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Comparative Analysis of GHG accounting methodologies in FIP Projects

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Comparative Analysis of GHG accounting methodologies in FIP Projects



- BACKGROUND AND METHODOLOGY
- FINDINGS
- NORMALIZATION OF RESULTS
- CONCLUSIONS
- RECOMMENDATIONS





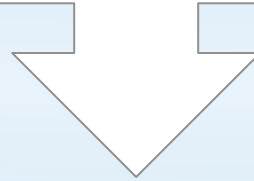
BACKGROUND AND METHODOLOGY





The status quo

- Some countries submitted detailed ex-ante ER calculations
- Calculation methodology was not standardized
- Significant differences in ex-ante calculations submitted by different countries



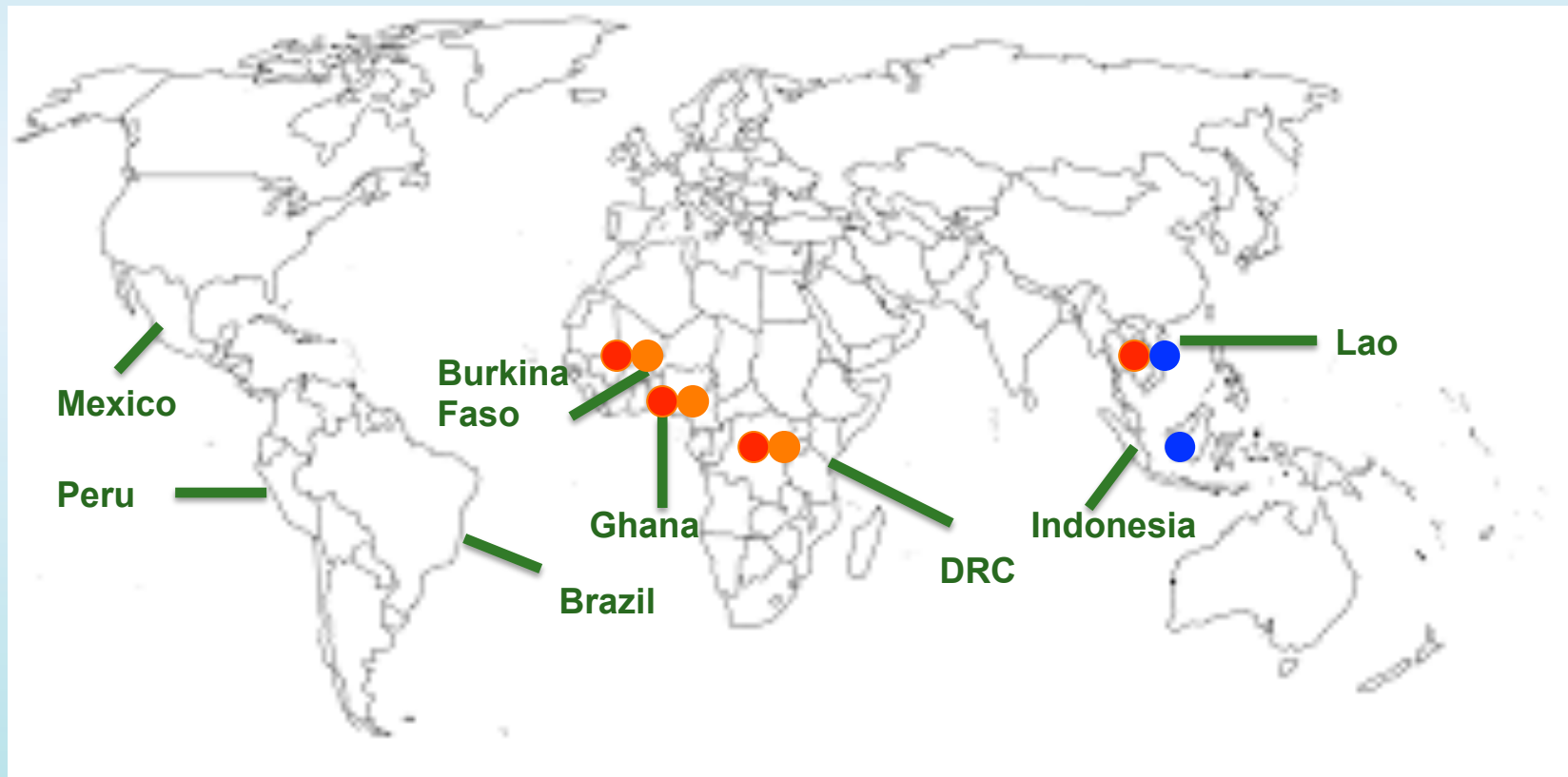
Are we talking about the same thing?





