

FIDIC Latin America Contract Users' Conference



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DBO Design-Build-Operate

- Background, Rationale and basic Assumptions of DBO
- Main Features of the DBO Form of Contract (Green field)
- Improvements to 1999 Documents incl. Risk Allocation
- Brown Field Scenario (ODB) Challenges and Outlook



Why DBO?

Problem in Yellow Book Tender

- Yields minimum construction costs and possibly high operation costs

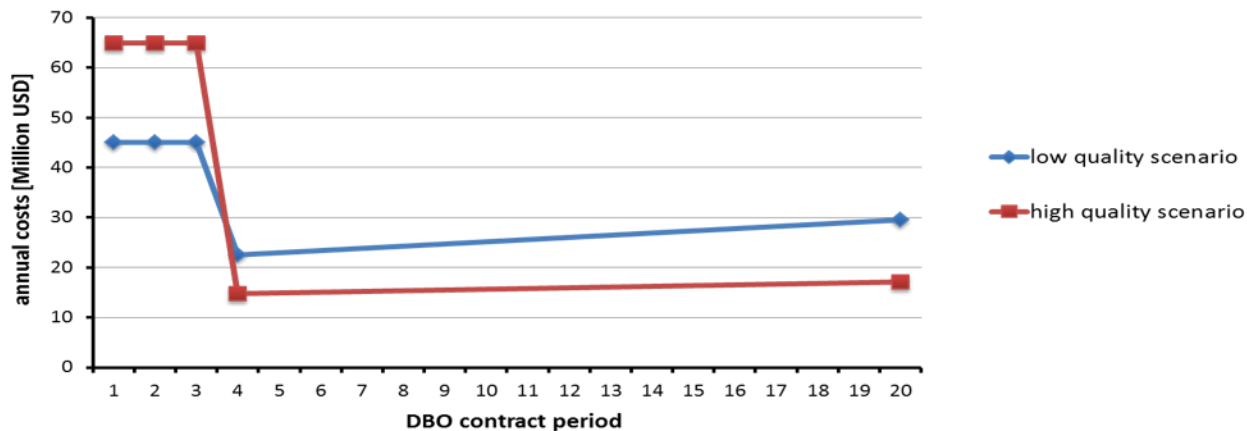
Advantages of DBO

- Contractor needs to optimize life-cycle costs
- Minimum of sum of construction and O&M costs required (Net present value)
- Thereby Contractor forced to look for durable solutions
- Yields long term reliability and efficiency of plants
- Single point responsibility and long-term commitments of Contractor
- Minimizes delays between project phases, optimizes construction activities,
- Leads to reduced interface problems



