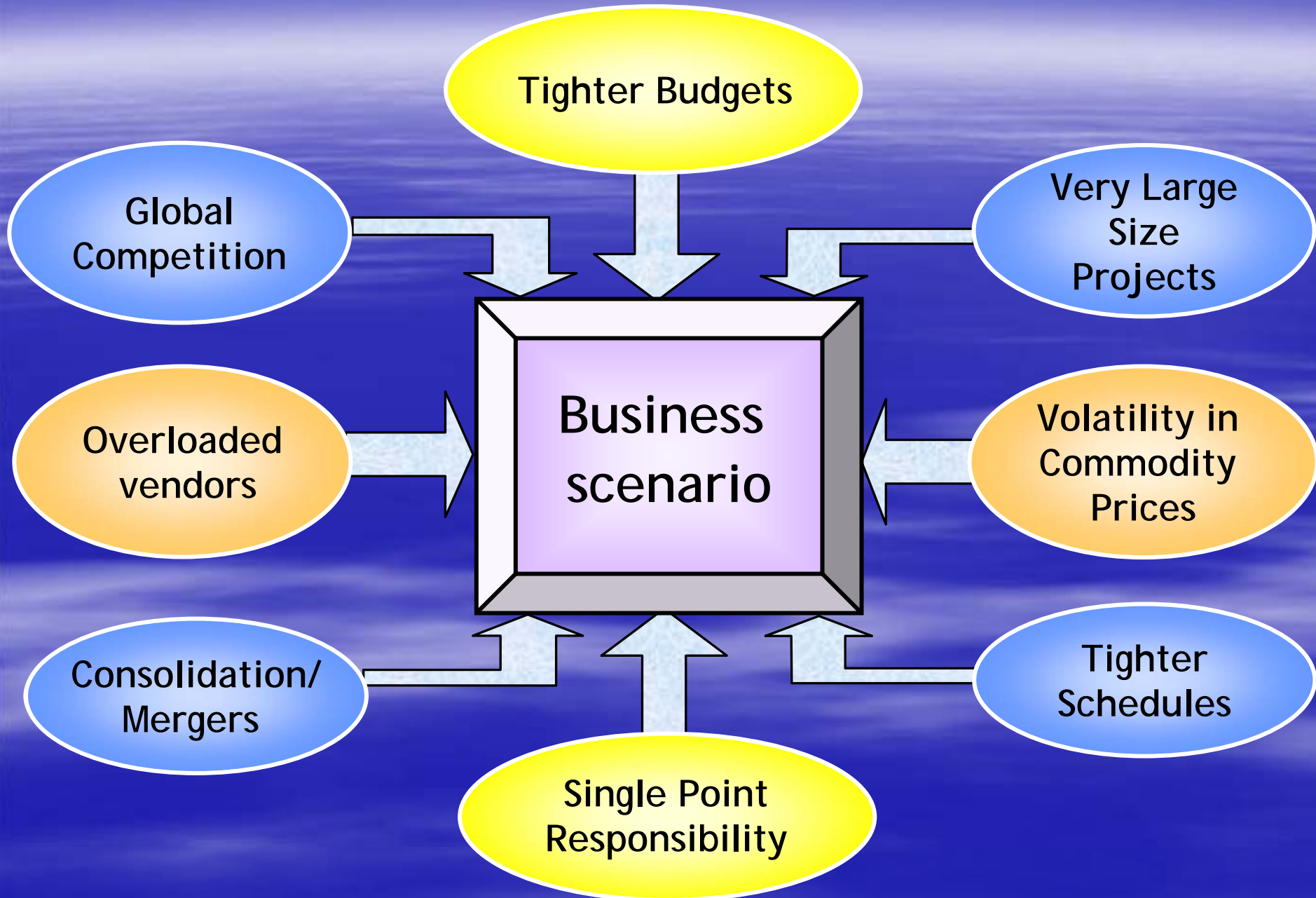
	Year ending 31 March 2008		Year ending 31 March 2007	
	(in Rs million)	(USD m)	(in Rs million)	(USD m)
<b>Total income</b>	<b>298,486</b>	<b>7,023</b>	<b>209,116</b>	<b>4,920</b>
<b>Profit before tax</b>	<b>34,186</b>	<b>804</b>	<b>30,050</b>	<b>707</b>
<b>Profit after tax</b>	<b>22,578</b>	<b>531</b>	<b>22,612</b>	<b>532</b>
<b>EPS (Rs)</b>	<b>80.87</b>	<b>1.90</b>	<b>80.19</b>	<b>1.89</b>

