Approaches to identify and report support needed

Why map support needed

For your own national planning and climate finance strategy, as it is the result of an assessment of available national resources and needed support to ensure implementation

To identify existing barriers for investments and potentially unlock private and international financial flows towards low carbon development

To attract financial support, lowering the cost of financing, potentially enhancing ambition and cover the incremental cost of climate action

Financial support – NDC costing (and benefits)

You cannot communicate financial support needs without an overview of costs.

- Map costs / investment needs for the NDC, action by action
- Translate policies and programmes into activity data and assign costs to the activities (e.g. number of PV systems, type of early warning system, trees to be planted, number of rangers for forest protection etc.)
- Identify technology and capacity needs and estimate costs of technical assistance

Financial support – Estimate revenue streams / savings

Climate action is not only costs. Many actions will generate revenues or lead to savings (e.g. electricity sales / savings, reduced damage from flooding etc.)

- For each costed action identify revenue streams / savings to identify the cost/revenues expected from each action
- Compare Costs and Benefits
- Costs should include the cost of financing

Efficient residential air conditioner (1000 units)

Costs in US$	Reduction Option	Reference Option	Increase (Red.-Ref.)
Total investment	130,000		
Project life	8		
Lev. investment	21,771	0	
Annual O&M	0	0	
Annual electricity cost	315,000	471,910	-156,910
Total annual cost	336,771	471,910	**-135,139**
Annual emissions (tons)	Tons	Tons	Reduction
Fuel CO2-eq. emission	2,580	3,865	1,285
Other			
Total CO2-eq. emission	2,580	3,865	**1,285**
US$/ton CO2-eq.			**-105**

Notes:
COP=Coefficient Of Performance = cooling capacity divided by input power Most airconditioner have input power of 9000 Btu/hr (995W) or 12000 Btu/hr (1120 W) Conventional COP from PWC Energy Audit Efficient COP from most used efficient air conditioner

General inputs:		
Discount rate	7%	
Average electricity price	0.12	US$/kWh
CO2-eq. emission coefficient	0.80	ton CO2-eq./MWh
Grid loss	18.6%	
Reduction option: Efficient air conditioner		
O&M	0%	US$
Activity	1,000	Air conditioner
Lifetime	5	yrs
Extra cost for eff. air conditioner	130.0	US$
Cooling capacity	2.50	kW
COP	4.00	
Input power	0.63	kW
Annual usage	4,200	hrs
Annual electricity used	2625	MWh
Reference option: Conventional air conditioner		
O&M	-	US$
Activity	1000	Air conditioner
Cooling capacity	2.50	kW
COP	2.67	
Input power	0.94	kW
Daily usage	14	Hours/day
Days used	300	Days/year
Annual usage	4,200	hrs
Annual electricity used	3933	MWh
Electricity saved 1 unit	1308	MWh
Electricity saved compared to reference	0	Saving

1 MW Biomass power from biomass residues - 2025

Costs in US$	Reduction Option	Reference Option	Increase (Red.-Ref.)
Total investment	1,489,720		
Project life	20		
Lev. investment	140,619		140,619
Annual O&M	59,589		59,589
Annual fuelcost	169,541	600,000	-430,459
Total annual cost	369,749	600,000	**-230,251**
Annual emissions (tons)	Tons	Tons	Reduction
Fuel CO2-eq. emission		4,000	4,000
Other			
Total CO2-eq. emission	0	4,000	**4,000**
US$/ton CO2-eq.			**-57.6**

