

# Innovative Desalination Design: Location, Pre-treatment, Intake and Outfall

7 December 2018

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# Prepared Slides

Desalination  
Plant

Procurement

Evaluation

FIDIC Gold  
Book

Risk Allocation

Lessons

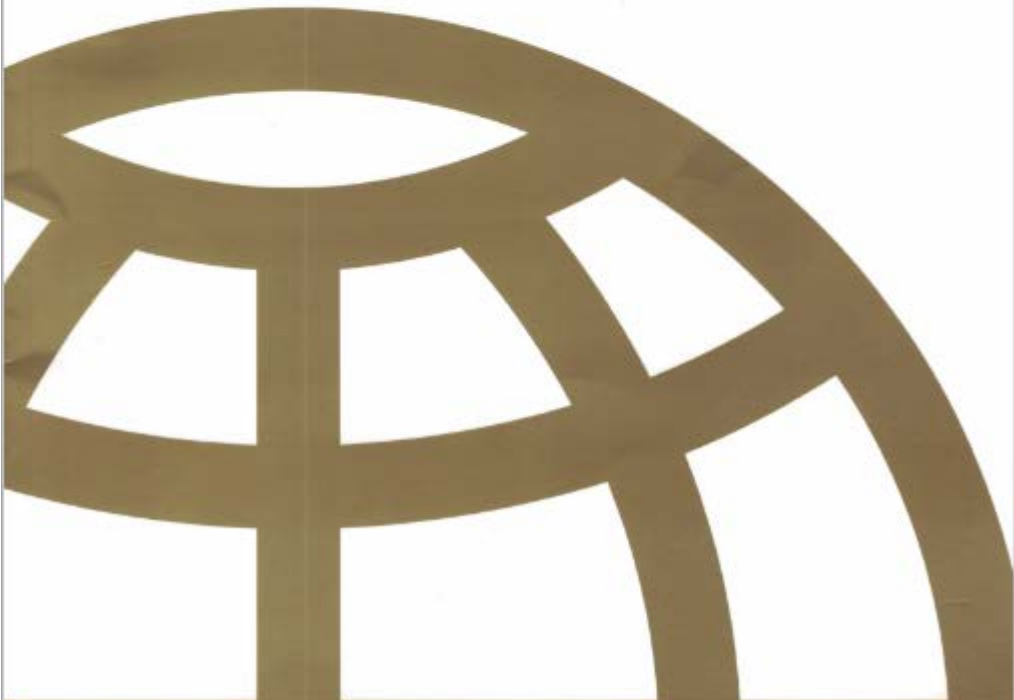
# FIDIC Gold Book



Fédération Internationale des Ingénieurs-Conseils  
International Federation of Consulting Engineers  
Internationale Vereinigung Beratender Ingenieure  
Federación Internacional de Ingenieros Consultores

# Conditions of Contract for **Design, Build and Operate Projects**

GENERAL CONDITIONS  
PARTICULAR CONDITIONS  
SAMPLE FORMS



## CONTENTS

### INTRODUCTION

Acknowledgements  
Foreword  
Notes  
Flow Charts

### GENERAL CONDITIONS

General Conditions of Contract  
Index of Clauses and Sub-Clauses  
Index of Principal Terminology  
General Conditions of Dispute Adjudication Agreement  
Procedural Rules for Dispute Adjudication Board Members

### PARTICULAR CONDITIONS

Preamble  
Part A – Contract Data  
Part B – Special Provisions

### SAMPLE FORMS

Introduction  
Forms of Tender, Contract Agreement & Dispute Adjudication Board Agreement  
Forms of Security and Guarantee

**Flow Charts**

**General  
Conditions**

**Particular  
Conditions**

- **Contract Data**
- **Special Provisions**

# Divergences from the FIDIC Gold Book

General Conditions of Contract	
Particular Conditions of Contract – Contract Data	Provide contact information Quantify the general conditions Specifies insurances and protections
Particular Conditions of Contract – Special Provisions	Modify or add to GCC clauses Clarify interference and obstructions Pass on obligations to subcontractors General catchall for social and environmental safeguards Quantify reporting requirements Deal with international impacts