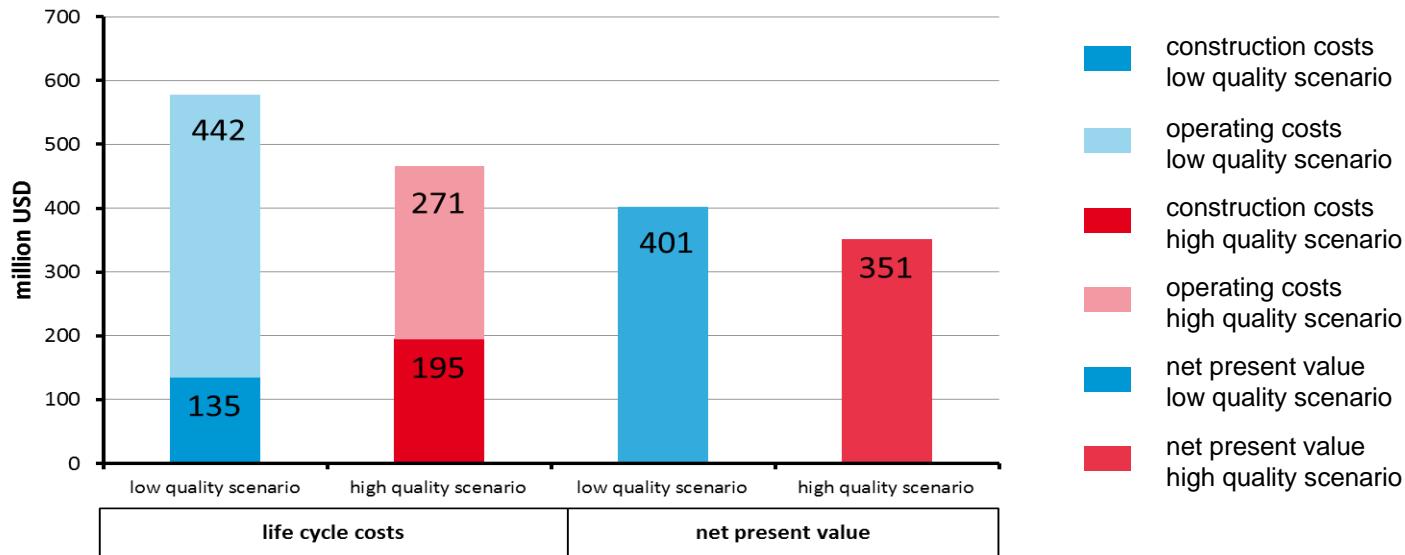


DBO Investment Scenarios for high and low Quality Construction



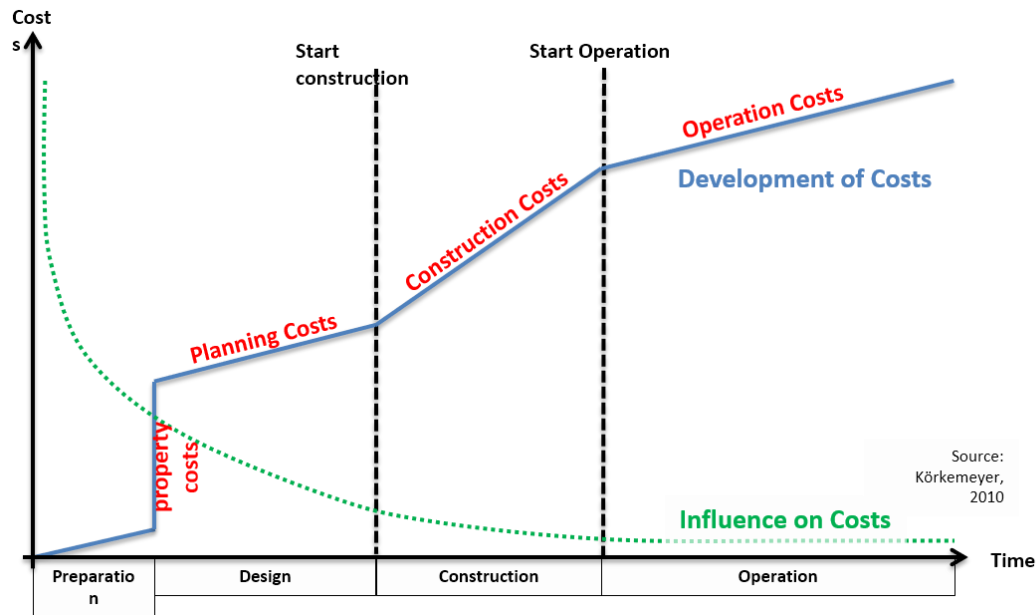


Comparison of Life Cycle Costs and Net Present Value for low and high Quality Construction Scenarios





Life Cycle Costs and Scope of Influence during the Project Cycle





Experiences with DBO in USA

- Increasing popularity since late 1990s
- Expected to gain significant momentum in late 2010s
- Examples: Lake Pleasant WTP Phoenix, Fillmore Water Recycling Plant, Tolt WTP Seattle
- American Water has been involved in over 20 DBO projects
- More seamless process
- Yields innovative solutions
- More “intelligent design” by including O&M experts
- Better energy efficiency
- Smaller footprint
- Faster and more cost-effective project delivery
- Predictability of O&M costs for employer
- Life cycle cost savings reported of more than 25%



Experiences with DBO in other Countries

- DBO projects in Ireland also started in the late 1990s. Irish experience and contract models influenced Gold Book significantly
- Sebastian Hoek summarized data on projects in India, Turkey, Romania and Algeria
- These were generally projects with shorter O&M periods of 5 to 10 years.
- All American projects and most other ongoing projects use different contract models, not FIDIC.
- Some use a DB type contract followed by an O&M contract
- Some do not benefit from full potential of DBO as operation period is only a few years