Notes:
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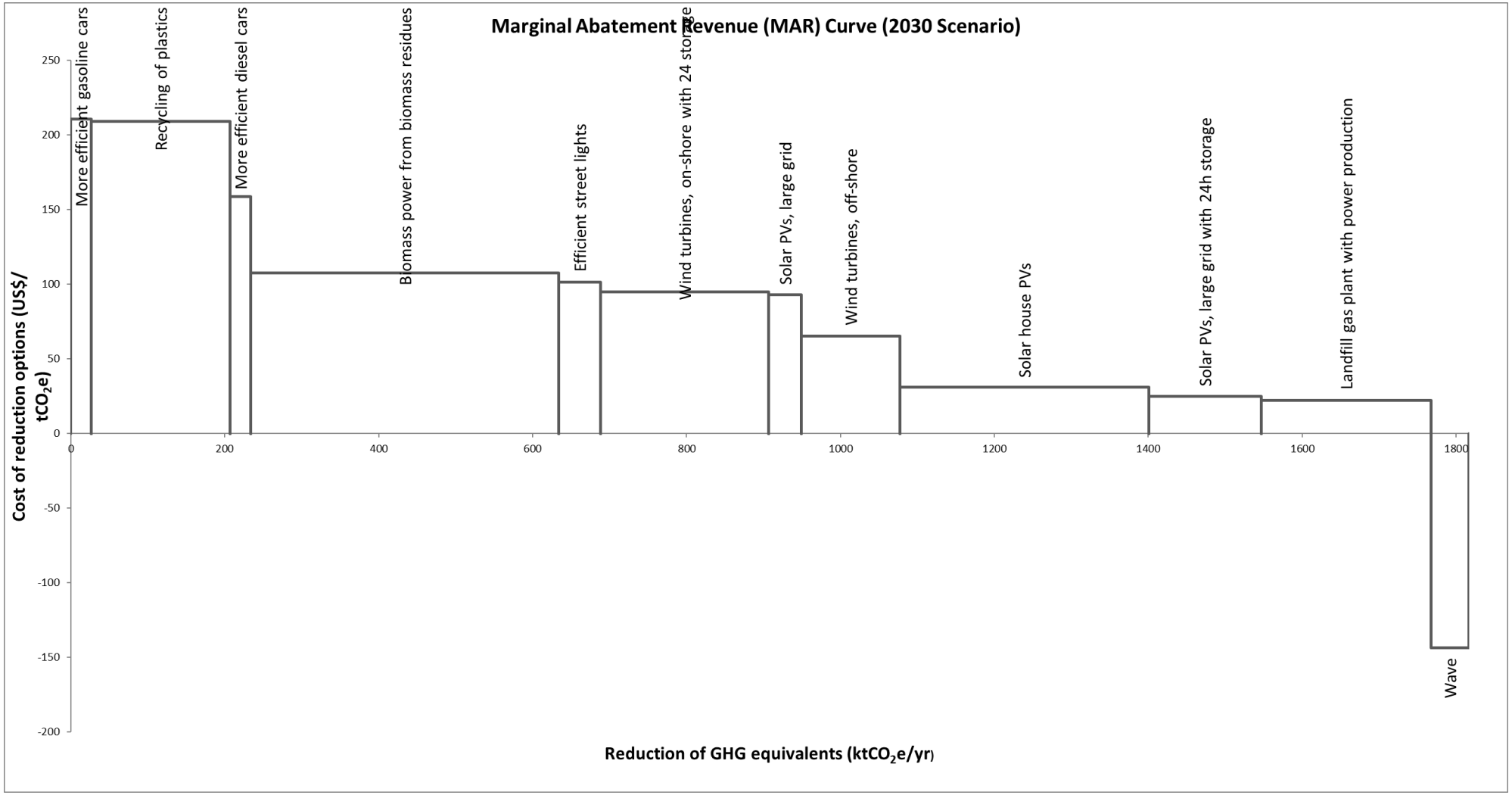
General inputs:		
Discount rate	7%	
Reference electricity price	0.12	US$/kWh
CO2-eq. emission coefficient	0.80	tCO2/MWh
Reduction option: Biomass residues power plant		
O&M	4.0%	
Activity	1	MW
Investment in Activity	1489.7	Million US$
Capacity factor	5000	Full time hours
Electricity production	5000	MWh/ year
Calorific value of biomass	13.0	GJ/t
El. efficiency of power plant	30.0%	
Specific use of biomass	0.93	ton biomass/MWh
Use of biomass	4626	ton/year
Price of biomass	36.6	$/ton
Cost of electricity produced	0.337	US$/kWh
Reference option: No Biomass power		

Assess which actions have incremental cost



Assess national sources of finance

Climate action operates seldom in a vacuum and is usually part of the general development of a country

- Estimate available sources of finance for each action (relates to unconditional component, if relevant)
  - Public programmes, infrastructure and interventions

  National financial resources allocated, the national budget
  - Private sector investments

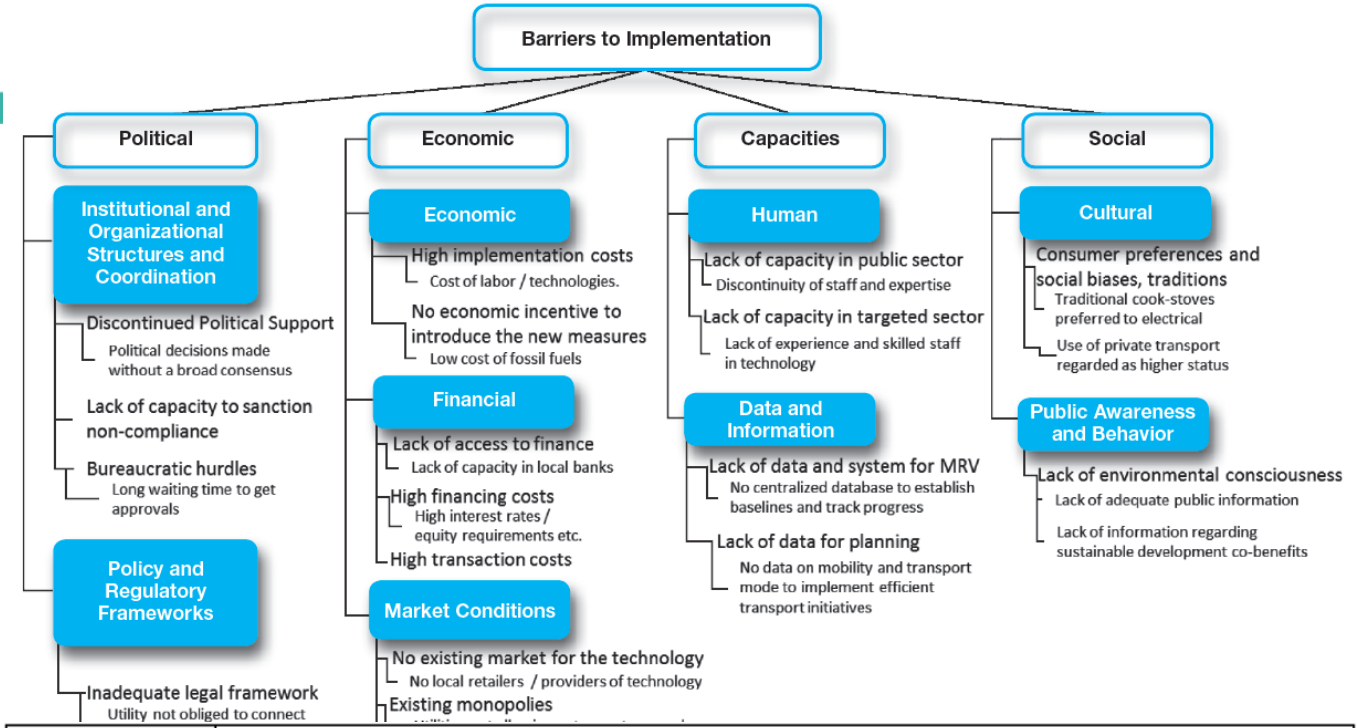
  Market trends, costs of technology and assumptions for future developments