# Employer's Protection

Protection	Calculation	Conditions	Reason	Payment	Payment
<b>Advanced Payment</b>	Percentage of Contract Price	Supported by Guarantee Commences when interim payment exceed 10% accepted contract sum	For mobilisaton and design	Repaid by percent deduction from Interim Payment Certificates (25%)	Balance when commissioning certificate issued becomes due
<b>Performance Security</b>	Percentage of Accepted Contract Amount	Due 28 days after letter of accpetance	For proper performance of the contract Restricted use	Reduced one year after commissioning certificate	Returned 21 days after contract completion certificate
<b>Retention Money</b>	Percentage deducted from each interim payment certificate	Upper limit set	For works not carried out by contractor Unrestricted use	Release 50% at commissioning certificate	Release balance one year after commissioning certificate
<b>Maintenance Retention Fund</b>	Percent deducted from each interim payment certificate (5%)	Upper limit set Can be replaced with performance guarantee	For maintenance not carried out by contractor Unrestricted use		Released at completion certificate
<b>Asset Replacement Fund</b>	Part of bid. Replacement schedule plus amounts	Applies to operation service period	For replacement of assets which reach the end of their lives during the operation service period (after five years)	If assets replaced early not paid till due date If assets replaced late paid when replaced	Residual amount in fund shared 84 days after final completion certificate

# Example Levels of Protection

## Project

- \$100m contract
- \$70m 3-year DB
- \$30m 7-year OS

## Contract

- Performance Security  
8% DB  
12% OS
- Retention DB 10% (cash)
- Retention OS 5% (cash)

