

# **Readiness for Investment in Sustainable Energy (RISE)**

**June 27, 2014**

**SREP Sub-Committee Meeting**

**Montego Bay, Jamaica**

# Table of Contents

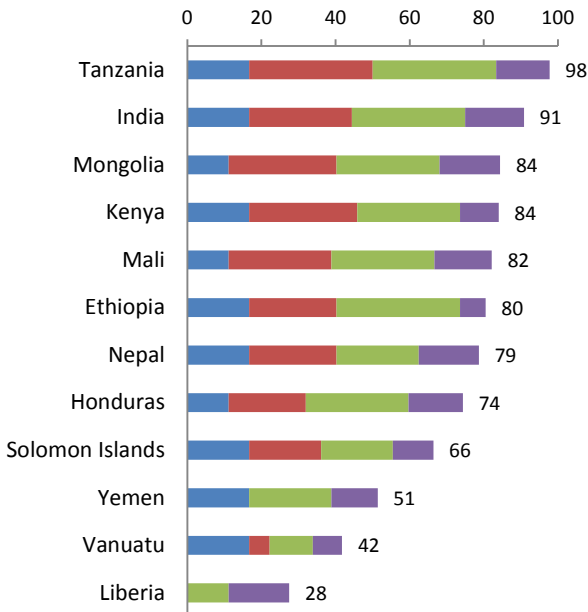


- I. Setting the Context
- II. Developing the Indicators
- III. Moving Forward to a Global Rollout

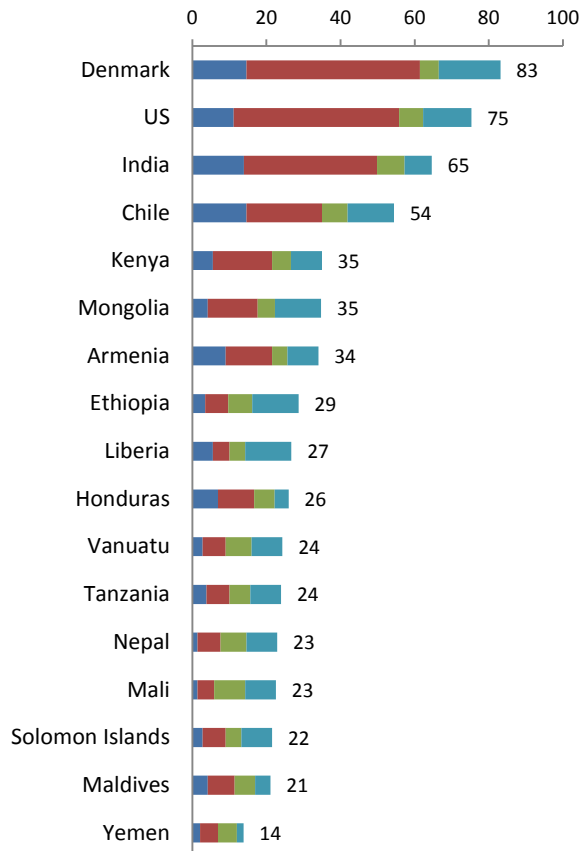
# RISE Pilot Results Summary



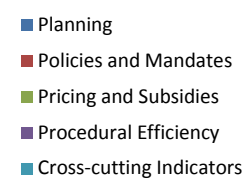
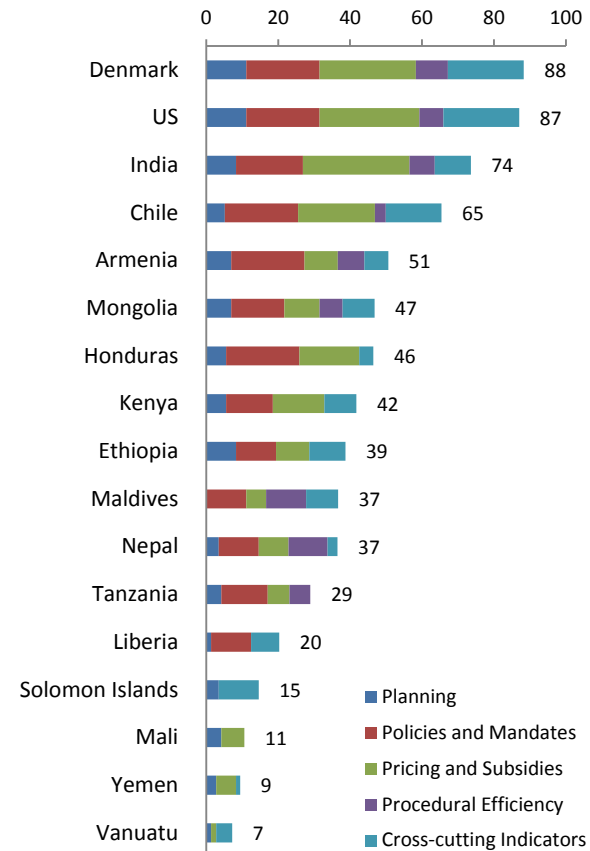
## Energy Access