- National sources of finance should be subtracted from needed amounts

Assess financial / investment barriers

E.g.:

- High cost of capital (e.g. interest rates)
- Risk profile of investments (e.g. currency exchange)
- Long term nature of investments and pay-back
- Expected IRR for investors in local context
- Level of indebtedness



Financial Barriers	• Local financial institutions are unfamiliar with the energy efficiency financing mechanism with persistent implementation failure of precedents. • Banks are highly risk-averse in energy efficiency financing, thereby imposing high interest rates and asking a borrower for providing stringent credit and/or collateral and high equity injection which local SMEs are remotely capable of clinging to. • No credit mitigation technique including the de-risking mechanism (such as guarantee or insurance) for energy efficiency in the local market. • Financial institutions, in particular large-sized banking institutions, have little interest in financing energy efficiency projects since many are relatively small-scale projects led by SMEs with low credit. • High interest rates or collateral requirements for energy efficiency projects due to risk analysis difficulties.

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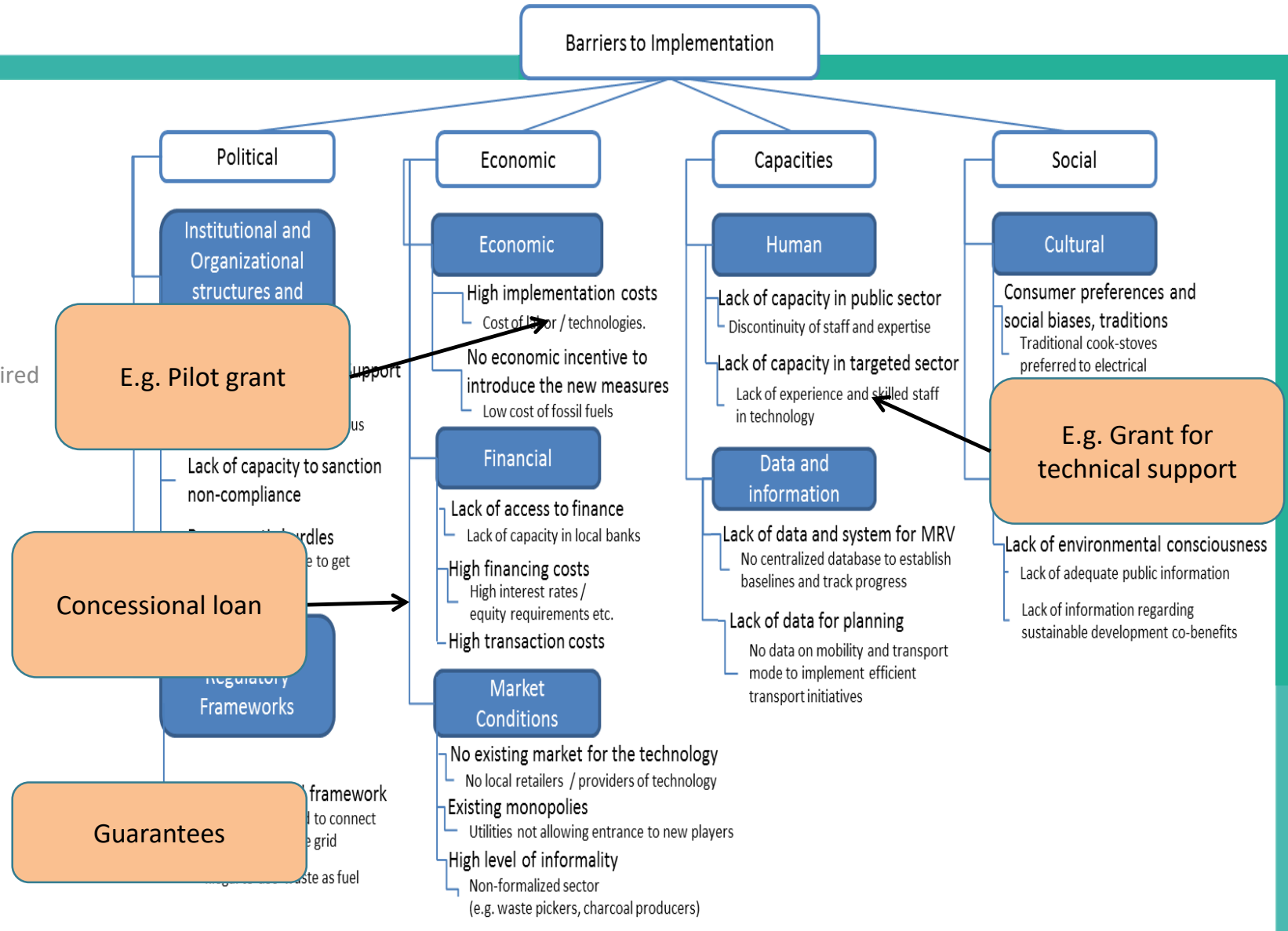
Identify appropriate financial instruments