## Cost

- \$800k

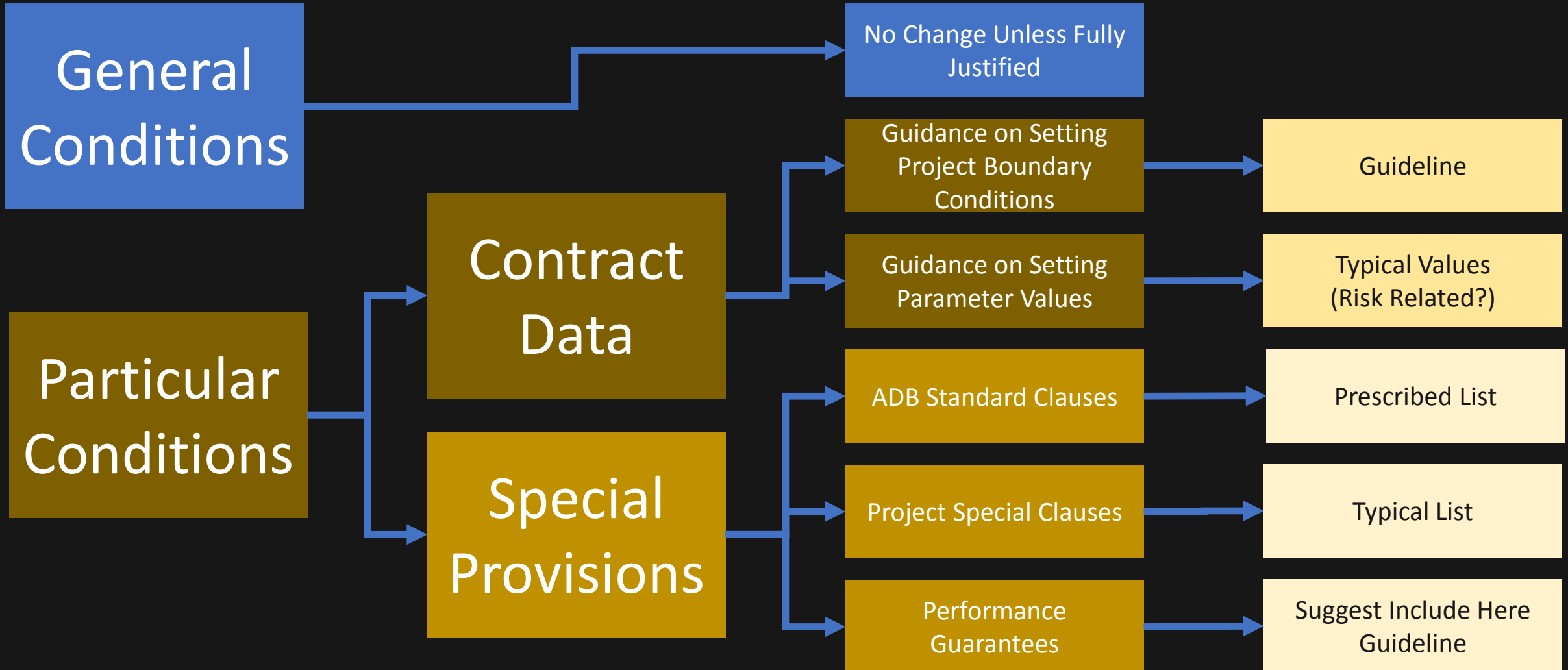
Reduce Retention DB to 5%

- \$600k

Only use guarantees (cash swap)