Methodology

Ex-ante Emission Reduction (ER) calculation analyzed



IBRD

AfDB

ADB



Criteria used for the analysis

Criteria to determine comparability among FIP projects are:

- Timeframe
- Use of historic average to determine the baseline
- Scope of activities
- Land representation method
- Accuracy (tier) of carbon stock rates
- Number of forest strata/carbon stock rates
- Carbon pools considered
- Methodology used for calculation



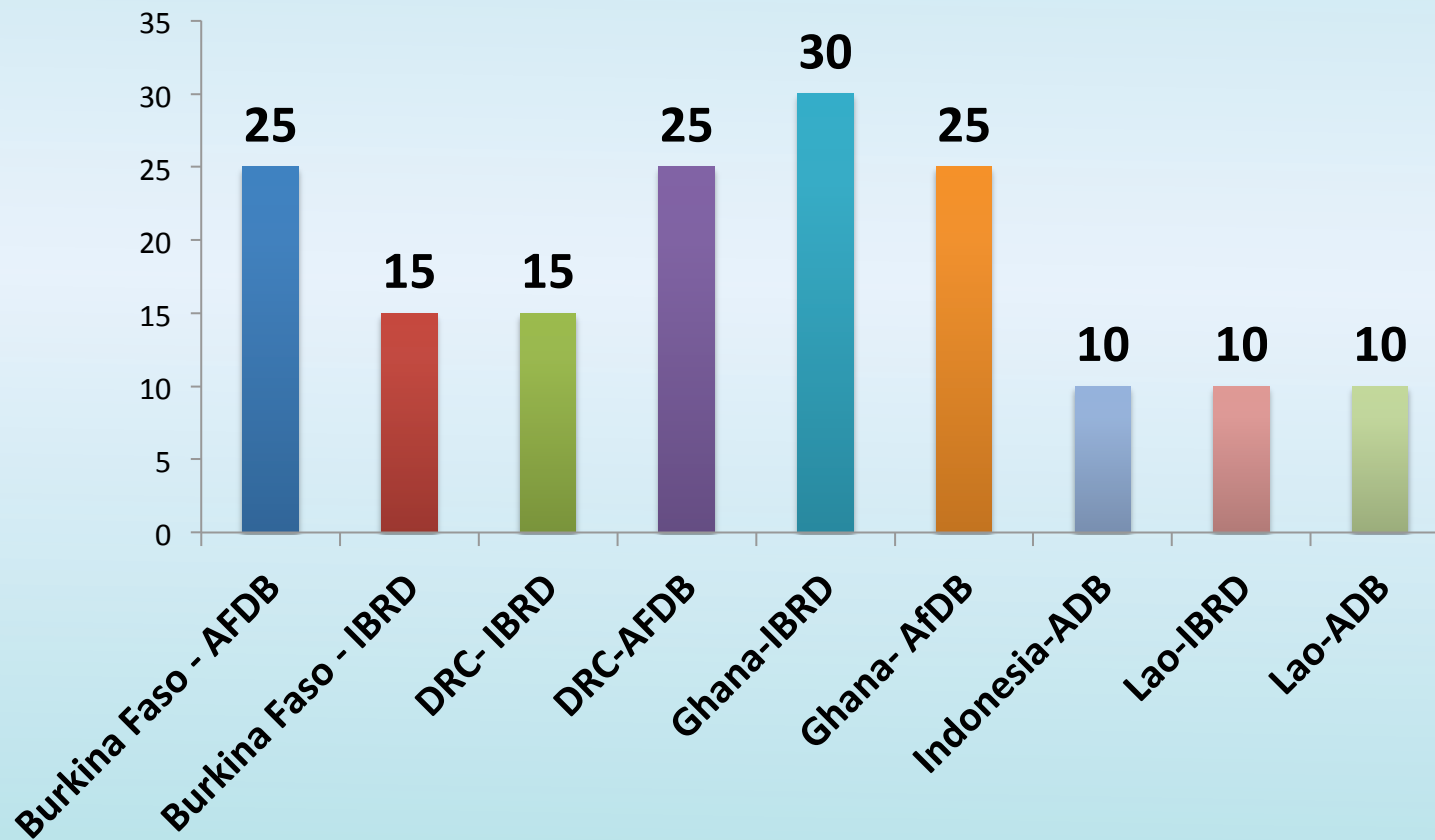
FINDINGS





Timeframe

Number of years considered for the calculation





Degradation

Degradation is an important driver of carbon loss. However, it is difficult to determine with precision.

The assessed projects have incorporated forest degradation in different ways in the ER calculation using assumptions.

Examples:

IBRD project in Lao assumed that there would be a 1% growth stock loss due to deforestation and forest degradation.

IBRD project in Ghana GHG accounting considers that the project prevents forest degradation. In particular, it prevents forest degradation by avoiding closed forest (415 tCO₂e/ha/yr) from turning into an open forest (95 tCO₂e/ha/year) and it prevents forest degradation by avoiding open forest from turning into a more degraded type of forest (71 tCO₂e/ha/yr)