Consider the most effective instrument to achieve the desired outcome (remove identified barriers)

✓

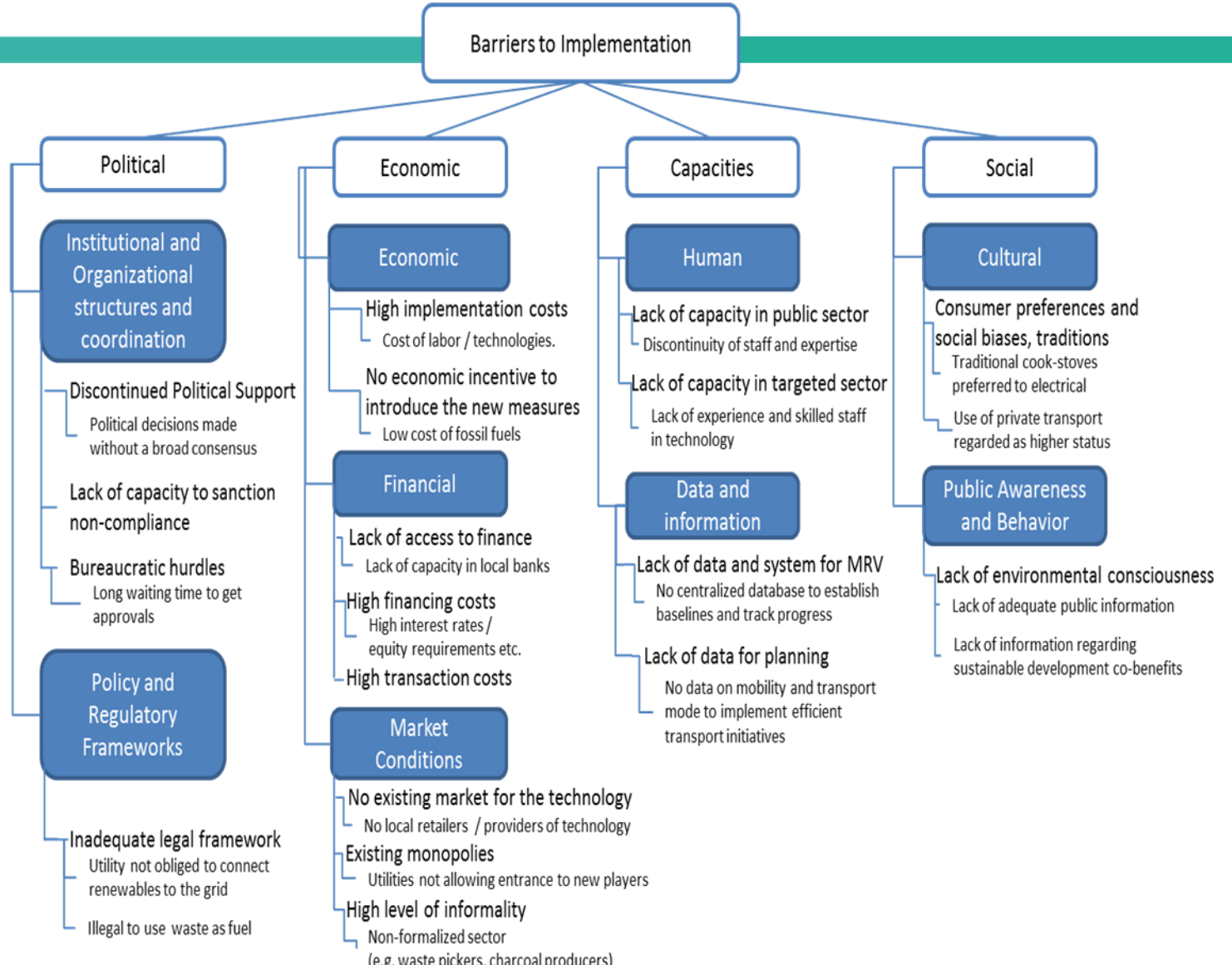


Identify appropriate financial instruments

Instruments	Description
Grant	Transfers made in cash, goods, or services for which no repayment is required.
Concessional loan	These are loans that are extended on terms substantially more generous than market loans. The concessionality is achieved either through interest rates below those available on the market or by grace periods, or a combination of these. Concessional loans typically have long grace periods.
Lines of credit	Credit is an amount for which there is a specific obligation of repayment. Credits include loans, trade credits, bonds, bills, etc., and other agreements which give rise to specific obligations to repay over a period of time usually, but not always, with interest.
Risk or credit guarantee	Commitment by a financial institution, government, insurer or other to reimburse a lender if the borrower fails to repay a loan. The lender usually pays a guarantee fee.
Equity	Equity refers to the value of the interest of an owner or partial owner in an asset.