## Energy Efficiency



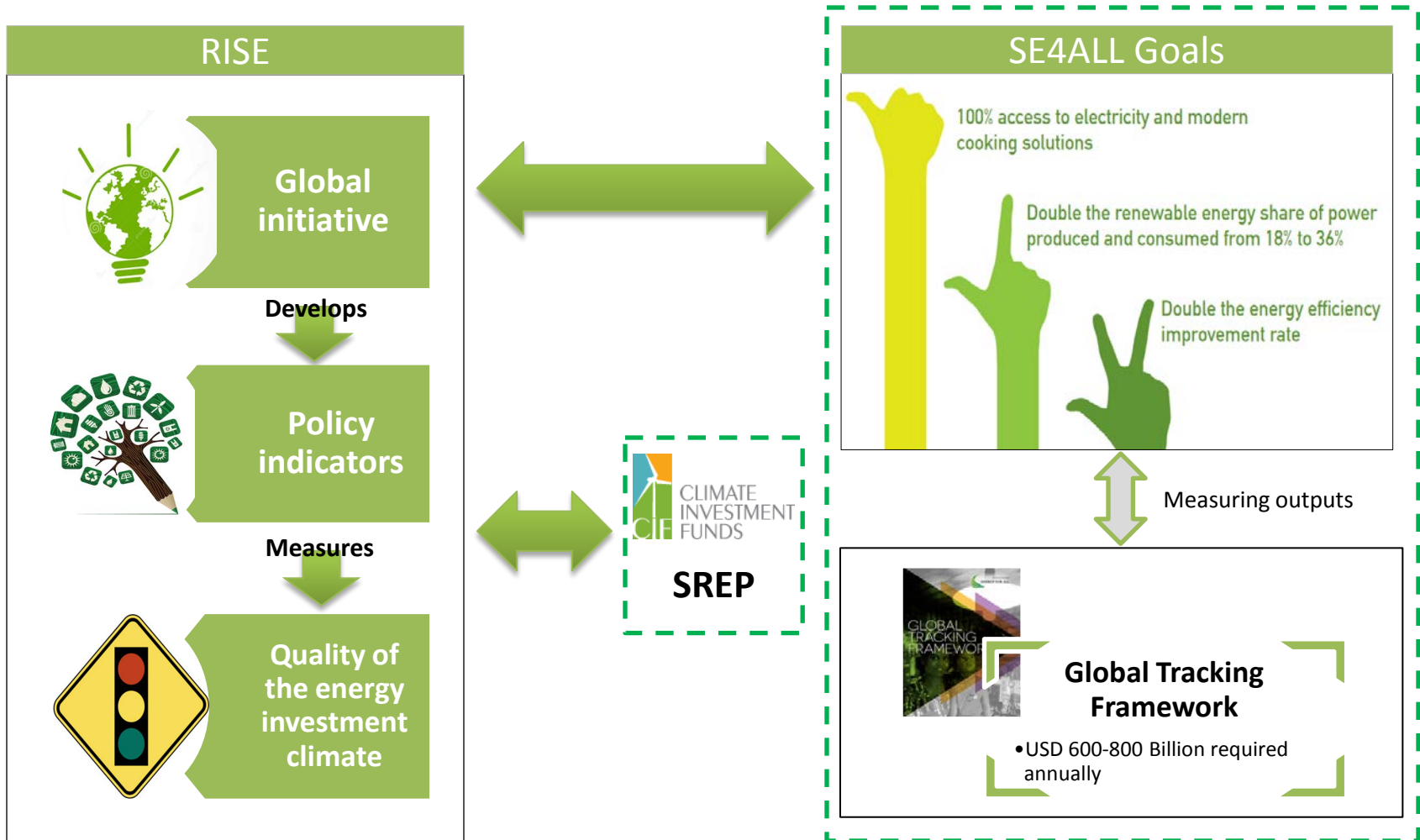
## Renewable Energy



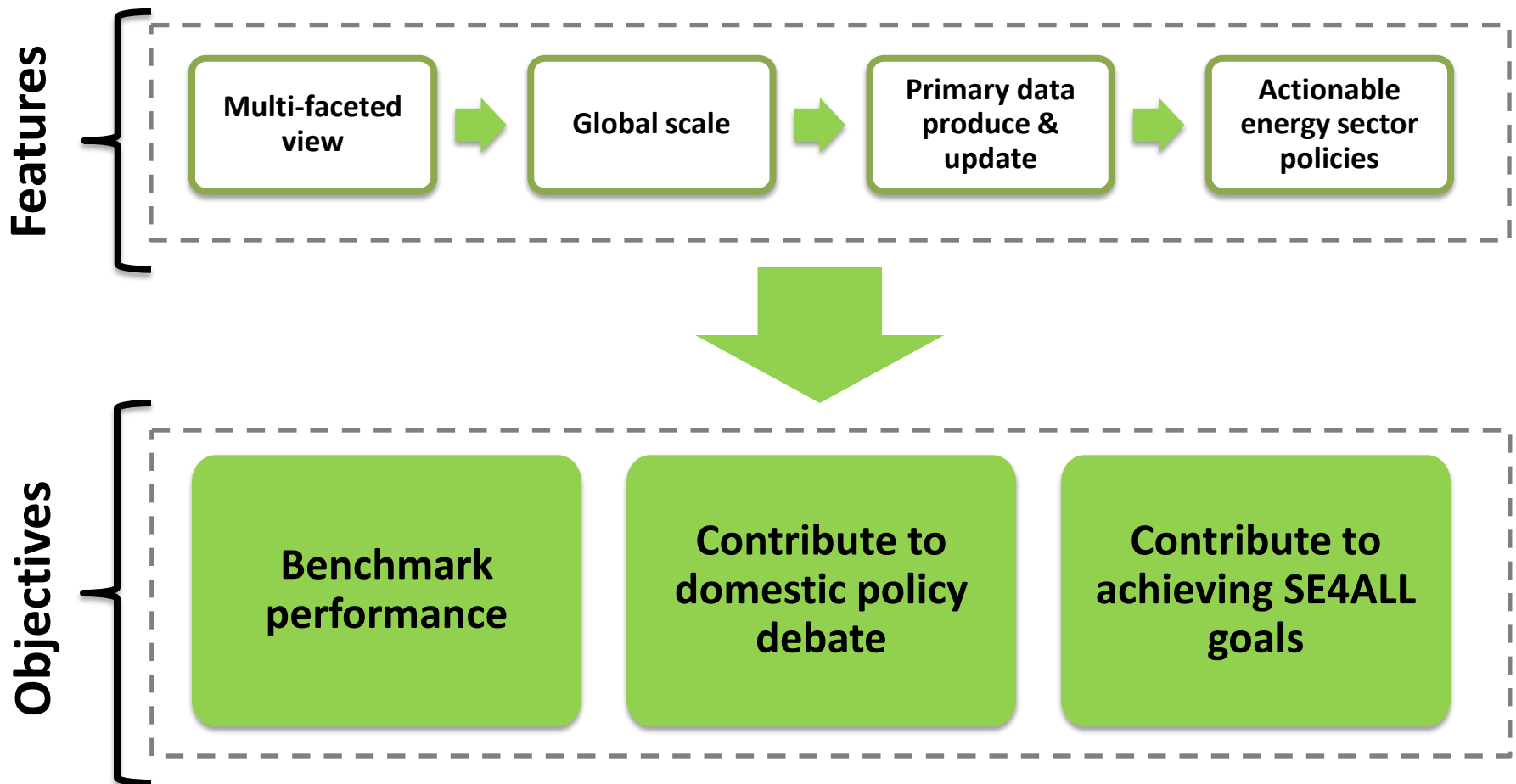
Countries are measured on 28 indicators and 85 sub-indicators