- \$400k

# Changes to Gold Book

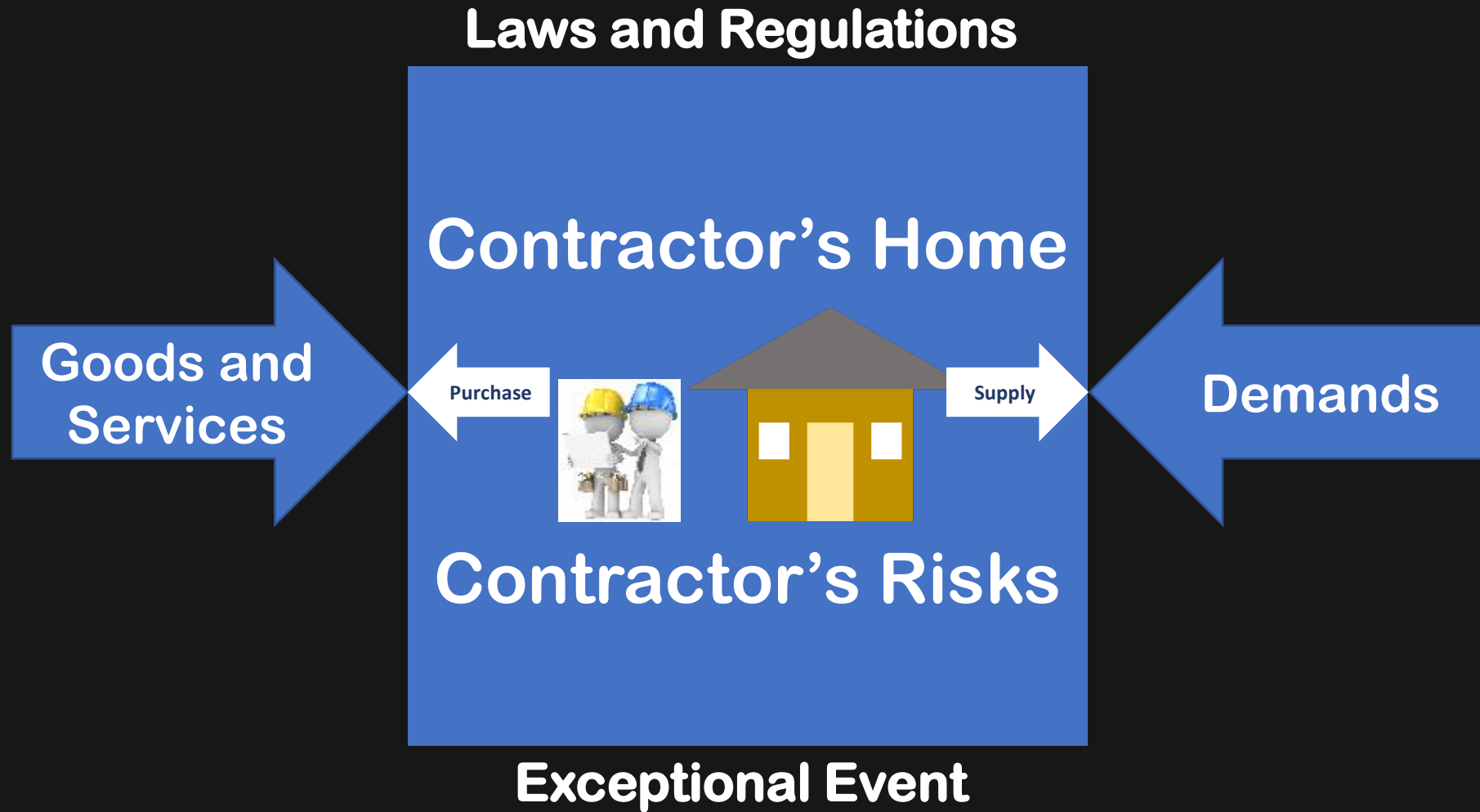




# Lessons

1. DBO contracts are being used on ADB supported urban (especially water) projects
2. Clauses in the general conditions should not be changed – proposed changes should be scrutinised by experienced contract managers
3. The various protections sought by an Employer should be kept to reasonable levels and could be costed as part of the decision making
4. The ADB could provide guides and check lists for some aspects of the particular conditions of contract (both contract data and special provisions)