ADB project in Indonesia analyzes Land Use Change dynamics over the observation period separately for every occurring Land Use Change trajectory per district in order to create a more exact prediction of degradation per forest type and per post-deforestation Land Use



Land representation approach

Project	IPCC Approach	Source of land use cover information
Burkina Faso-IBRD	1	Land use cover was obtained through historic forest inventory data, from 1992 and 2002.
DRC-IBRD	3	Wall to wall medium resolution satellite imagery was used to provide the basis for land cover mapping.
Ghana-IBRD	1	Land use data was extracted from national forest inventories.
Lao-IBRD	1	Land use cover information is extracted from the annual reports published by the Forestry Commission.
Burkina Faso- AfDB	1	Land use data was extracted from national forest inventories.
DRC-AfDB	1	Land use data was extracted from national forest inventories.
Ghana-AfDB	1	Land use data was extracted from national biomass map.
Indonesia- ADB	2	Land use data was based on satellite imagery
Lao-ADB	3	Land use cover information is coming from satellite imagery.



Tier of emission factor used

Country	Tier method
Burkina Faso- IBRD	Tier 1
DRC-IBRD	Tier 1, 2 and Tier 3
Ghana- IBRD	Tier 2
Lao- IBRD	Tier 2
Burkina Faso- AfDB	Tier 1 and Tier 2
DRC- AfDB	Tier 2
Ghana- AfDB	Tier 1 and Tier 2



Tier of emission factor used

Carbon stock rates, deforestation rates and degradation rates used by IBRD and AfDB are different for projects taking place in the same or nearby area.