# Institutionalizing ERM

Key drivers were:

- Regulatory compliance
- Business requirements
  - Alignment of risk appetite to business strategies
  - Exploiting new opportunities / new markets
  - Enhancing competitiveness in an increasingly globalized world
- Market expectations
  - Improved predictability of business performance
  - Higher benefits from growth momentum
  - Measure and monitor the risk universe

# CHANGING TRENDS



# E&C - Risk Management Journey

Authorization structure (pre bid & post contract award) is in place

Rigorous system of Pre bid risk reviews (100% coverage)

Risk survey to identify risks that matter

Project Committee formed for review of projects under execution

Risk MIS Developed in SAP Environment & being enhanced continuously.

Risk Policy in place

Website for Risk Management on Intranet created.

Execution Stage Reviews conducted

**Risk Management process being Institutionalized**

# Pre-Bid Stage

**Business Unit :**

Chemical Plants

1)

*Project :*

*Customer :*

Domestic

International

*Location :*

2)

*Contract Value Range :*

Contract Value Range in INR :

Between

&

*Execution Basis :*

On our Own

JV / Consortium

If, yes

Partner Details

*Nature of Contract :*

Single

Split

*Type of Contract :*

*Project Duration :*

months

*Defect Liability Period :*

months

3)

*Payment Details*

L/C

Non-L/C

Mobilization Advance  %

Other Advances  %

Retention  %

Any Other Remarks

Mobilization Advance is Interest Bearing @  
12% per annum

# Pre-Bid Stage

Continued.....

4)

*Past experience of executing similar project :*

Year and Remarks if any

Similar Project

Same Client

Same Country / State

5)

*Project Profitability Details :*

Remarks if any

Gross Margin as % of Sales

%

Contingency Provided in Estimate

%

ROCE

%

6)

*Liquidated Damages*

Type

Percentage

Remarks

7)

*Bank Guarantees to be issued as per contract*

Type

Curr

Amount

*Max BG Value to be issued in INR at any point of time :*

# Pre-Bid Stage

Continued.....

## 8) Supply of Critical Equipment :

Item Description	Supplier	Location	Delivery Period	Remarks
Compressor	Ebara	Japan	12 mths	

## 9) Abstract & Summaries of Quantities :

Engineering		manhours
Piles		Nos
Concrete		Cu Mtr
Structural Steel		MT
UG Piping		Inch Meter
AG Piping		Inch Meter
Pumps		Nos
Compressor		Nos
Static Equipment		Nos
Electrical Cables		Km
Instrumentation Cables		Km
Equipment Erection		MT
Others		

# Pre-Bid Stage

Continued.....

## 10) Major Currencies of payments to vendors :

Currency	Approximate Value (Million)	Whether FEV on procurement reimbursable by Client?
<input type="text"/>	<input type="text"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	

## 11) Taxes & Duties :

	Payable by -	Remarks (Any cap if reimbursable by Client)
Imported Capital Items – Custom Duty	<input type="text"/>	<input type="text"/>
Imported Raw Material – Custom Duty	<input type="text"/>	<input type="text"/>
Indigenous B/O items (directly going to site)		
Purchase Tax	<input type="text"/>	<input type="text"/>
Resale Tax	<input type="text"/>	<input type="text"/>
Whether Form 'C' to be issued by Client	YES <input type="checkbox"/> NO <input type="checkbox"/>	
L&T Manufactured Items – Taxes & Duties	<input type="text"/>	<input type="text"/>
L&T Services – Service Tax		
Input services to L&T	<input type="text"/>	<input type="text"/>
Output Services from L&T	<input type="text"/>	<input type="text"/>
Whether the contract requires each item of taxes & duties listed separately?		<input type="text"/>
Whether the contract is lumpsum price including all taxes & duties?		<input type="text"/>

# Pre-Bid Stage

Continued.....

