RECP
Africa-EU Renewable Energy Cooperation Programme

ECREEE
TOWARDS SUSTAINABLE ENERGY

Africa-EU Energy Partnership

Policy and Regulatory Framework for Clean Energy Mini-Grids, 17-19 July 2017

Abuja, Nigeria

Study on the current status of CEMGs in the ECOWAS region

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Approach & Methodology

The information basis is formed by:

a. Responses to questionnaires
b. Data and information provided by RECP, EUEI PDF and ECREEE
c. Consultant's own database
d. Internet research.

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Overview of Survey

Out of the 15 countries

- Benin
- Burkina Faso
- The Gambia
- Ghana
- Guinea
- Liberia
- Mali
- Nigeria
- Senegal
- Sierra Leone
- Togo

have returned the questionnaires back.

Item	Own Evaluation			Support requirement	
	Satisfied	Partially satisfied	Unsatisfied	Support appreciated	No support needed
Rural Electrification Strategy and Master Plan	27%	45%	27%	73%	27%
Energy and Electricity Law	27%	36%	36%	73%	27%
Tariff Policy and Regulation	18%	45%	36%	91%	9%
Economic Policy and Regulation	27%	36%	36%	82%	18%
Fiscal Policy and Regulation (Taxation, Import Duty, etc.)	18%	55%	27%	91%	9%
Technical Regulation and Standards	9%	45%	45%	100%	
Environmental Policy and Regulation	18%	55%	27%	82%	18%
Generation and Distribution Permits and Licenses	18%	27%	55%	91%	9%
Concession Contracts and Schemes	9%	55%	36%	91%	9%
Power Purchase Agreements	10%	40%	50%	90%	10%
Grants and Subsidies		36%	64%	100%	
Loan Support and Risk Mitigation Instruments		40%	60%	100%	

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Factsheet ECOWAS countries

Example Benin

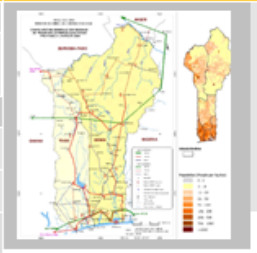
Part I – Energy Sector Landscape & Institutions Framework

Country: Benin

Power Sector Characteristics

The country is 100% dependent on petroleum imports, making it vulnerable to dollar exchange rates and fluctuations in oil prices.

Key indicators	Total	Rural	Urban
Population growth	10.16 Mio 2.6 %	55%	45%
Access to electricity	31 %	6.7%	58%
Population served by off-grid		9 %	



Importance of Mini-grid for Electrification – need vs. potential number of projects

Need	Only 6.7 % rural access to electricity
Projects	Low electrification rate

Stakeholders

Ministry of Energy/Infrastructure	Electricity sector in Benin is supervised by the Ministry of Energy and Water.
Treasury/Finance Ministry	The Ministry of Economy and Finance (Ministère de l'Economie et des Finances)
Energy Regulator	Energy policy and regulation are currently conducted through the Ministry of Energy and Water
National environment agency	Benin Agency for the Environment (Agence Beninoise pour l'Eenvironnement)
Rural electrification agency	The Benin Agency for Rural electrification and Energy Management (ABERME)
Regional/local authority/administration	Ministére de la Décentralisation, de la Gouvernance Locale, de l'Administration et de l'Aménagement du Territoire

Overview of on-going and planned rural electrification projects

- Programme for Electrification of Rural Communities 2006 -2015, Ministry of Mines, Energy and Water
- Special facility World Bank exists: DAEM (Developpement de l'Accès à l'Energie Moderne),
- The Agency for Rural Electrification and Energy Management (ABERME) is developing Terms of Reference for the country's first hybrid PV-diesel mini-grid
- There are six clean energy mini-grids completed in 2014.