Burkina Faso

tCO ₂ /ha	IBRD project - Burkina Faso	AfDB project - Burkina Faso	Difference (%)
Forest	198	194.33	1.85
Shrubland	128.33		
Grassland	36.67	12.85	64.95
Crops	84.33	18.35	78.24



Tier of emission factor used

Burkina Faso - Deforestation rate

	IBRD project - Burkina Faso		Difference in deforestation	AFDB project - Burkina Faso		Difference in deforestation
	without project	with project (after 5 years)		without project	with project (after 5 years)	
%	2	0.8	1.2	0.5	0.25	0.25

Burkina Faso - Degradation rate

	IBRD project - Burkina Faso		Difference in degradation	AFDB project - Burkina Faso		Difference in degradation
	without project	with project (after 5 years)		without project	with project (after 5 years)	
%	5	3	2	0.4	0.2	0.2



Tier of emission factor used

DRC - Carbon stock rates

tCO2/ha	IBRD project - DRC	AFDB project - DRC	Difference (%)
Primary forest	1059.7	400	62.29
Secondary forest	354.93	400	12.69

Ghana - Carbon stock rates

tCO2/ha	IBRD project - Ghana	AFDB project - Ghana	Difference (%)
Plantation		9.6	
Set aside land		18.35	
Shade cocoa plantation		291.6	
Low-Shade cocoa plantation		201.85	
Forest		360	
Closed Forest in the HFZ	568	360	-36.62
Open Forest in the HFZ	319	360	12.85
Cropland in the HFZ	54	360	566.67



Carbon pools

Projects	Carbon pools considered				
	Aboveground	Belowground	Deadwood	Litter	Soil
Burkina Faso-IBRD	✓	✗	✗	✗	✗
Burkina Faso-AfDB	✓	✗	✗	✗	✗
DRC - IBRD	✓	✗	✗	✗	✗
DRC-AfDB	✓	✗	✗	✗	✗
Ghana -IBRD	✓	✓	✗	✗	✗
Ghana-AfDB	✓	✓	✗	✗	✗
Indonesia-ADB	✓	✓	✗	✗	✗
Lao-ADB	✓	✓	✗	✗	✗