## 12) For International Projects :

Country Profile & Rating, if any

Customer Profile & Rating, if any

Currency of pymt by Customer

Corporate Income Tax Rate  %

Is the project significant from the perspective of the Country's Political, Social & Economic Benefits?

YES  NO

If yes, any benefits being offered by the country, e.g. tax exemptions, etc

Whether DTAA existing between India and the Project Country? YES  NO

Any withholding tax in the Project Country? YES  NO

## 13) Any special Terms & Conditions in the contract (Please highlight)

Any deviation from the standard contractual clauses indicated in the OD Risk Policy?

### Standard Contract Clause

### Remarks

Entire Agreement	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="text"/>
Representation	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="text"/>
Consequential Losses	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="text"/>
Overall Limit of Liability & Exclusions	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="text"/>
Exclusive Remedies	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="text"/>
Indemnities	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="text"/>
Duty to Mitigate	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="text"/>

## 14) Risk Analysis for Project

### Managing Risks through Transfer

S.No.	Risks	Trigger	Effect	Action by	Estimated Costs (Rs Lakh)
1					
2					
3					

### Managing Risks through a Numerical Process

S.No.	Risks	Trigger	Effect	Improvement Action and Responsibility	Severity	Probability	Cost Impact (Rs Lakh)		
							Optimistic	Most Likely	Pessimistic
1	Foreign Exchange Variation. Change in USD exchange rate				I	A			
2									
3									

### Managing Risks by Exhortation

S.No.	Risks	Trigger	Effect	Improvement Action
1				
2				
3				

[Click here for Guidelines](#)

[Click here for downloading to MS Excel for simulation using @Risks](#)

# RISK ANALYSIS FORMAT

## POWER VERTICAL

### Categorization of Risks

#### **A) Risks that can be managed through transfer**

The effect of certain category of risks that can be minimized or mitigated by -

1. Elimination through contractual provisions and / or
2. Hedge through an insurance coverage and / or
3. Mitigation by augmenting the resources.

are covered under this category. The mitigation mechanism involve a cost that has to be captured.

#### **B) Risks that can be managed through numerical process**

The risks under this category can be estimated more accurately and assigned a contingency value. For each risk element the probability of occurrence in absolute value, the cost impact vis-à-vis pessimistic, most likely and optimistic value has to be identified.

#### **C) Risks that can be managed by exhortation**

The remaining risks elements, whose impact cannot be easily quantified or ascertained, has to be monitored regularly. The marketing manager shall assess these elements and provide for contingencies, as price will drive the quantum of such a contingency that can be carried.

## Severity Category Definitions

Severity Category	IV : Negligible	III : Marginal	II : Critical	I : Catastrophic
Cost Overrun (Loss of Profits)	Less than 0.1% planned cost	Between 0.1% to 0.5% of planned cost	Between 0.5% to 1.0% of planned cost	Above 1.0% of planned cost
Overall Project Schedule delay (if 100 weeks project)	Less than 1 week	Between 1 week to 2 weeks	Between 2 weeks to 5 weeks	Above 5 weeks
Loss caused by unsafe practices	Minor accident. No loss of Manhour	Accident causing loss of $\leq 1$ day	Loss of Human Life	Loss of Human life plus property
Quality / Reputation				Loss of further orders

## Probability Definitions

Probability Level	A	B	C	D	E	F
Description	Very High	High	Significant	Low	Unlikely	Impossible
Definition	$P > 70\%$	$50\% < P < 70\%$	$30\% < P < 50\%$	$15\% < P < 30\%$	$5\% < P < 15\%$	$P < 5\%$

# Pre-Bid Stage

Continued.....