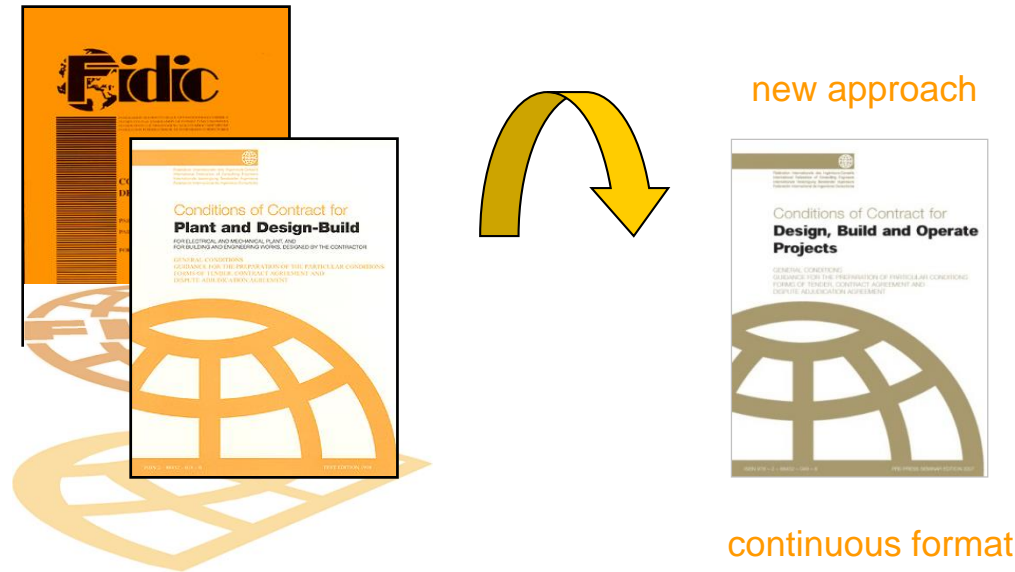


DBO Basic Assumptions for FIDIC Gold Book

- Green Field Scenario
- A Sequence of Design – Build – Operate
- One Contract and one Contractor
- The Employer owns the plant, collects tariffs and pays for the O&M service of the Contractor
- The Contractor designs and builds the plant “Fit for Purpose”
- The Contractor operates the plant under an operation license
- DBO to be clearly distinguished from BOOT where the Contractor owns the plant and is entitled to collect service fees to cover his investments.
- 20 Year Operation Period



Base and Origin of DBO Contract





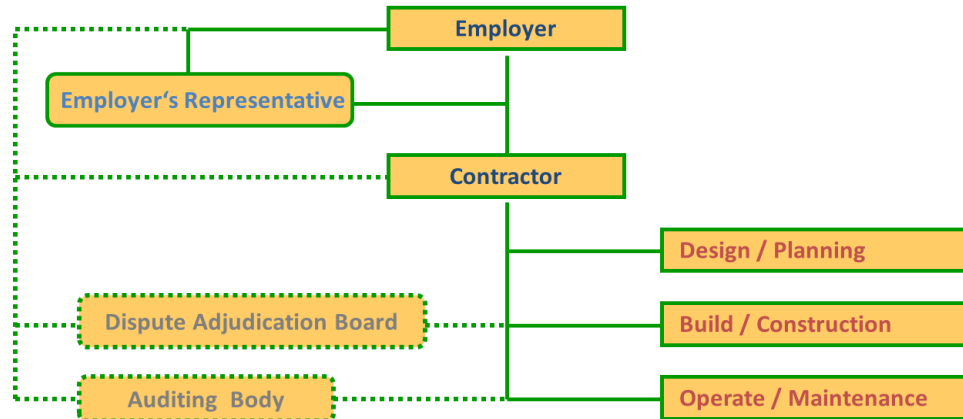
DBO Layout, Format and Content

- 20 Clause layout
- Same terminology and definitions as Yellow Book (where appropriate) but also new terminology introduced
- Flow Charts
- General Conditions
- Particular Conditions
 - Part A - Contract Data
 - Part B - Special Provisions
- Sample Forms
- Separate DBO Guide





DBO Primary and Secondary Parties



Employer: Requirements, Contract Data, **Employer's Representative:** to administer the Contract