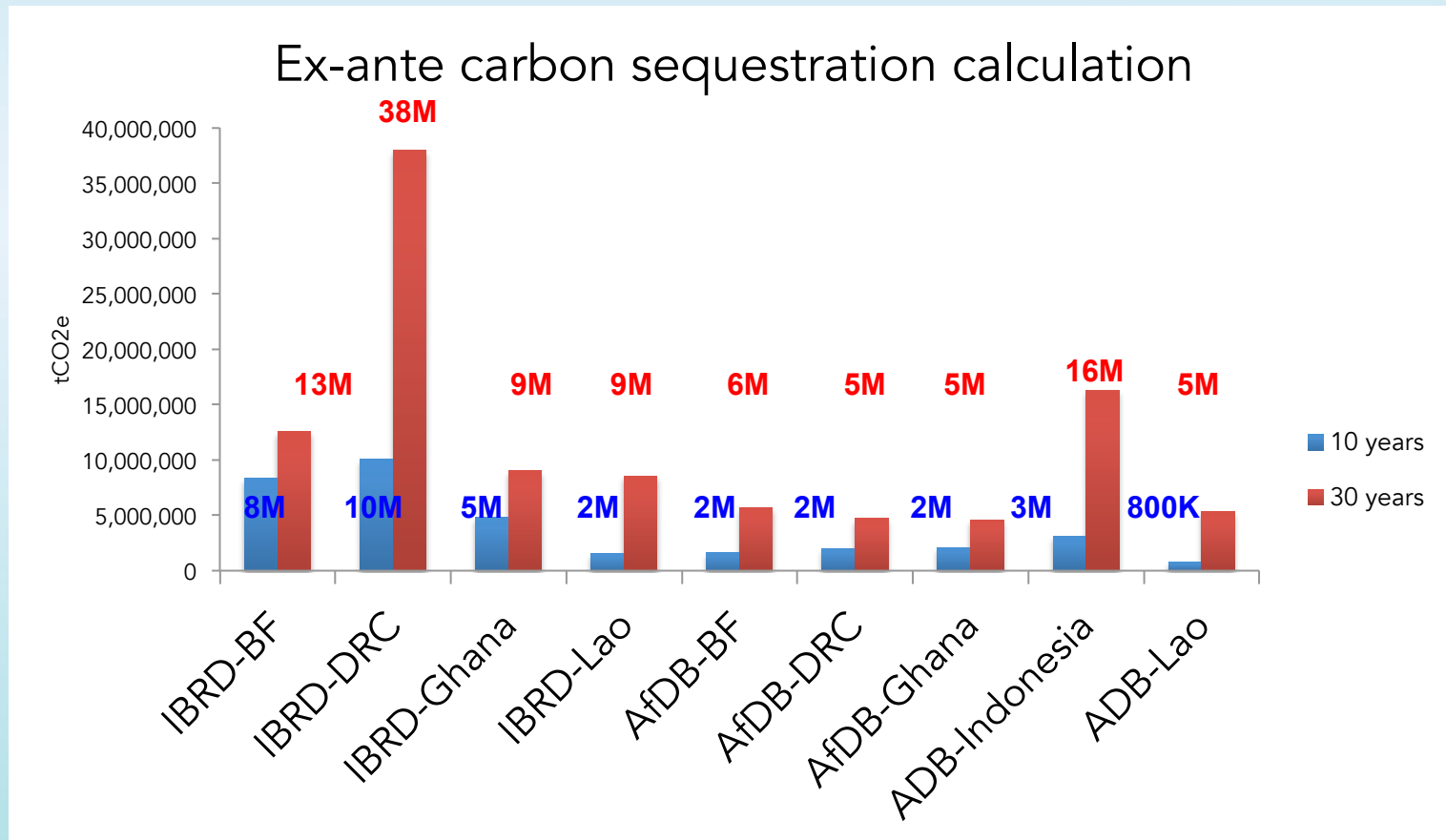
NORMALIZATION OF RESULTS





Normalization of results