Identify appropriate financial instruments

- Consider the most effective instrument to achieve the desired outcome (remove identified barriers) ✓



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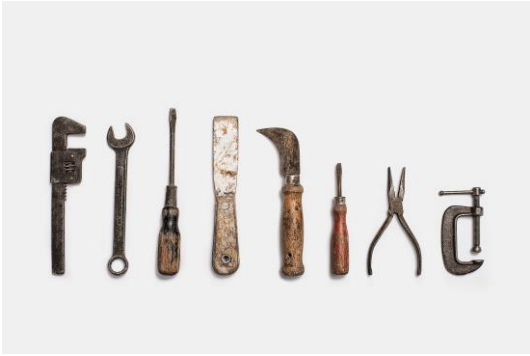
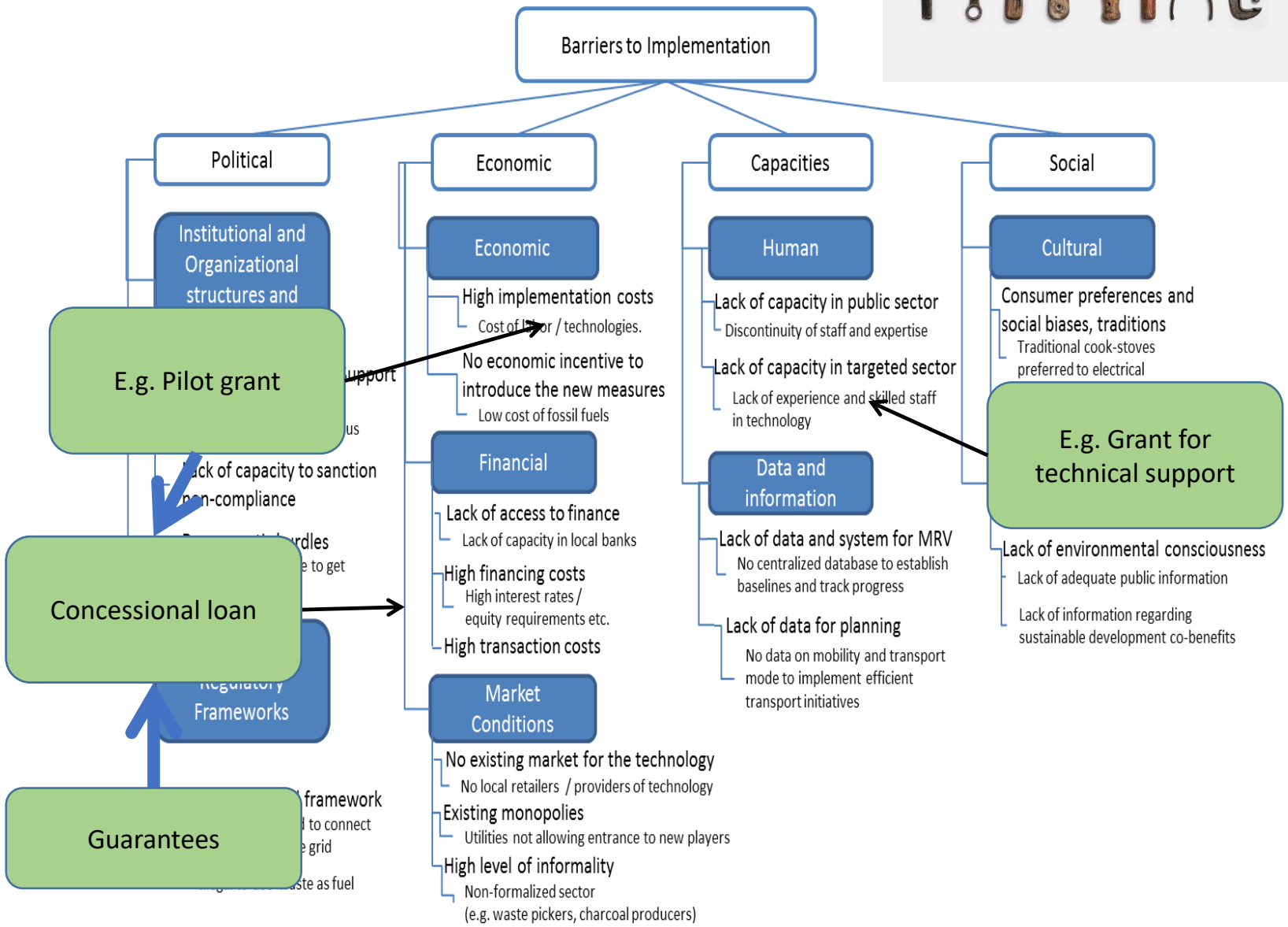
Identify appropriate financial instruments