Contractor: designs, executes, completes, remedies defects, provides Operation Service

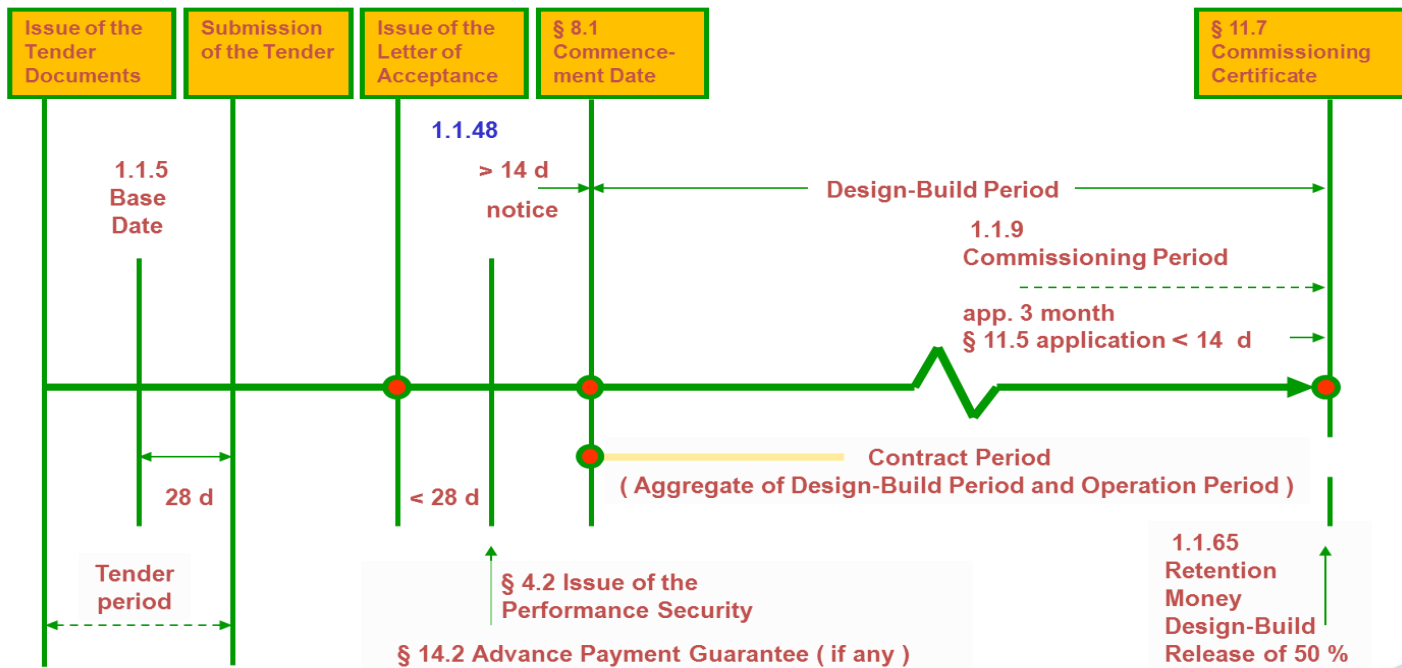


Secondary Party – Auditing Body 1.1.4

- To conduct the Independent Compliance Audit [§ 10.3] during the Operation Service Period,
- Purpose to audit and monitor the performance of Employer and Contractor, in compliance with the Operation Management Requirements
- To be jointly appointed at least 182 days prior to the commencement of the Operation Service,