# **I. Setting the Context**

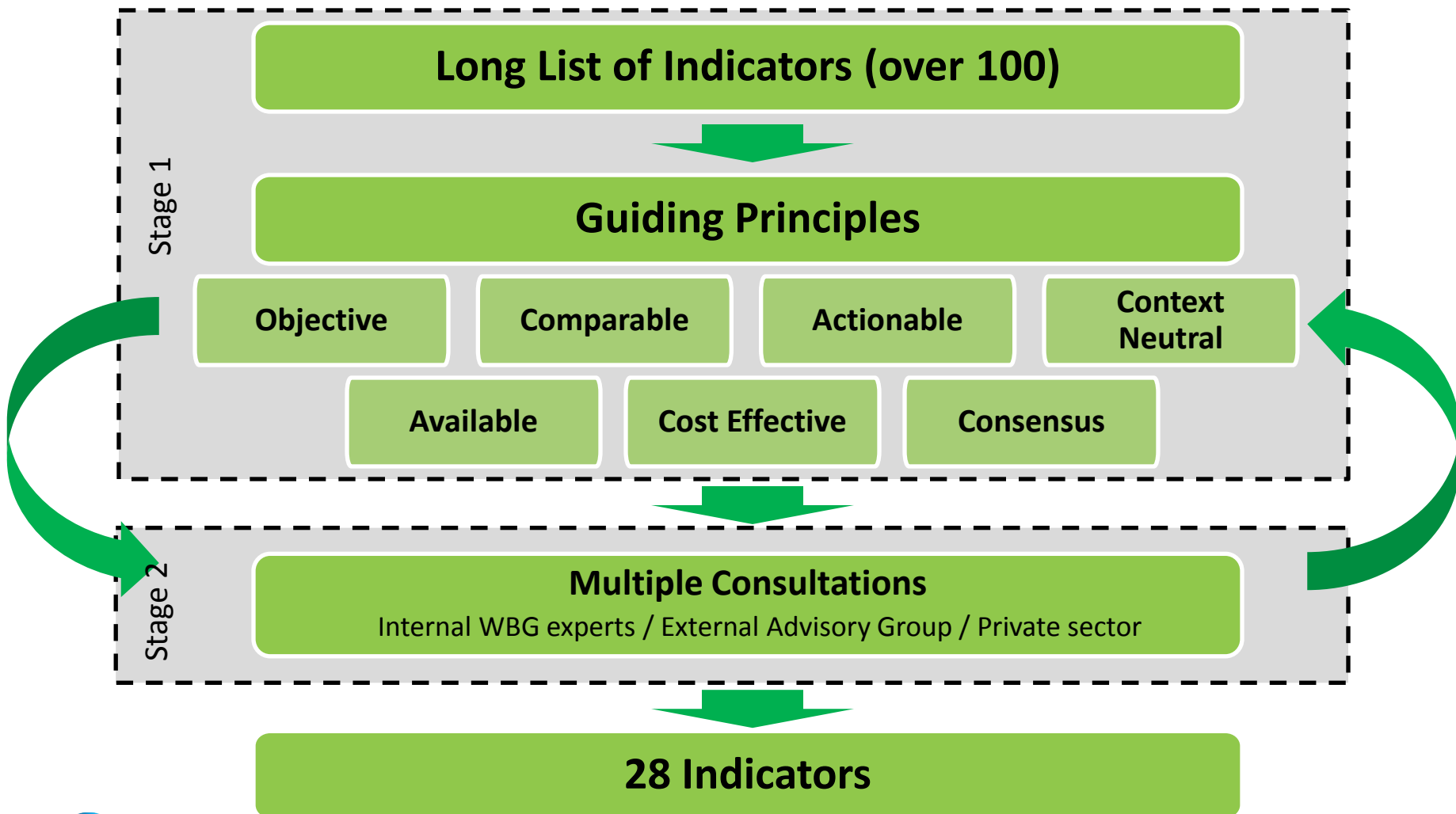
# What is RISE?



# What does RISE want to achieve?



# How were the indicators selected?



# How are indicators structured?

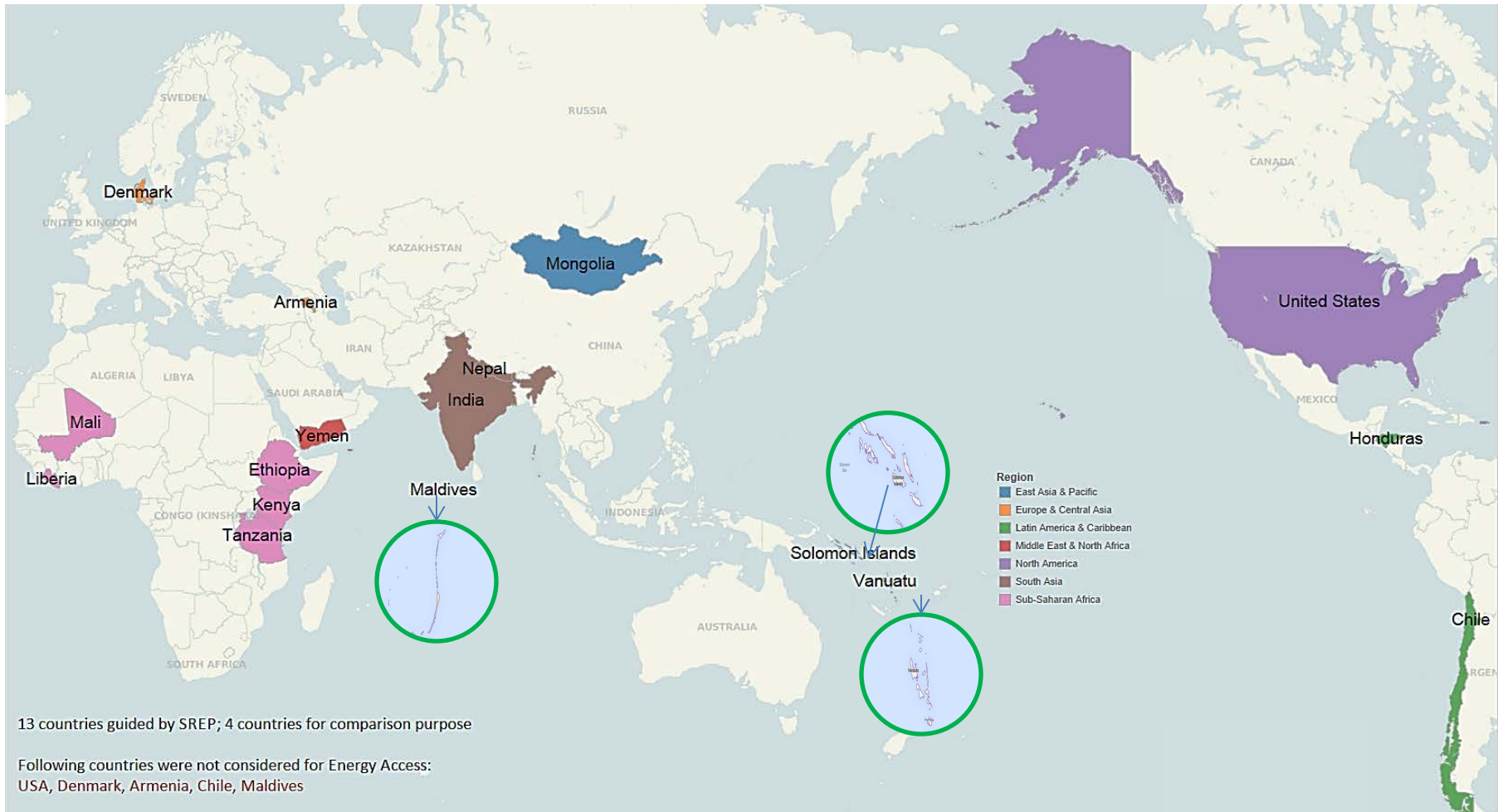


28 indicators and 85 sub-indicators are classified into 4 pillars and 4 frameworks