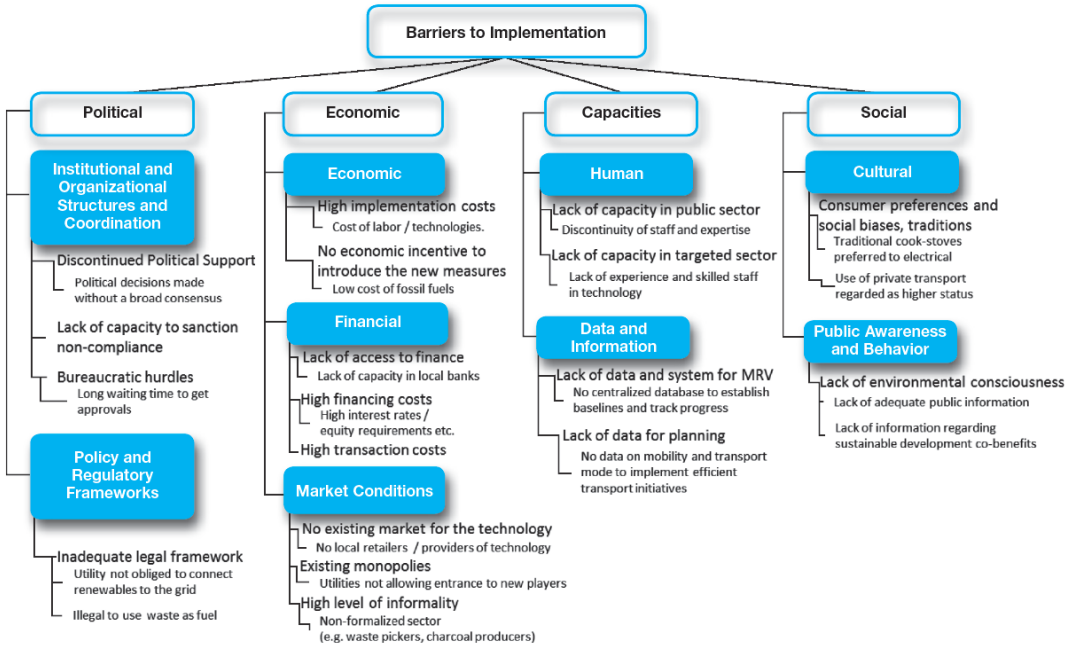


- Consider the most effective instrument to achieve the desired outcome (remove identified barriers)



Technology and capacity support needed

- Identify technology and capacity constraints
- Assign monetary value to support needed and incorporate in financial support needed
- Cross-reference between financial and technology and capacity support needed



Demand-side Barriers	• Low demand for high-energy efficiency facilities due to low energy tariffs. • Market players lack awareness of assessing energy efficiency technologies and capacity and resources in carrying out its cost-benefit analysis, which partially results in a low prioritisation of investing in energy efficient projects. • Industries are yet to recognise the regulatory requirements with respect to energy efficiency reporting and implementation. • There are not many well-trained in-house energy managers nor extensive pools of experienced experts in energy efficiency, mainly due to little

Regulatory Barriers	• The subsidised energy tariff is a disincentive for industries to invest in energy savings; the price of electricity is U$ 0.078/kWh for businesses (medium voltage),[10] which is lower than that of other ASEAN Member states.[11] As part of the COVID-19 recovery measure, an incentive of 100% (later reduced to 50%) discount on electricity was provided, especially for low-income households and small businesses. • No minimum energy performance standard (MEPS) for industrial equipment and appliance is available to serve as guidance. • No regulation to encourage less energy intensive sectors (motor, boiler, etc.) due to lack of awareness amongst policy makers, despite the large GHG emission from those sectors. • Existing fiscal or non-fiscal incentives from the government to promote the energy efficiency area have not been disseminated to industries or financiers, nor been sufficient enough to boost the market. For instance, Article 20 of Government Regulation No.70/2009 (Energy Conservation) states that incentives may vary in the form of provision from taxation facility for energy saver equipment to low interest-rate funds for the need of investment in energy conservation. It, however, does not work in the market.

CBIT GSP

Key Messages

- Map costs and benefits
- Identify national sources of finance available and gaps to achieve implementation
- Identify financial barriers for implementation and appropriate financial instruments
- Assign monetary value to technology and capacity support needed and include in financial support

Excercise

1. Read the example of a fictive NDC action (policy/programme),
2. Estimate total investment costs and revenue streams for the Policy /programme
3. Estimate financial support needed
    a. Indicate financial instrument
    b. Indicate amount
    c. Indicate use
4. Input the information in the BTR reporting table
5. Communicate back to plenary on challenges and considerations regarding to the topics of the presentation (availability in own country of data for Cost-benefit analysis, financial barriers, challenges in identifying appropriate financial instruments and amounts etc.)

Exercise

Support Needed

1. NDC action example

The Kingdom of Arrakis is a committed to reduce emissions derived from Melange mining used for energy purposes. The country has ample solar resources and has included a solar PV programme as part of its NDC to the UNFCCC. Implementation is foreseen to happen between 2023 and 2033 to cover all households, but could be implemented within the next 5 years if enough financial support is provided. In case implementation is to be made within the next NDC cycle, technology development and transfer and capacity building support will be needed, in order to ensure capacity to deliver components and enough technicians to install equipment.

2. Cost of technology and needed investments

- Financial analysis shows that the technology makes a good investment case, but why aren't households and SMEs investing in the technology.

- Total potential 1 million units for a total investment cost of 750.000.000 USD

New technology costs

Baseline energy costs

Solar house PVs, 500 W			
Costs in US$	Reduction Option	Reference Option	Increase (Red.-Ref.)
Total investment	750.0		
Project life	20.0		
Lev. investment	70.8		70.8
Annual O&M	7.5		7.5
Annual fuelcost		98.6	-98.6
Total annual cost	78.3	98.6	**-20.3**
Annual emissions (tons)	Tons	Tons	Reduction
Fuel CO2-eq. emission		0.66	0.66
Other			
Total CO2-eq. emission	0.00	0.66	**0.66**
US$/ton CO2-eq.			**-30.8**

Notes:
This calculation for an urban house is made for a country with an avarage daily insolation of 5 hours.
3 KW of solar PV will need a roof area of 20 m2.