# Risk Allocation



**Boundary  
Conditions**

**Laws and Regulations**

**Contractor's Home**

**Goods and  
Services**

Purchase



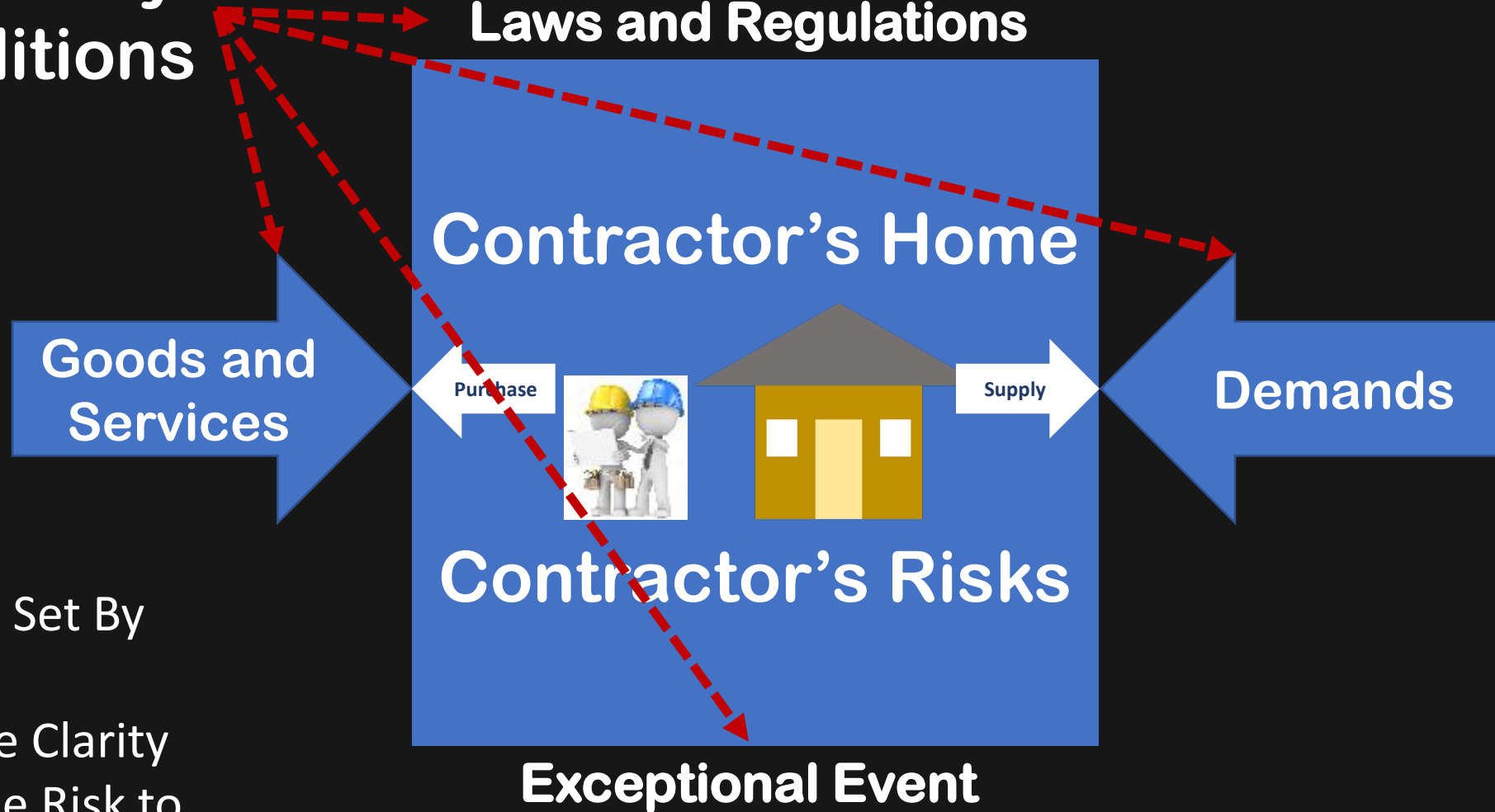
Supply

**Demands**

**Contractor's Risks**

**Exceptional Event**

- Boundary Conditions Set By Employer
- Greater the Clarity the Less the Risk to the Contractor and the lower the Price



## What the Contractor Worries About

Changes to

- Governments
- Laws and regulations
- Price movements in goods and services
- Exchange rates
- Customer demands

Exceptional events

Delays to payments

Breaches of contract by the employer

## What the Employer Worries About

Failure to deliver required quantity

Failure to deliver required quality

Failure to deliver required reliability

Significant delay to start of supply

Significant cost overrun

Failure to achieve economic lives of assets

Abandonment of contract

Risk Mitigation Strategies

Money

Service

## What the Contractor Worries About

Changes to

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Risk Mitigation Strategies

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# Risk Management Plan

## Changes to

- Governments
- Laws and regulations
- Price movements in goods and services
- Exchange rates
- Customer demands