Part II – Policy Screening & High-Level Summary

Country: Benin

Level	Ref.	Instrument	Outcome
Energy and Electricity Policy	A1	National Electricity or Electrification Policy	National Energy Policy
	A2	Rural Electrification Strategy and Master Plan	- Policy for Rural Electrification (2004), Directorate General of Energy -Programme for Electrification of Rural Communities 2006 -2015, needs to be actualised for including CEMGs
	A3	Energy and Electricity Law	Law No.98-032 1998, Reforming the Sector of Electricity: Structural Reform of the Electricity Sector, is the current power sector law, there is no general energy law.
	A4	Tariff Policy and Regulation	Not existing for CEMGs. Actually a study over off-grid electrification including the tariff policy is under evaluation by the Millennium Challenge Account Benin II (MCA Benin II).
Operator Model	Community Operator Model		
Economic Policy and Regulation	B1	Fiscal Policy and Regulation	Not existing for CEMGs. But, since 2009 no taxes (VAT and toll) on PV and rural electrification equipment, if projects are done in partnership with ABERME or ANADER.
Customer Protection and Environmental Policy and Regulation	C1	Technical Regulation	Electricity Code, does not consider CEMGs
	C2	Quality of Service Regulation	No public information available
	C3	Environmental Policy and Regulation	Benin has a framework law on the environment and enforcement texts which are necessary for the development of CEMGs.
Licences and Contract Regulation	D1	Generation and Distribution Permits and Licences	Not existing.
	D2	Concession Contracts and Schemes	- The study on rural electrification concessions is underway. - Actually no contract has been signed
	D3	Power Purchase Agreements (PPA)	Not existing.
Financial Support Schemes	E1	Grants and Subsidies	- Financing Mechanism for the Electrification of Rural Communities (2005), not for CEMG's
	E2	Loan Support and Risk Mitigation Instruments	No financing possibilities for CEMGs.

Bottlenecks/ Challenges	Achievements
Social: Access and use of Modern RE without subsidy regulations; insufficient information and awareness of consumers on mini-grid opportunities. Economic and financial: Inadequate financial incentives to attract the private sector.	Policy: The Government vision and targets have been formulated in key policy papers. Financial: Financing Mechanism for the Electrification of Rural Communities

Policy Findings

Benin needs assistance with the revision of existing policies and introduction of necessary policies. They have no policy/regulation regarding to the implementation of CEMG's due to private sector.

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Categorisation of ECOWAS countries

Categories	I – CEMGs as backbone	II – CEMGs complementary to grid
Countries	Benin, Burkina Faso, Cote d'Ivoire, The Gambia, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo	Cabo Verde and Ghana
Rationale	Low level of grid expansion. Low electrification rate	Good expansion of national grid. Comparatively high electrification rate
Conclusion	CEMGs are expected to be relevant over a longer period of time and for a broad range of applications. Since CEMG represent in a significant part of the territory the only viable supply option. ➔Need for CEMG all across country	CEMGs complement the electrification through grid expansion in specific areas which are geographically not very favourable to large infrastructure ➔Need for CEMG at specific locations and for limited number of projects
Policy requirements	Thus, CEMGs will be the centre piece of electrical power supply and not just the makeshift for specific areas. Consequently, the full set of policies will be required and CEMGs need to be considered also in other planning areas	Depending on the operator model and experience with clean energy and electrification in the sector only a sub-set (e.g. licenses and contract regulations) of the recommended policy may be required