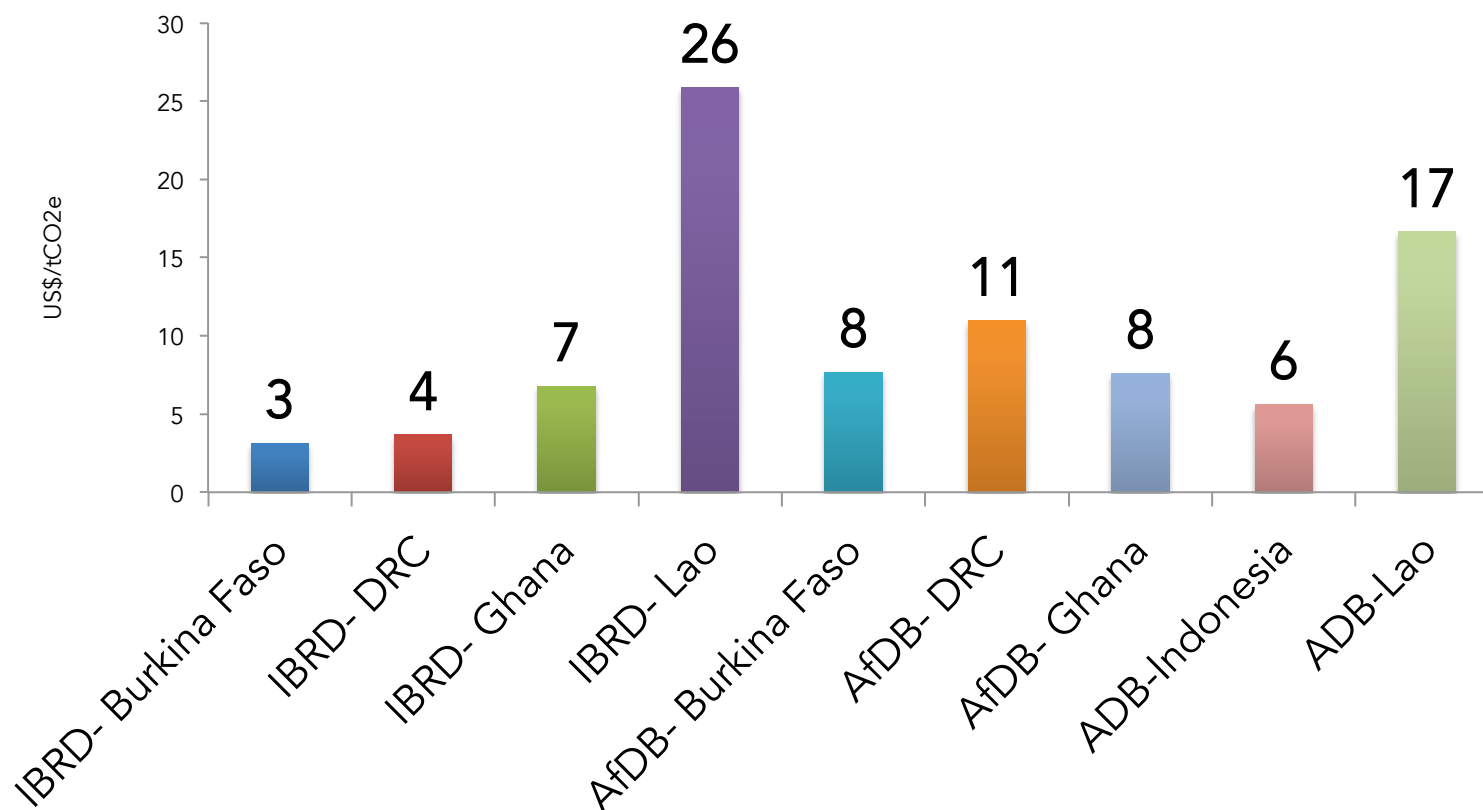
Normalization of results should be taken with caution