Exceptional events

Industrial actions

Delays to payments

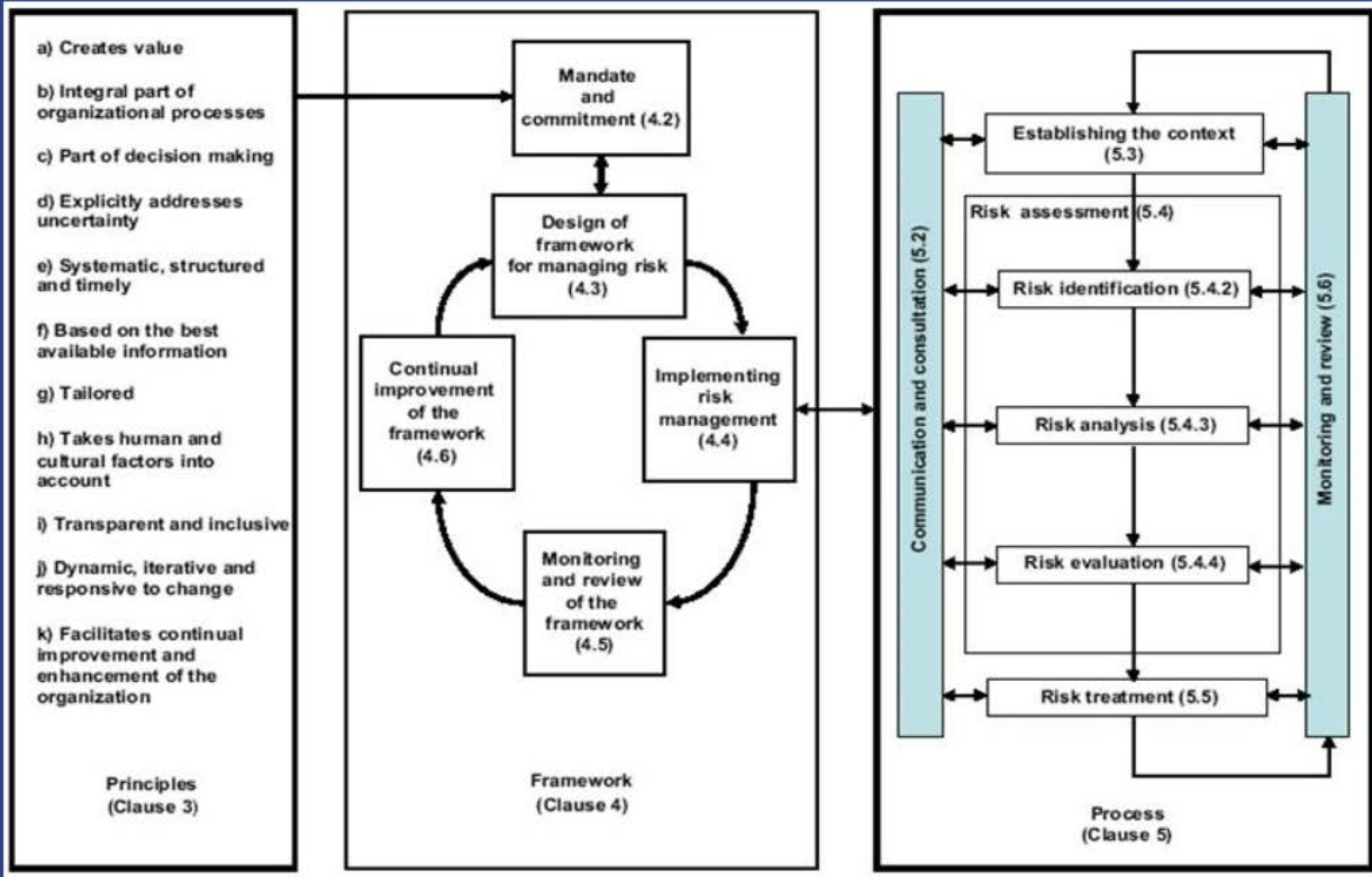
Breaches of contract by the employer

## Risk Mitigation Strategies

Significant delay to start of supply  
Significant cost overrun  
Failure to achieve economic lives of assets  
Failure to deliver required quantity  
Failure to deliver required quality  
Failure to deliver required reliability  
Abandonment of contract  
Breaches of contract by the contractor

# Risk Management Plan

# ISO 31000





			Consequence				
			Insignificant	Minor	Moderate	Major	Catastrophic
			1	2	3	4	5
Likelihood	< 1 year	5	L	M	H	E	E
	1-3 years	4	L	L	M	H	E
	4-10 years	3	N	N	L	M	H
	11-50 years	2	N	N	N	L	M
	> 50 years	1	N	N	N	N	L



## Commissioning

‘When the plant is turned on it must operate continuously for six months’

# ADB Standard Bidding Document Risks

- Insolvency
- Legal and Contract
- Dispute
- Injury/Damage
- Insurance
- Contract Misadministration
- Laws and Regulations
- Permits and Authorisations
- Non-Excusable Delays
- Rushed Procurement Process
- Capacity of Bid Evaluation Team
- Input Data and Site Conditions
- Weather
- Land Clearance and Access
- Non-Performing Facility
- Availability of Inputs
- Asset Replacement

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**Focus risks on outcomes or outputs**  
**Distinguish between risks and causes**  
**Ask the 'so what' question.**

# Lessons

1. A risk management plan should be produced for every project
2. Risks must be correctly allocated to the employer or the contractor
3. Distinguish between a risk and its causes (ask the so what question?)
4. All risks outside of the influence of the contractor should be assigned to the employer
5. The risk management plan should be updated to include the risks derived from a successful bid submission

# Lessons Learned Summary

# Lessons Learned - Summary

**Today**

**Desalination  
Plant**

**Evaluation**

**Risk Allocation**

**Procurement**

**FIDIC Gold  
Book**

**Lessons**

1. 36 Summary Items
2. Develop into a Knowledge Project
3. Still much to learn about DBO contracts
4. Need to continue to train Project Management Units in:
  - a) Procurement,
  - b) Bid Evaluation,
  - c) DBO Contracts, and
  - d) Compiling Documents