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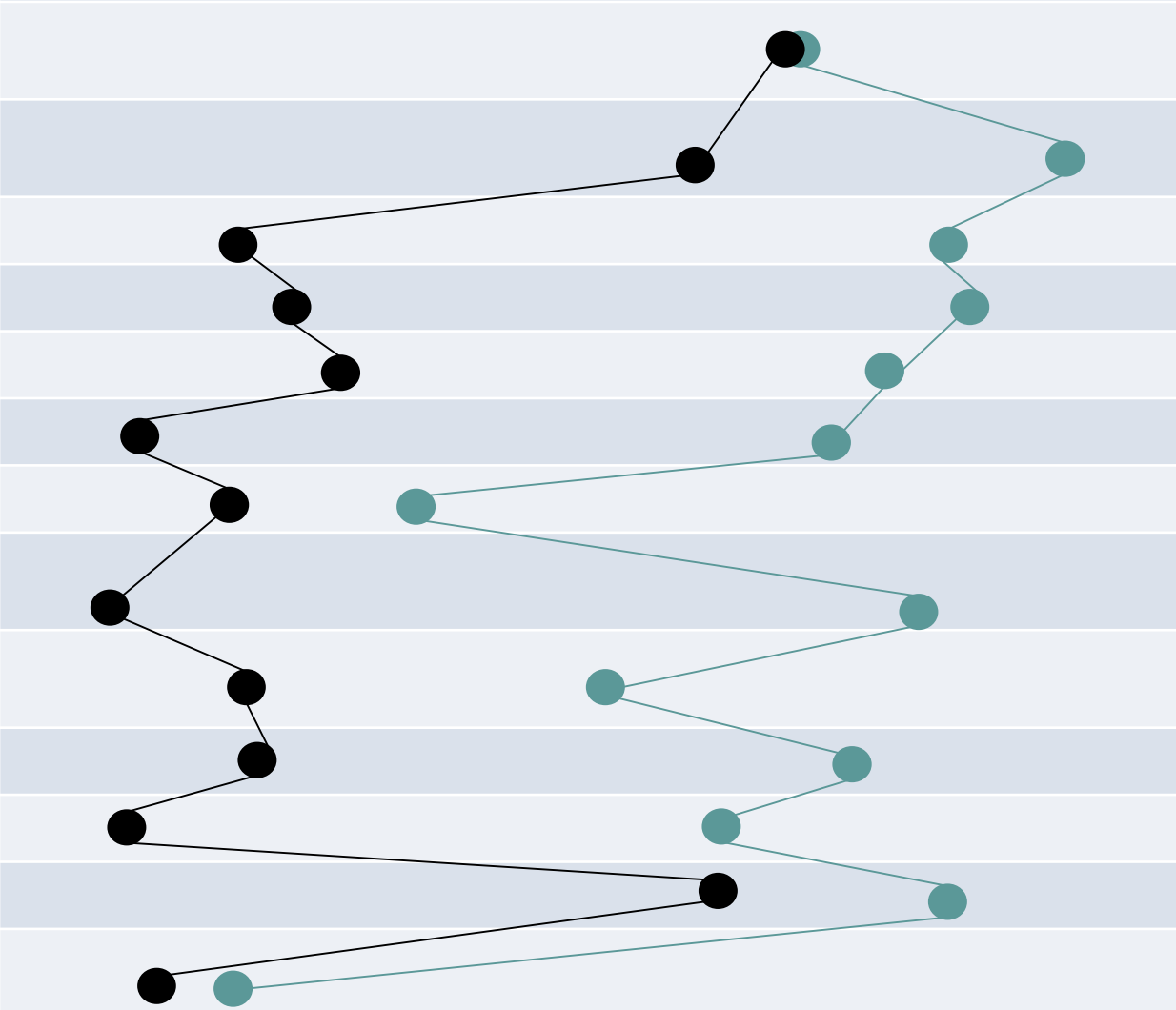
Comparison of policy and regulation availability against their reference to CEMGs

Mapping of Policy Existence versus & CEMG reference of existing Policy Documents

Instrument	Ref.
National Electricity or Electrification Policy	A1
Rural Electrification Strategy and Master Plan	A2
Energy and Electricity Law	A3
Tariff Policy and Regulation	A4
Fiscal Policy and Regulation	B1
Technical Regulation	C1
Quality of Service Regulation	C2
Environmental Policy and Regulation	C3
Generation and Distribution Permits and Licences	D1
Concession Contracts and Schemes	D2
Power Purchase Agreements (PPA)	D3
Grants and Subsidies	E1
Loan Support and Risk Mitigation Instruments	E2



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Summary of the Study

Grouping of Countries

- ECOWAS countries (green), which have all / most necessary policy documents for the introduction of CEMGs and need final support in the revision of existing documents
- Countries (yellow) which have many documents generally related to power sector and/or renewable energy systems in place but with very little consideration of the aspects relevant for CEMG
- Countries (red) that have less than half of the necessary policies for the electricity sector in general, of which only very few or none of them refer to CEMGs