	Energy Access	Energy Efficiency	Renewable Energy	Cross-cutting
Planning	1 indicator (3 sub-indicators)	2 indicators (4 sub-indicators)	1 indicator (4 sub-indicators)	
Policies and Mandates	2 indicators (7 sub-indicators)	7 indicators (33 sub-indicators)	2 indicators (3 sub-indicators)	
Pricing and Subsidies	2 indicators (4 sub-indicators)	1 indicator (2 sub-indicators)	3 indicators (10 sub-indicators)	4 indicators (7 sub-indicators)
Procedural Efficiency	2 indicators (5 sub-indicators)		1 indicator (3 sub-indicator)	



# Which are the pilot countries?



# How is the implementation process?



## Data collection

- Carried out by consultants in countries to count on local capacity
- Spent 26 man-month through
  - Primary data collected from official documents
  - Interview with developers and customers

## General Scoring Principles

- Score out of 100 for each indicator
- Use traffic light to indicate scores
- Equal weight to indicators when aggregate
- Traffic light also used at aggregated levels

## **II. Developing the Indicators**

### **Cross-cutting**

# Indicators



Indicators	Definition	Source*
<b>Retail Price of Electricity</b>	A unit price per kWh at an average consumption level of residential and industrial customers	C
<b>Fossil Fuel Subsidy</b>	Percentage of electricity generated by fossil fuel that is subsidized (based on IMF data on fossil fuel subsidy and IEA data on fuel mix of electricity generation)	C
<b>Utility Performance</b>	Examine the availability and audit of the financial statements of the utility; assess key financial metrics including (i) EBITDA ratio, (ii) current ratio, (iii) debt service coverage ratio, (iv) days receivable outstanding, and (v) days payable outstanding	C
<b>Carbon Pricing Mechanism</b>	Assess the existence of GHG emission reduction target and carbon pricing mechanism	P

\* Type of sources

P : Primary data collected by reviewing laws/regulations/policies

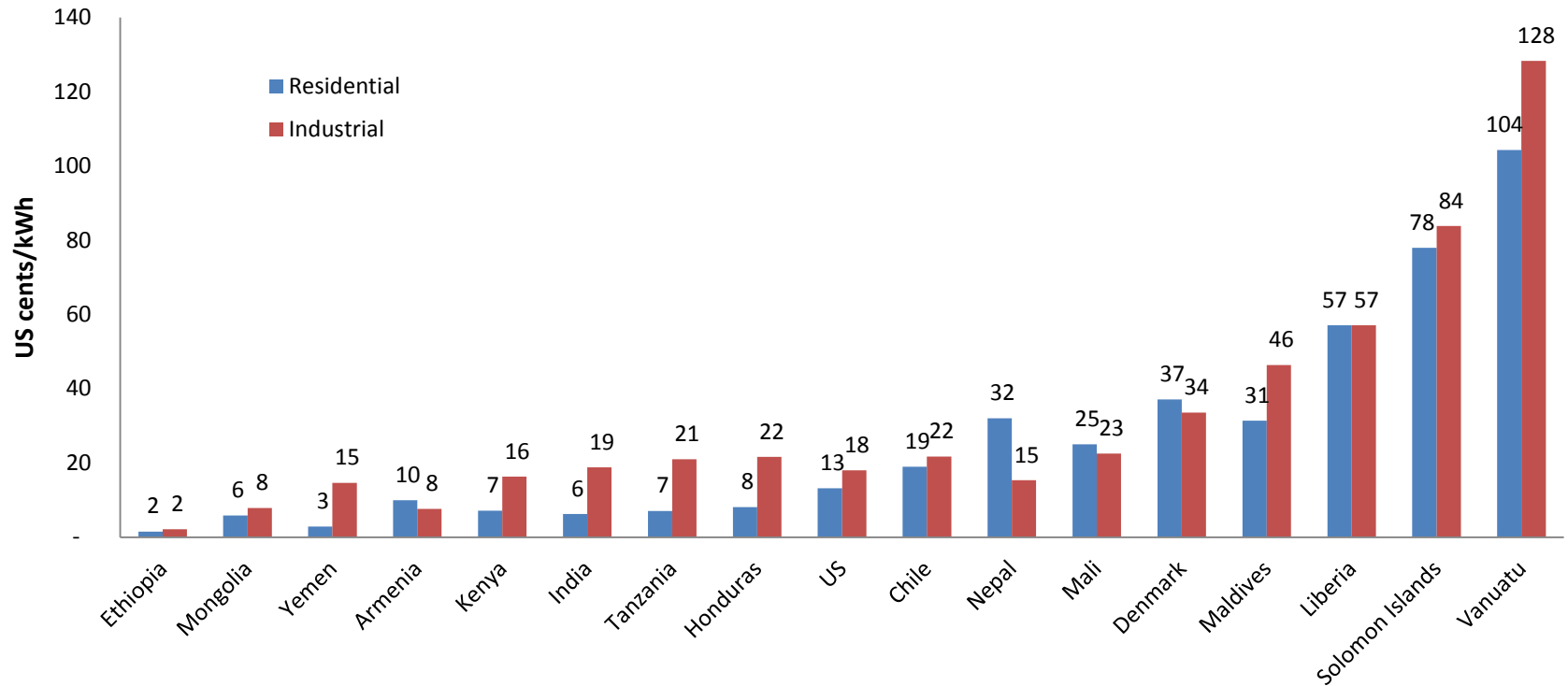
C : Calculated based on statistics from primary data and other sources

I : Interview with customers or developers

# Retail Price of Electricity



- Retail price for residential customers ranges US\$ 0.02 – 1.04/kWh
- Retail price for industrial customers ranges US\$ 0.02 – 1.28/kWh