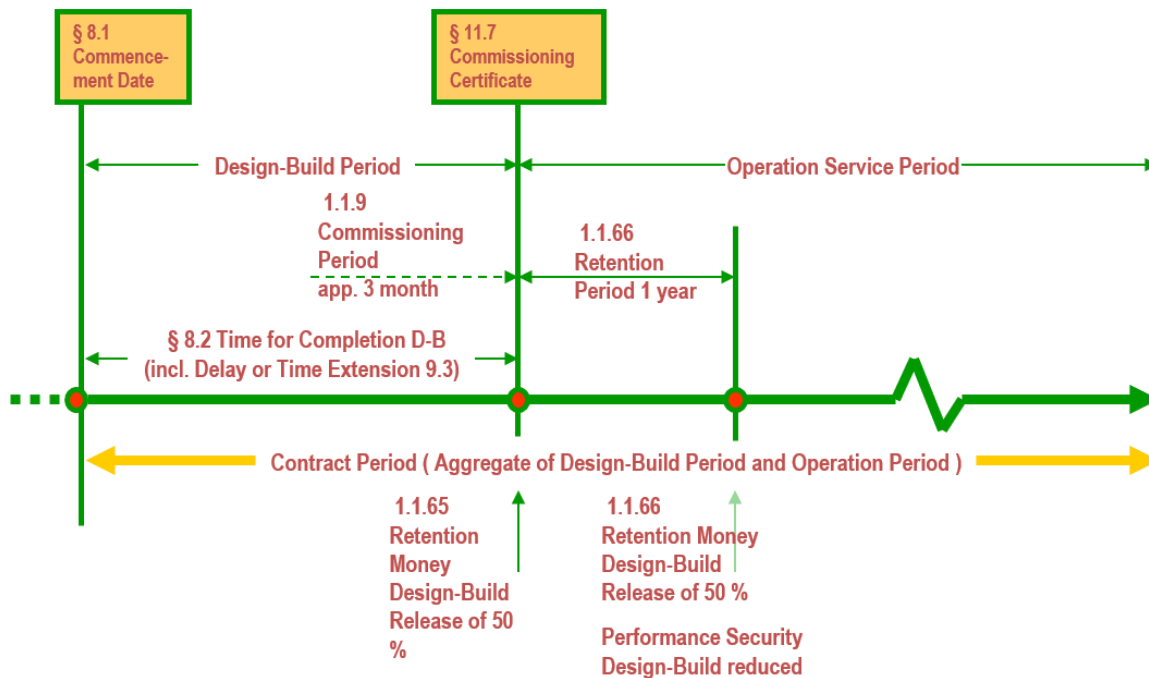


DBO Tender Docs to DB Period



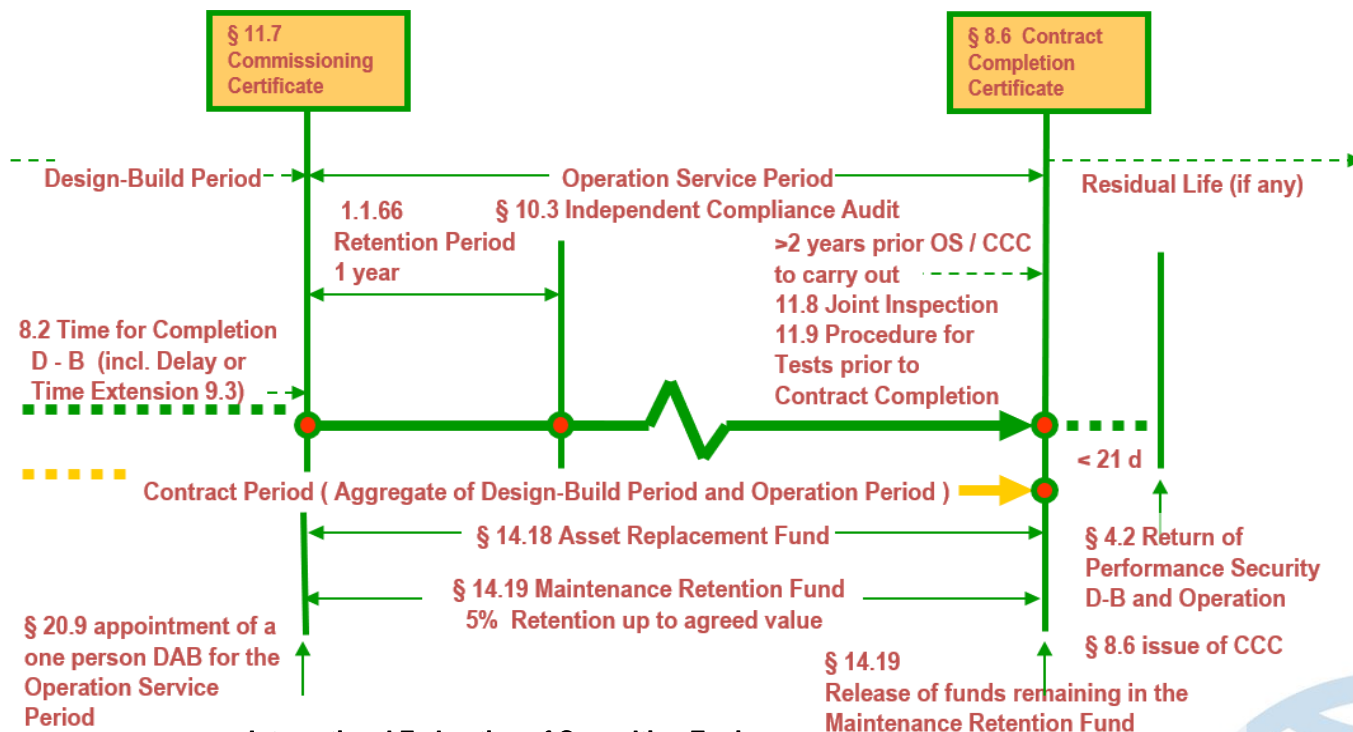


DBO Commencement to Commissioning





DBO Commissioning to Contract Completion





Asset Replacement Fund 1.1.4.18, § 14.18 (1)

- To provide the **necessary funding** for the replacement of **items of Plant** identified in the **Asset Replacement Schedule**
- To be prepared by the **Contractor**, covering the **identification and timing** of asset replacements required for the **continued efficient operation** of the Works
- **Payment** will not be released until
 - such **replacement** has been **effected**, or
 - replacement **date** has been **reached**



Asset Replacement Fund 1.1.4.18, § 14.18 (2)

- Remaining money in the Asset Replacement Fund upon completion of the Contract shall be shared equally between the Parties
- Contractor shall be entitled to include his share in his Application for Final Payment Certificate Operation Service



Asset Replacement Fund 1.1.4.18, § 14.18 (3)

Shall not cover the cost of :

- **Routine maintenance** items
- Replacement of Plant and Material with **less than five years life expectancy**
- **Providing spares** between scheduled dates for major plant replacement
- Replacement of Plant and Materials which are **not identified in the Asset Replacement Schedule** and shall be included **elsewhere** in the Contract



Handback Requirements

Handback Requirements § 8.7

- shall be specified in the **Employer's Requirements**
- and shall be taken into consideration in the **design and construction of the facility**

➡ Direct impact on '**Residual Life**' of the Works!



Risk Allocation in the DBO Form of Contract General Principles

- Which Party can best control a risk
- Which Party can best foresee a risk
- Which Party can best bear a risk
- Which Party is most affected by a risk



From Risk to Insurance

- Duties of Contracting Parties
- Risks in Performance
- Responsibilities towards other parties and self
- Liability in terms of amount, period and scope
- Indemnity (and hold harmless)
- Insurance



Impact and Insurability of Risks

Insurable:

- Leading to damage, physical loss or injury

Generally not insurable:

- Leading to economic and/or time loss



The New Clauses 17 Risk Allocation & 18 Exceptional Risks in the Gold Book

- Revised and restructured based on identification and allocation of Risks
- Definition of Risks allocated to each Party (more balanced approach than the Silver book)
- Classification of Risks into Commercial Risks and Risks of Damage depending on insurability
- Replacement of the term Force Majeure by term “Exceptional Risks”