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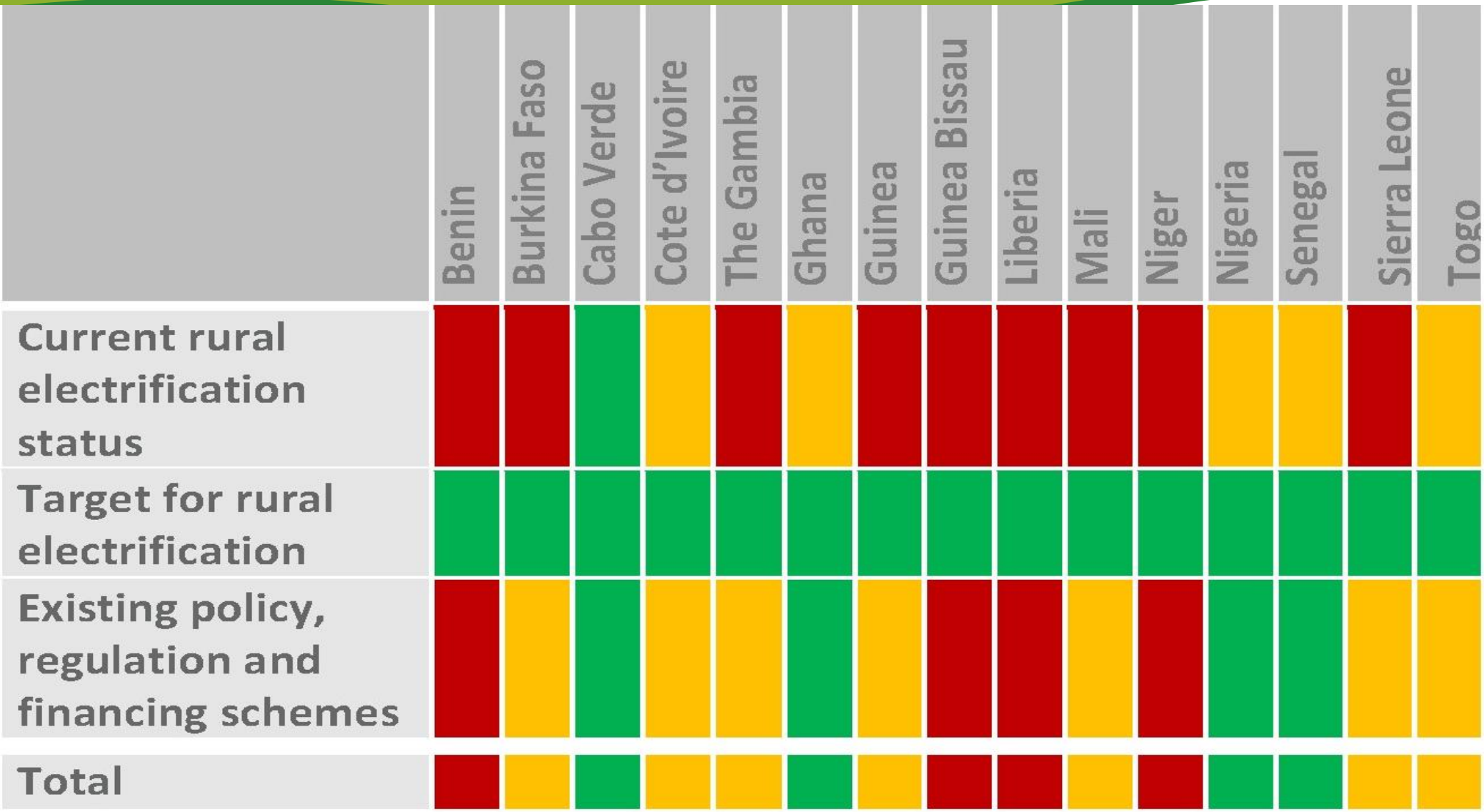
Categorisation of ECOWAS countries regarding use of CEMG and existing policies