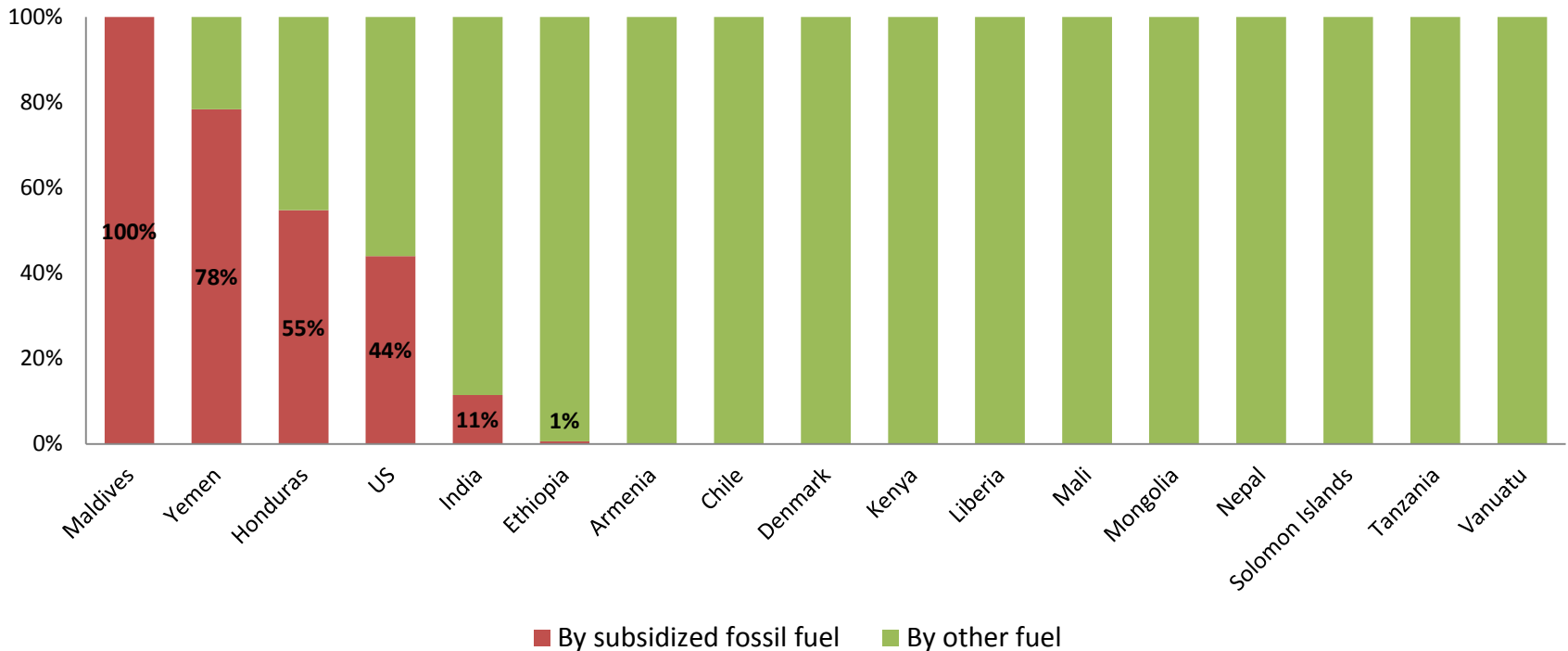


# Fossil Fuel Subsidy



- 6 out of 17 countries generate electricity from subsidized fossil fuel

Electricity generation by fuel type – subsidized fossil fuel and others

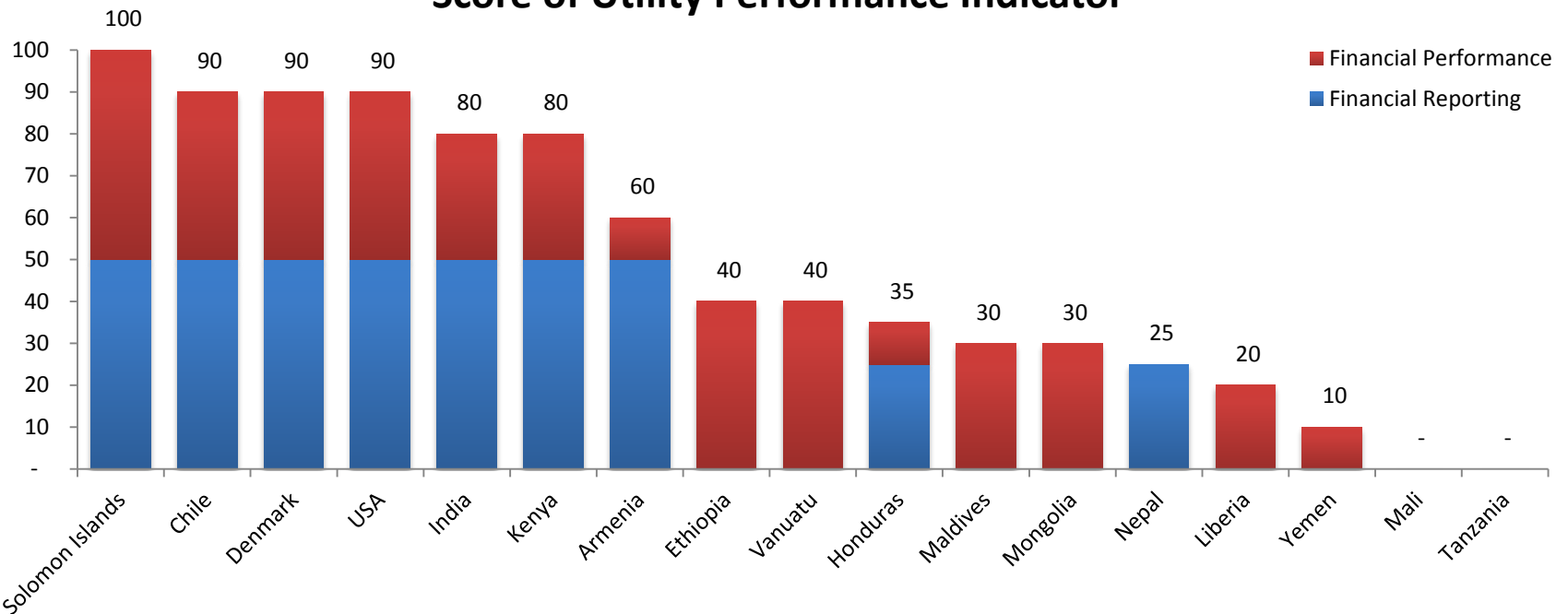


# Utility Performance



- 7 countries indicate that their largest utility's financial statements are available to public and audited by third party
- Except Mali, Nepal and Tanzania, the largest utility of all countries exceeds the threshold for at least one of the five key financial ratios.