General Risk Allocation in Gold Book

Design Build Period

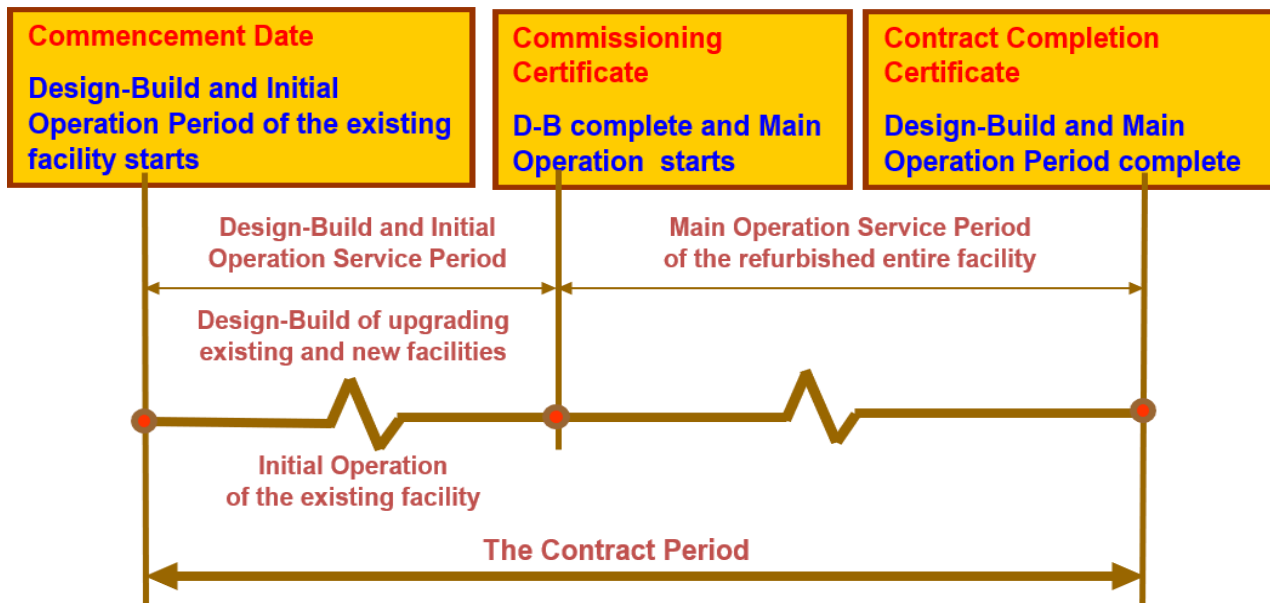
- Employer's Risks
 - Employer's Commercial Risks
 - Employer's Risks of Damage incl. exceptional Risks
- Contractor's Risks
 - All Risks other than listed Employer's Risks

Operation Service Period

- Employer's Risks
 - Risks similar to Risks of Design Build Period
- Contractor's Risks
 - All Risks from Contractor's design and all Risks resulting from O&M other than listed Employer's Risks



The ODB Contract (Bronze Book)





Challenges and Issues addressed during the Development of the Bronze Book

- Assessment of the performance capabilities and maintenance condition and the current technical status of existing facilities
- Liability for latent defects and other pre-existing conditions, responsibility for the care of the existing facilities
- Agreement of scope of replacement and refurbishment
- Design liability for existing facilities, interim solutions
- Responsibility for long-term renewal and replacement of existing facility assets, switch-over operations



More Challenges and Issues

- Responsibility for existing operation and maintenance personnel and contracted service providers
- Employer and Contractor responsibilities in the transfer of responsibility for operation of the existing facilities
- Responsibility for achieving production outputs upon completion of the new Works (including modification of the existing facilities)



More Challenges and Issues

- Adjustment of the Contract Price during the Operation Service Period for unforeseeable costs required to operate the existing facilities
- Responsibility for insuring the facility during the various stages of the work
- Project procurement methods to ensure competitive bids
- Risk Allocation



ODB Assumptions

- Basis is the Gold Book
- Basic assumptions similar to DBO
- Brown Field Scenario
- Combined Design Build and Initial Operation Period
- Separate Main Operation Period



ODB New Features/Status

- Class A Risks (Above ground - Contractor) and
- Class B Risks (Below Ground – Employer)
- Delay: Due to decision to take new features of the Yellow Update Book on Board (Risk allocation, Clauses 20 and 21)
- Status now: Draft ready for friendly review
- Complication: Gold Book is still based on old yellow book philosophy





Main Differences of Gold and Bronze after YB Update

- Bronze Book will feature different from Gold Book:
- New standing DAB
- Focus on early dispute avoidance
- Adjusted indemnity against errors in Contractor's Design Risk
- Definition of Claim
- Defined Sources of Claims
- Employer's and Contractor's Claim are harmonized and dealt with likewise
- Record keeping is mandatory for both parties
- Waiver procedure for time bars (DAB ruling)
- New Clause 21 to separate claims from disputes
- Amendments regarding NOD's



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**Special thanks to:
the Members of the DBO and ODB Task Groups
Thank you for your kind attention**



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