General inputs:		
Discount rate	7%	
Reference electricity price	0.12	US$/kWh
CO2-eq. emission coefficient	0.80	tCO2/MWh
Activity: Solar PV		
Size of solar PV	0.5	kW
Size of PV	3.7	m2
Investment in Activity	1500	US$/kW
Daily insolation	5	hours
Annual capacity factor	1825	Full time hours
Efficiency factor	0.9	
O&M	1.0%	Of investment
Electricity production	0.821	MWh
Cost of electricity produced	0.095	US$/kWh
Reference option: No solar PVs		
Electricity production	0.821	MWh

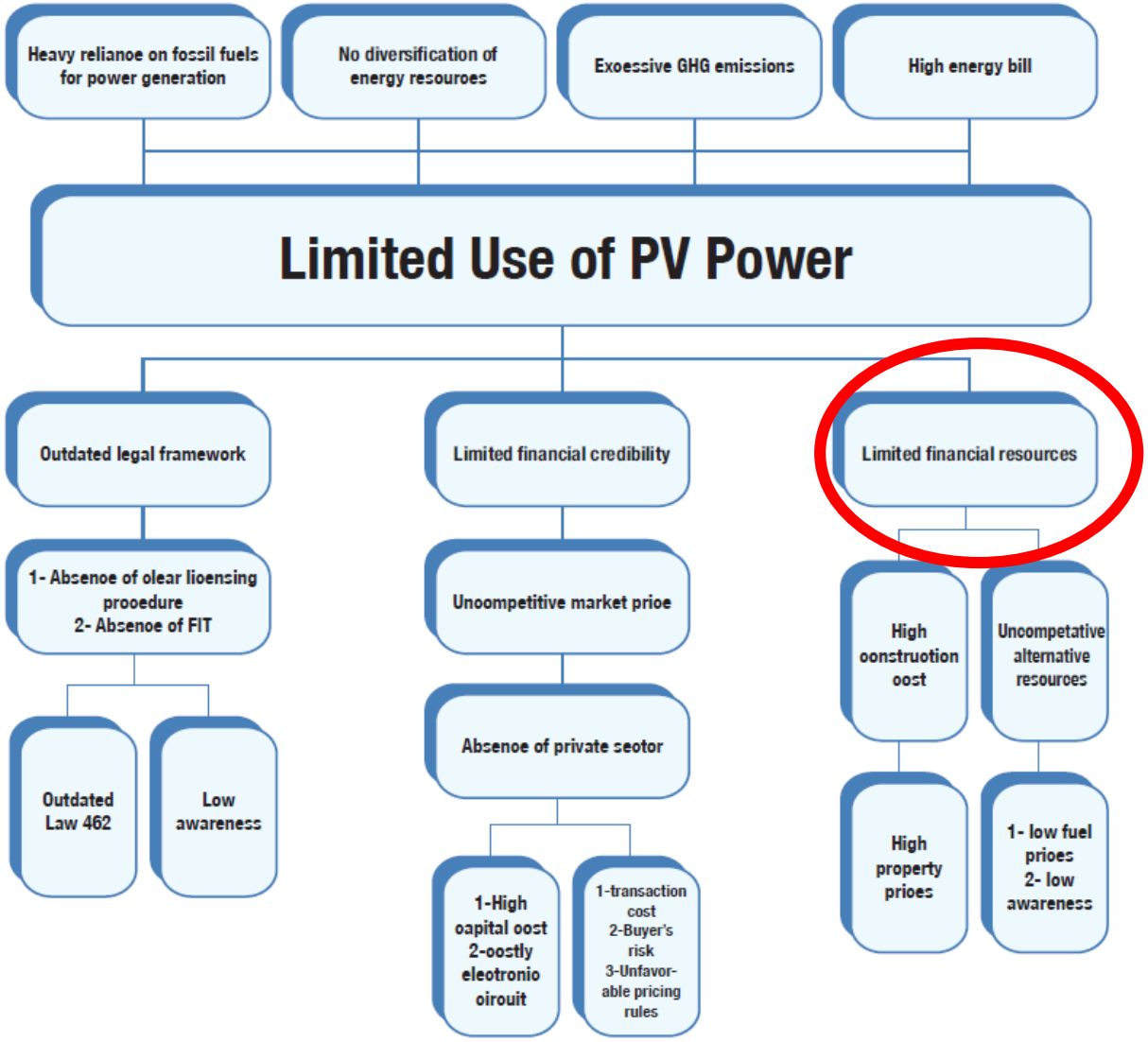
Emission reductions

3. Government contribution

- The government has dedicated 10.000.000 USD
- The total potential is 1.000.000 million units, the government still wishes to achieve full implementation unconditionally by 2033, but seeks support to achieve implementation in the next 5 years.

4. Cost of technology and needed investments

- The barrier analysis shows that the main target group households have limited financial resources.
- Local banks can provide loans, but the high interest rates make the investment unattractive.