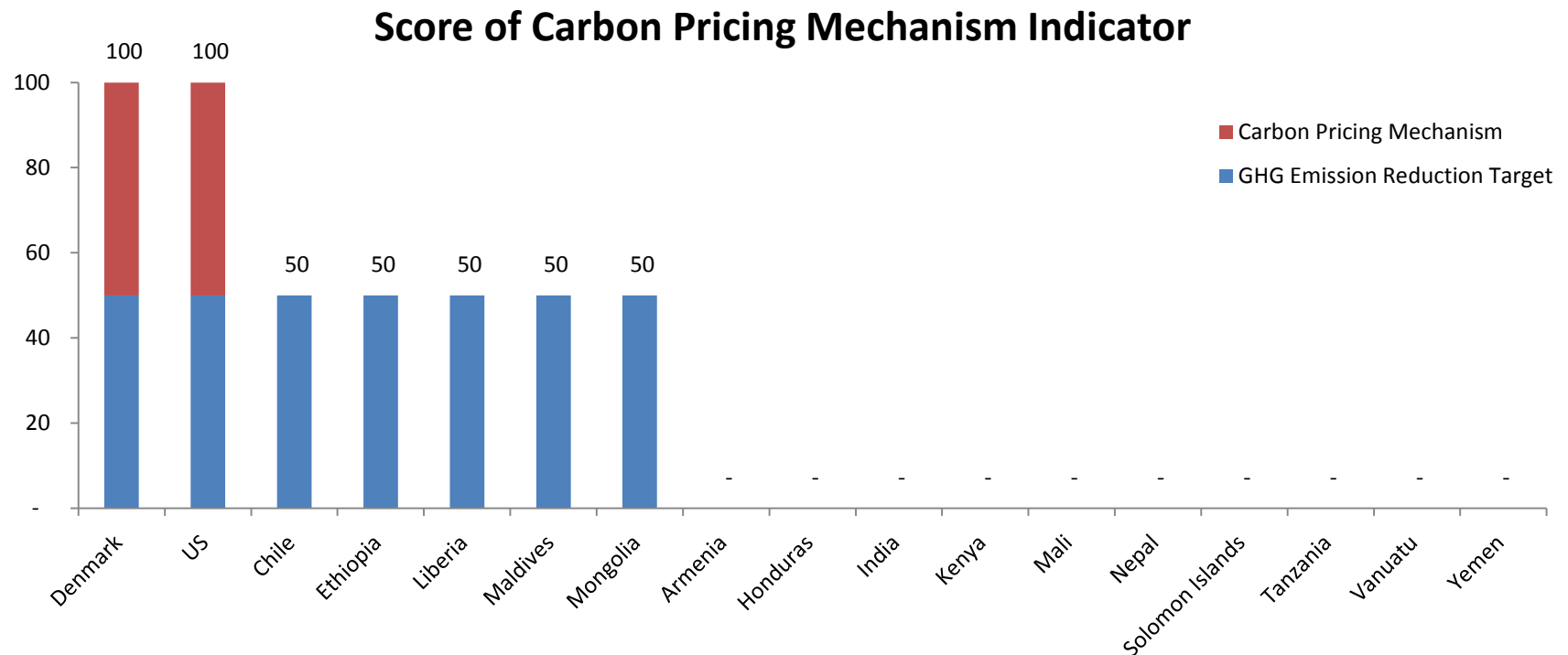
Score of Utility Performance Indicator



# Carbon Pricing Mechanism



- Among SREP countries, Ethiopia, Liberia, Maldives, and Mongolia have a GHG emission reduction target which is a basis of carbon pricing





## **II. Developing the Indicators**

### **Energy Access**

# Indicators



Framework	Indicators	Definition	Source*
Planning	<b>Electrification Plan</b>	Existence of a national plan; coverage of the plan on both grid and off-grid; the latest updated year	P
Policies and Mandates	<b>Enabling Environment for RE Developers to Invest in Mini-grids</b>	Existence of a regulation outlining rights and duties of mini-grid operators; some key attributes of the regulation, including the right of tariff level decision, the requirement of prior regulatory approval, standards, and subsidies or duty exemptions	P
	<b>Enabling Environment for Standalone Home Systems (SHS)</b>	Existence of a national program for SHS; performance standards; subsidies or duty exemptions	P
Pricing and Subsidies	<b>Funding Support to Electrification</b>	Existence of a dedicated funding line of the government for electrification; subsidy to grid extension and household connection cost	P
	<b>Affordability of Electricity</b>	The relative cost of subsistence consumption (30kWh/mo.) to GDP per capita based on PPP	C
Procedural Efficiency	<b>Establishing a New Connection</b>	Time and cost for a rural consumer to make a new household connection to the grid	I
	<b>Permitting a Mini-grid</b>	Time, cost and number of agencies to go through in order to obtain licenses and permits to operate a mini-grid	I

\* Type of sources

P : Primary data collected by reviewing laws/regulations/policies

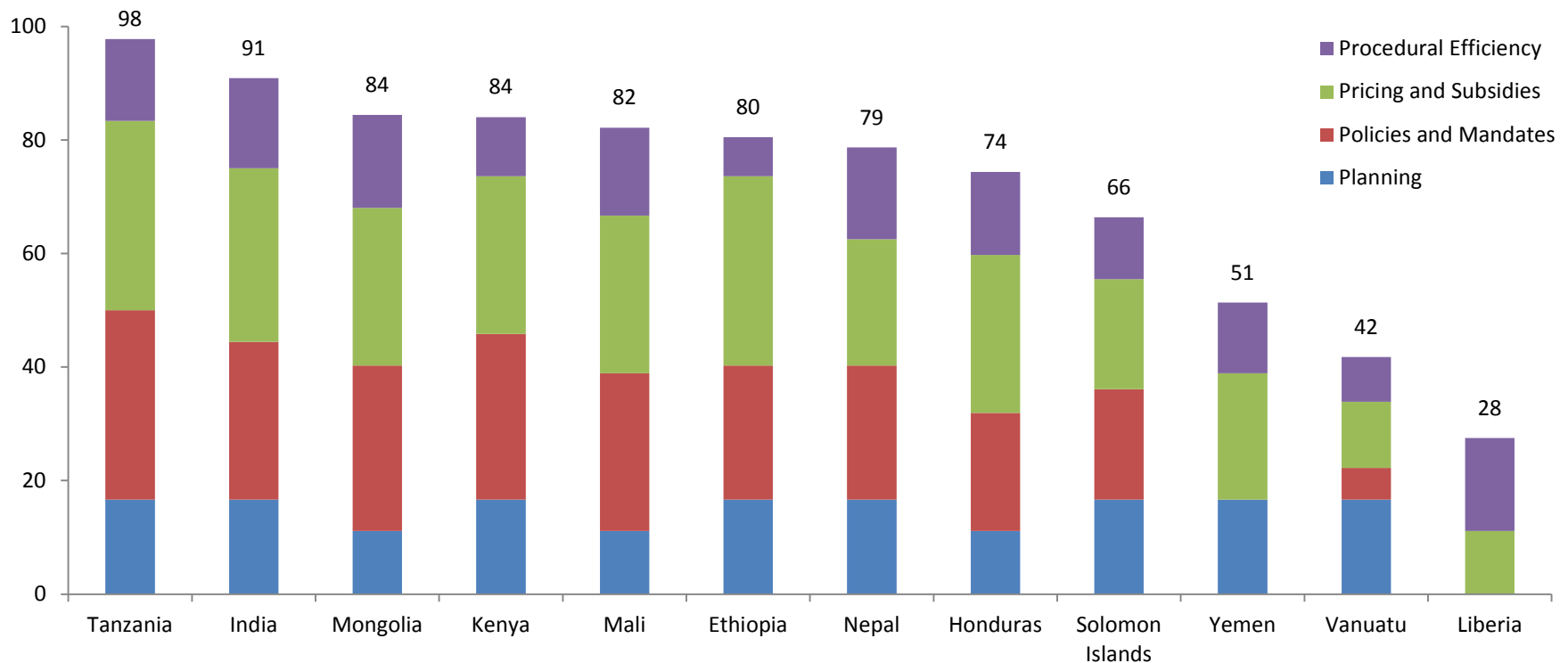
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I : Interview with customers or developers