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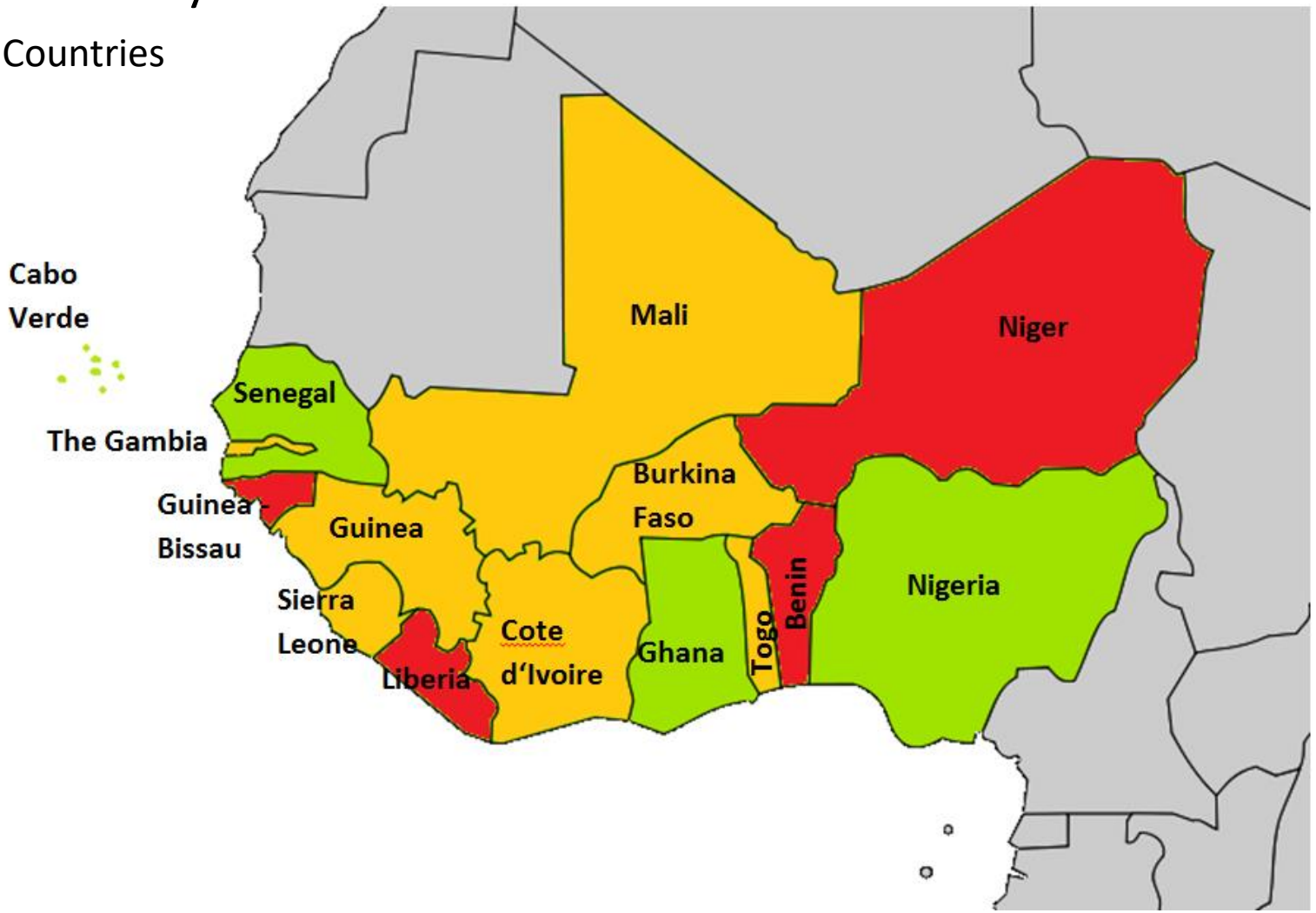
Summary of the Study

Grouping of Countries



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Bottlenecks and Lessons Learnt from CEMG in ECOWAS countries

- **Clarity:** Ensure that the structure of the power and electricity sector as well as the approach to electrification is understandable to a third-part such as planner, local administration, promoter, developer or other entities
- **Transparency:** Competences and responsibilities of the different institutions need to be well separated and defined
- **Applicability:** Procedures and requirements must be applicable and responsible staff familiar with the execution
- **Accessibility:** Relevant policies, regulations, degrees and codes shall be easily accessible, by publishing these either on the website of the related authority or another central place
- **Accountability:** Monitor progress and update targets via revisions of master plans regularly
- **Down-stream implementation:** General (national) policies set the framework but will not lead to significant impacts if left without a consistent set of technical regulations and structures that provide guidance to implementation

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Implications for the CEMG policy training:

- **Financing: public vs private**
  - Different options exist: Public, third-party, donor funding, complete private (investors)
- **Clarity of Operator Model**
  - The operator model is therefore a critical decision at the start of the policy-making as it defines the requirements
- **Aligning training contents to policy situation and policy making progress**
  - Different progress and consequently different needs for support and training of member states
- **Integrated planning**
  - Understand mini-grid policy making in the context of the national electrification approach

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Thank you!!

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