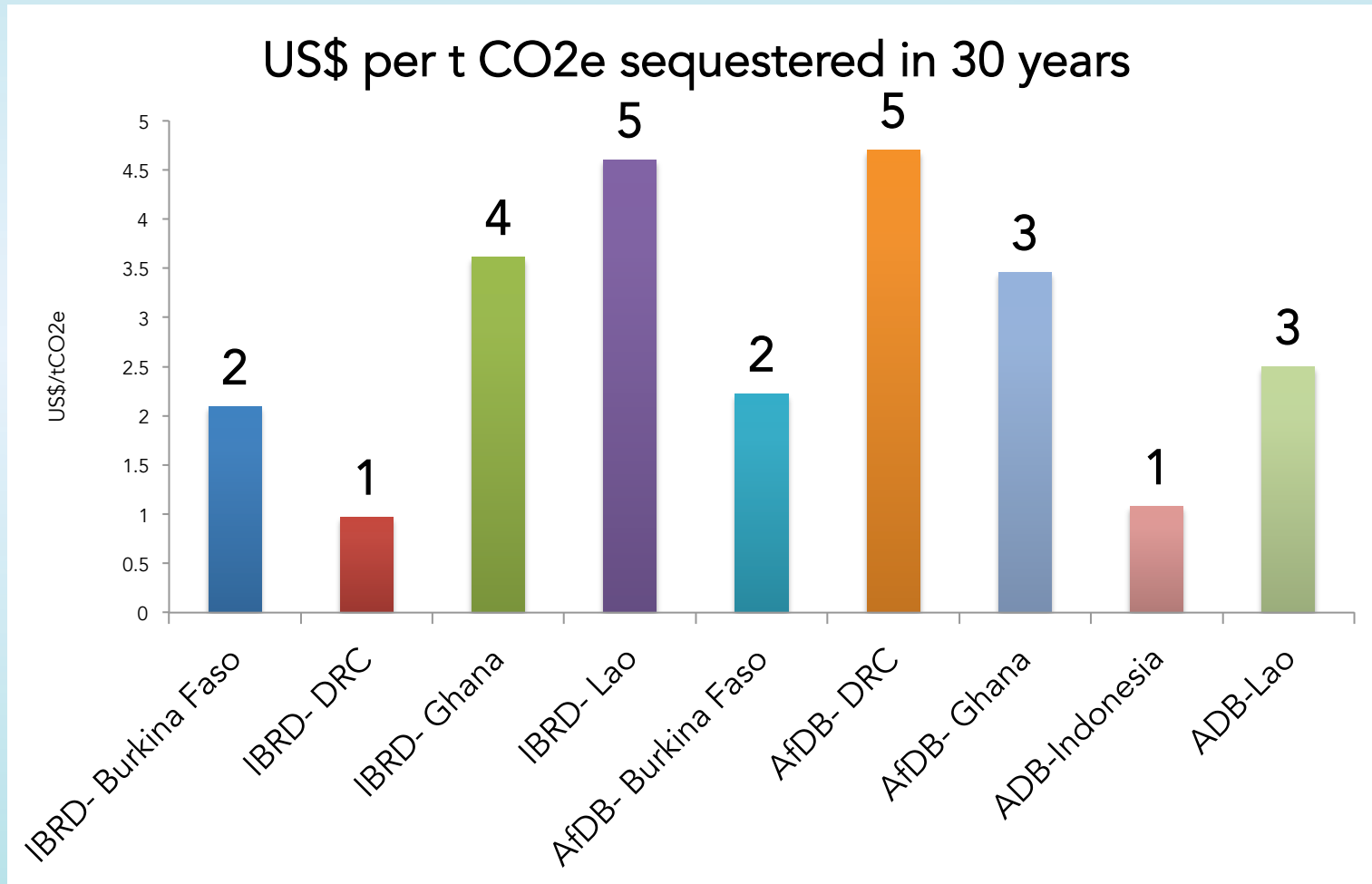
Cost efficiency of emission reduction

US\$ per t CO₂e sequestered in 10 years





Cost efficiency for emission reduction





CONCLUSIONS





Conclusions

- *Ex-ante calculations are not 100% accurate*
- *Level of comparability is rather limited.*
- *Availability of high-quality data varies among countries*
- *MDBs use different data for same regions*
- *Discount factors are applied*



Conclusions

- *Approach on residual carbon value varies*
- *Setting baseline/historic data*
- *Number of land use changes considered*
- *Forest fires*
- *Harvested Wood Products*



Conclusions

- *Comparing cost efficiency of reducing emissions has limitations*
- The three projects with more carbon sequestration potential (10y): IBRD-DRC, IBRD-Burkina Faso and IBRD-Ghana.
(30y): IBRD-DRC, ADB-Indonesia and IBRD-Burkina Faso.

In general, AfDB projects are expected to sequester less carbon than IBRD and ADB projects. This could be due to the fact that AfDB projects have applied a discount factor (40% in Burkina Faso, 30% in DRC and 25% in Ghana) and in general use lower carbon stock rates (except for DRC) than IBRD projects.



RECOMMENDATIONS





Recommendations

- *30 years timeframe should be used*
- *Forest degradation emissions should be accounted when significant*
- *MDBs should collaborate to use same data for same regions*
- *Discount factors should be used whenever necessary following a recognized methodology*
- *Common approach on residual carbon value*
- *Forest fires*
- *Harvested Wood Products (HWP)*



Recommendations

- *Most accurate land representation systems should be used*
 - *Use of historic deforestation average to determine the baseline is encouraged*
 - *Forest degradation emissions should be accounted when significant*
 - *Most accurate land representation systems should be used*
 - *Most detailed tier methods for carbon stock rates should be selected*
 - *Land uses should be stratified*
 - *Carbon pools included should be better recognized*



THANKS
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