# Energy Access Overall



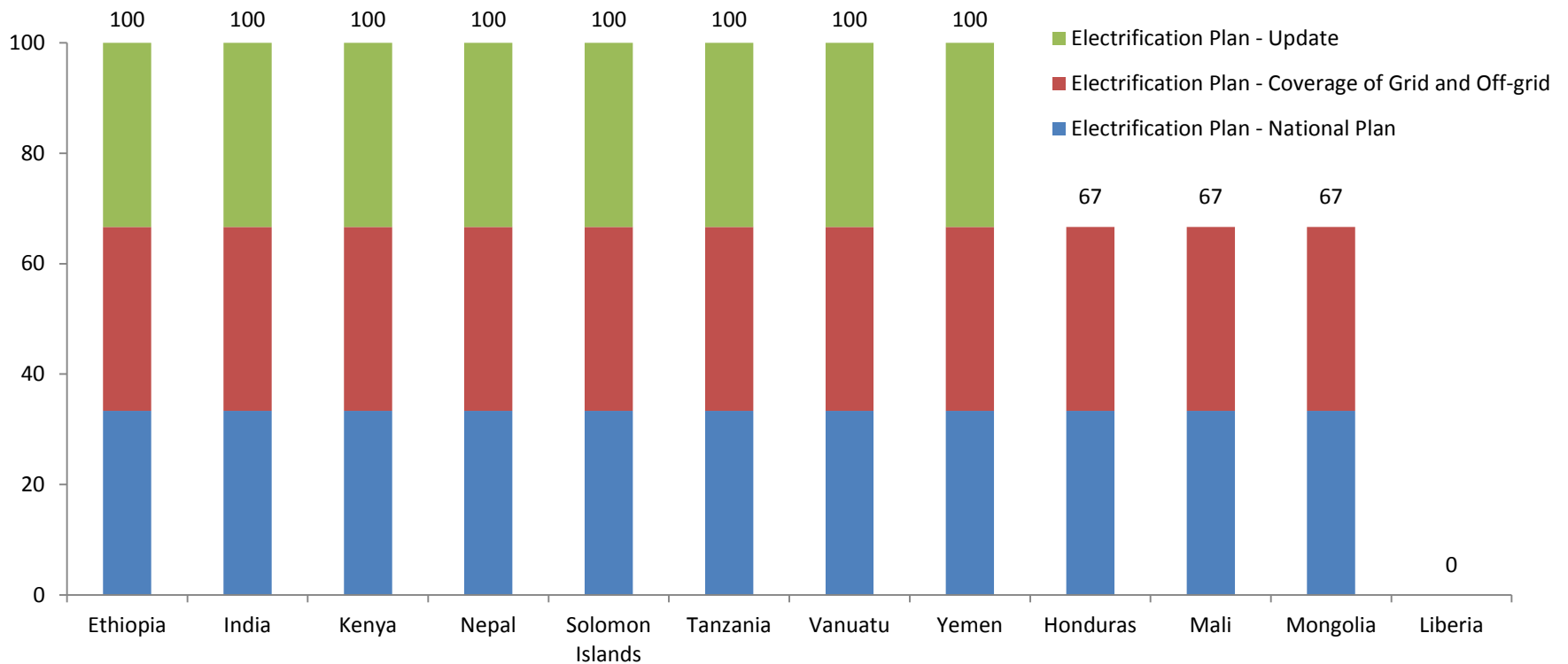
- Many of SREP countries score high in energy access
- Tanzania and India are ahead of other countries



# Planning



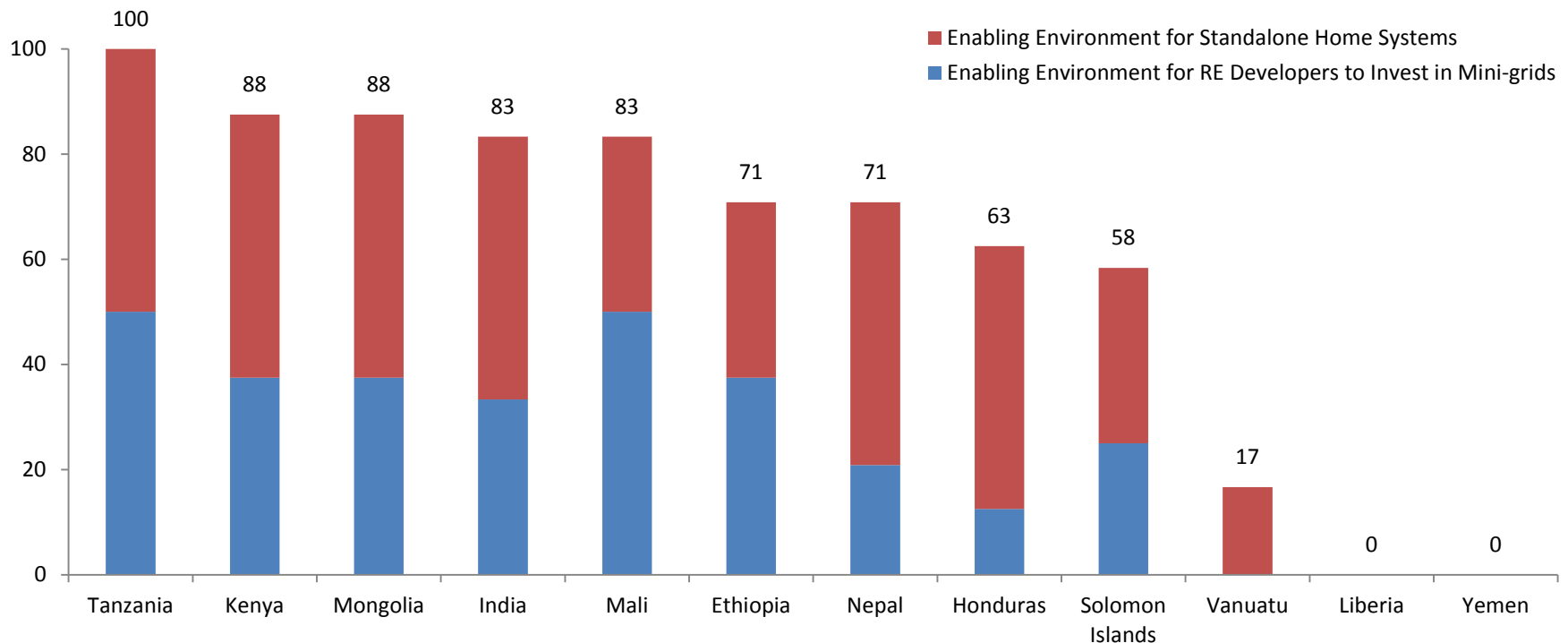
- All countries are planning well except Liberia that is yet to ratify its Electrification Plan