15) Results of Risk Analysis carried out -

Total Risks exposure for the project  Rs Lakh

Contingency to be provided in estimates  Rs Lakh

Guidelines of Risk Management Protocol followed or not? YES  NO

16) Details of any other resources / support required for execution of project

17) Pre-Bid Expense estimate  Rs Lakh

Prepared by -

Approved by -

# RISK ANALYSIS FORMAT

**A:Frequent**  
 $P > 70\%$

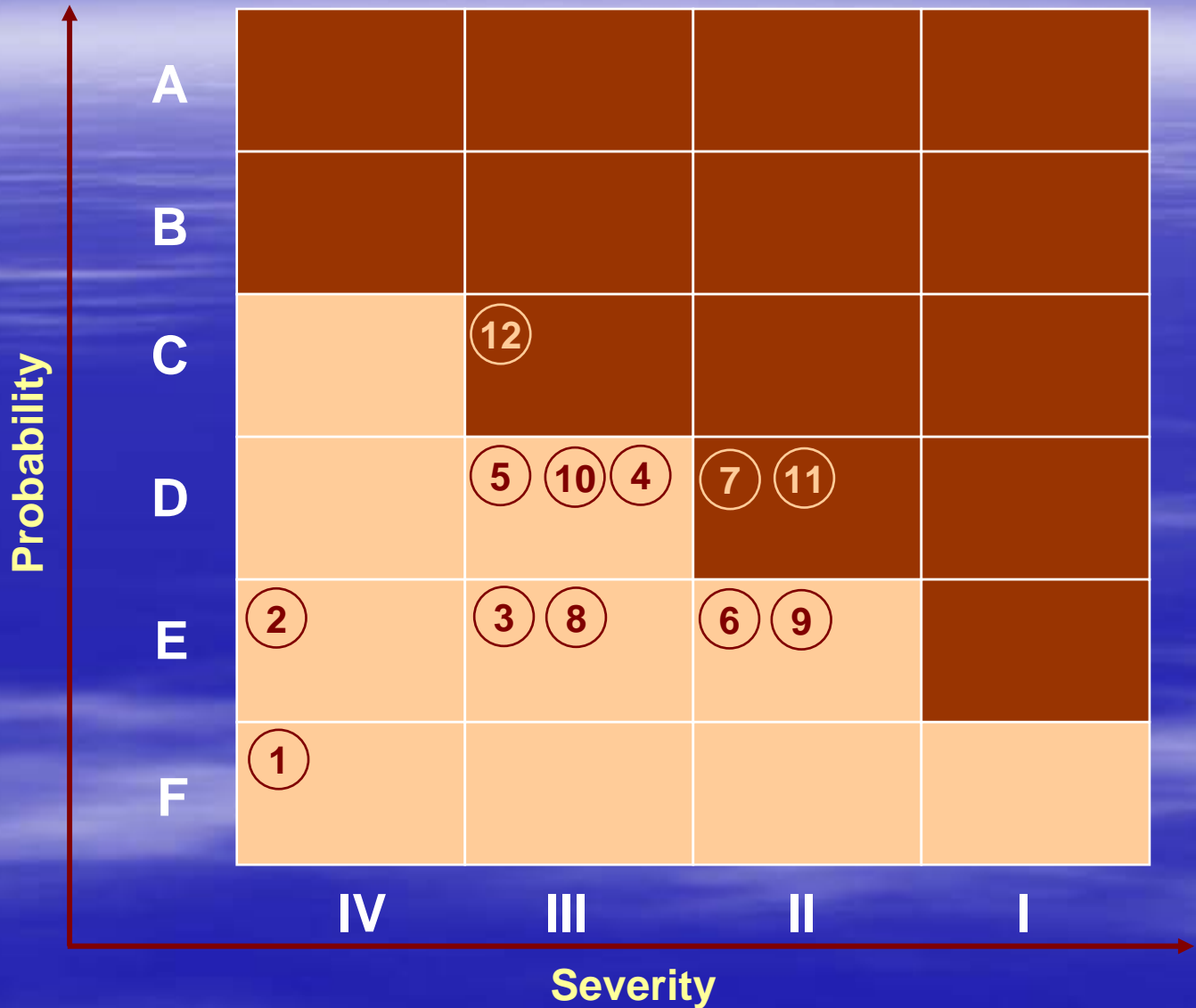
**B:Moderate**  
 $50\% < P < 70\%$

**C:Occasional**  
 $30\% < P < 50\%$

**D:Remote**  
 $15\% < P < 30\%$

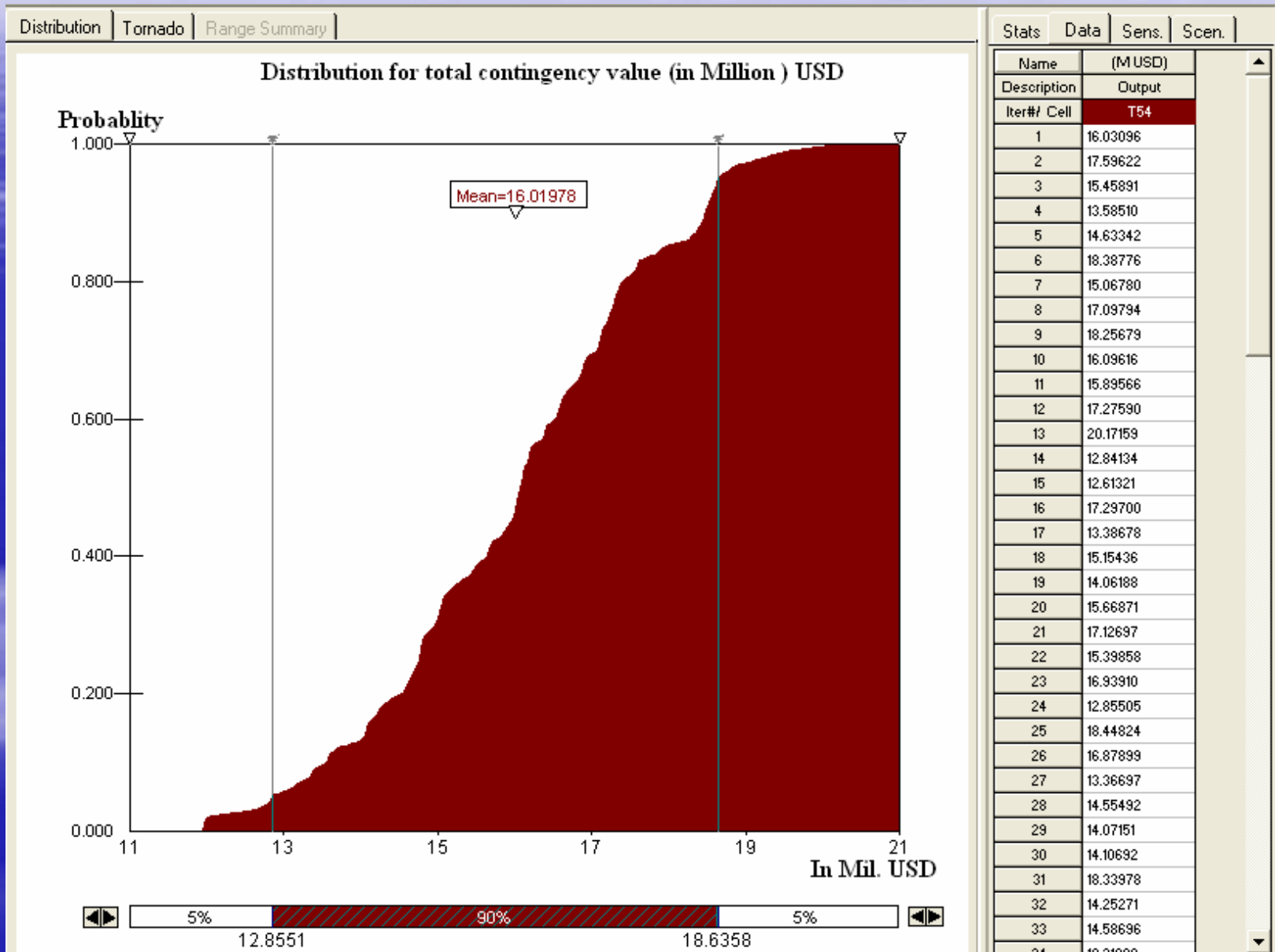
**E:Unlikely**  
 $5\% < P < 15\%$

**F:Almost Impossible**  
 $P < 5\%$



IV:Negligible III:Marginal II:Critical I:Catastrophic

# Monte Carlo Simulation



# Status

- Pre-Bid risk review process institutionalized- almost 100% coverage. Projects below threshold limit of Rs 200 cr also reviewed
- Extensive use of @risk software for risk analysis, incl. use of Monte Carlo simulation for contingencies.
- Active participation at various forums (internal & external) to spread awareness towards the process of risk management.
- Further strengthening of the process through risk review of all major ongoing projects.
- Cross vertical teams- difficult; vertical level risk review model working well

Thank you