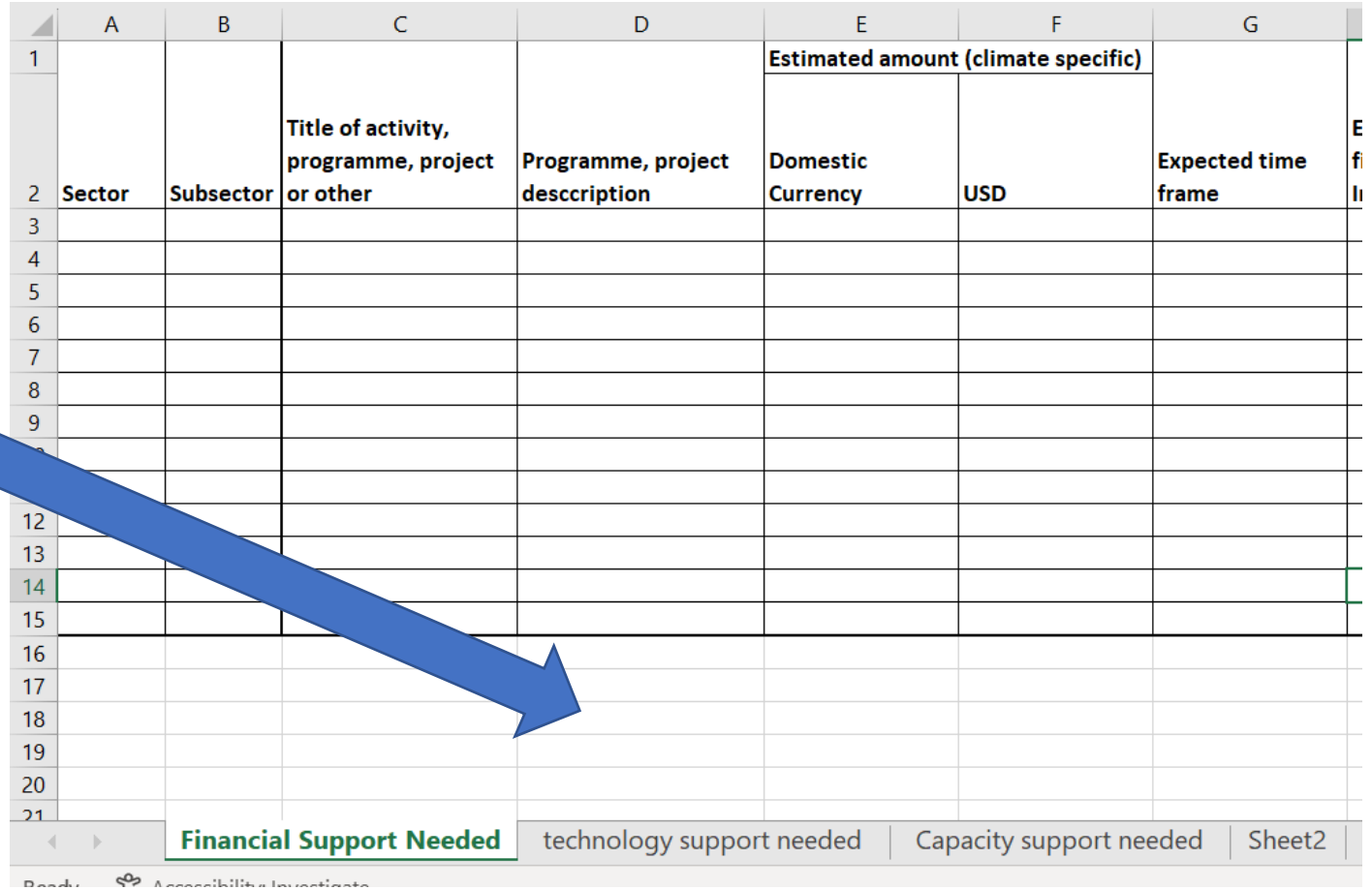


5. Answer the questions

- What are the total investment costs for the programme?
- What will be the government contribution?
- What is the difference?
- What other financial instruments could the government use?
- What financial instruments could be requested as financial support to address the identified financial barriers in a cost-effective manner?
- What amount would you consider to request as support?
- What financial instrument would you apply for to address the technology and capacity barriers?

6. Fill in the BTR table

- Try to also fill in the tabs for technology and capacity support received



	A	B	C	D	E	F	G
1					Estimated amount (climate specific)		
2	Sector	Subsector	Title of activity, programme, project or other	Programme, project desccription	Domestic Currency	USD	Expected time frame
3							
4							
5							
6							
7							
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12							
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17							
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Financial Support Needed | technology support needed | Capacity support needed | Sheet2

7. Communicate back to plenary

- Challenges and considerations related to the topics of the presentation
  - How many different approaches were there to potential financial instruments and quantification of amount of support needed?
    - What were the main challenges?
  - What are the challenges in your own country related to:
    - Availability of data for Cost-benefit analysis
    - Identification of financial barriers,
    - Challenges in identifying appropriate financial instruments and amounts
    - Other central challenges etc.
  - Challenges related to identifying financial vs technology and capacity support and putting a price tag on them?

Follow up on Exercise

Support Needed

Answer to the questions

1. What are the total investment costs for the programme?

750.000.000 USD

2. What will be the government contribution?

10.000.000 USD

3. What is the difference?

740.000.000 (should the government buy and install)

4. What other financial instruments could the government use?

Households will achieve benefits (savings) and should invest

- Partial grants on technology, or
- Feed-in-tariff (not to facilitate initial investment, but makes the business case more attractive)
- Tax credit e.g. on import of equipment (facilitate initial investment)
- Guarantees to national private banks
- Finance green credit lines through the national development bank

Answer to the questions

5. What financial instruments could be requested as financial support to address the identified financial barriers in a cost-effective manner?

- Grants (how much investments can grants unlock?)
- Concessional loans to be channeled through national financial institutions
- Guarantees on loans from national financial institutions to lower interest rates

6. What amount would you consider to request as support?

- Grant, you need the full amount, but unrealistic
- If support is channeled through loans to national financial institutions or guarantees, they could be expected to provide the largest part of the amount and the requested amount would be smaller than the 740.000.000

7. What financial instrument would you apply for to address the technology and capacity barriers?

- Here grants can be easily justified for training and capacity building purposes