# Policies and Mandates



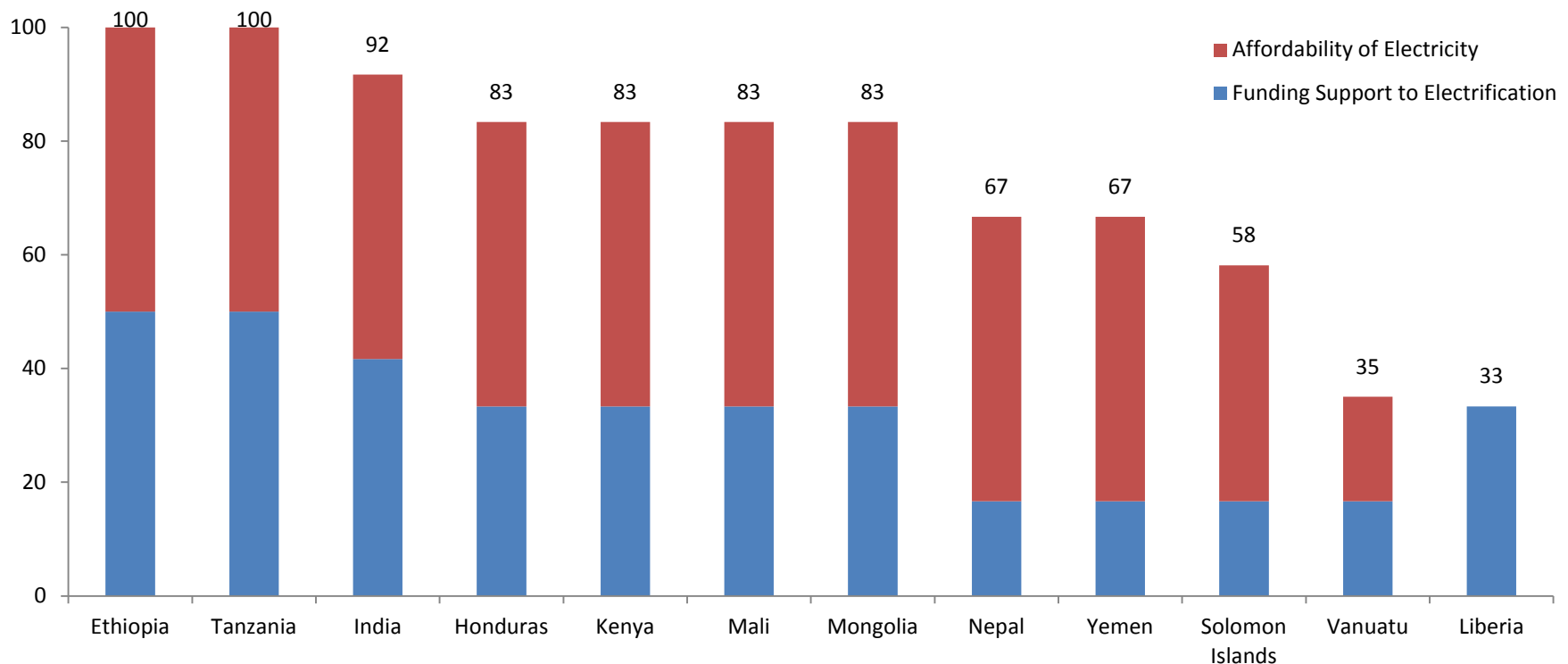
- Aside from Tanzania, all countries need to improve the enabling environment for mini-grids and standalone systems
- Many countries stand out in their focus on creating an enabling environment in solar home systems, compared to mini-grids



# Pricing and Subsidies



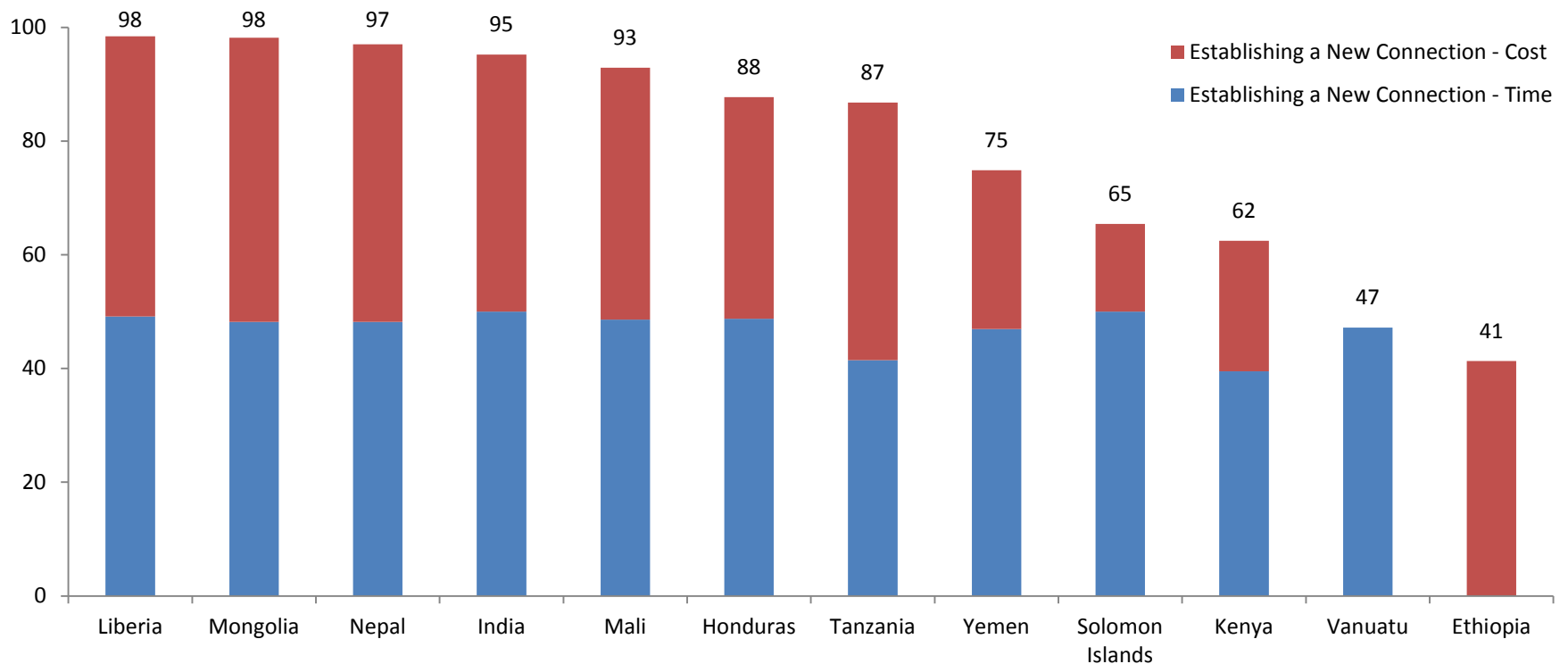
- All countries receive some form of funding support for electrification
- A subsistence amount of electricity is typically affordable for most of the countries



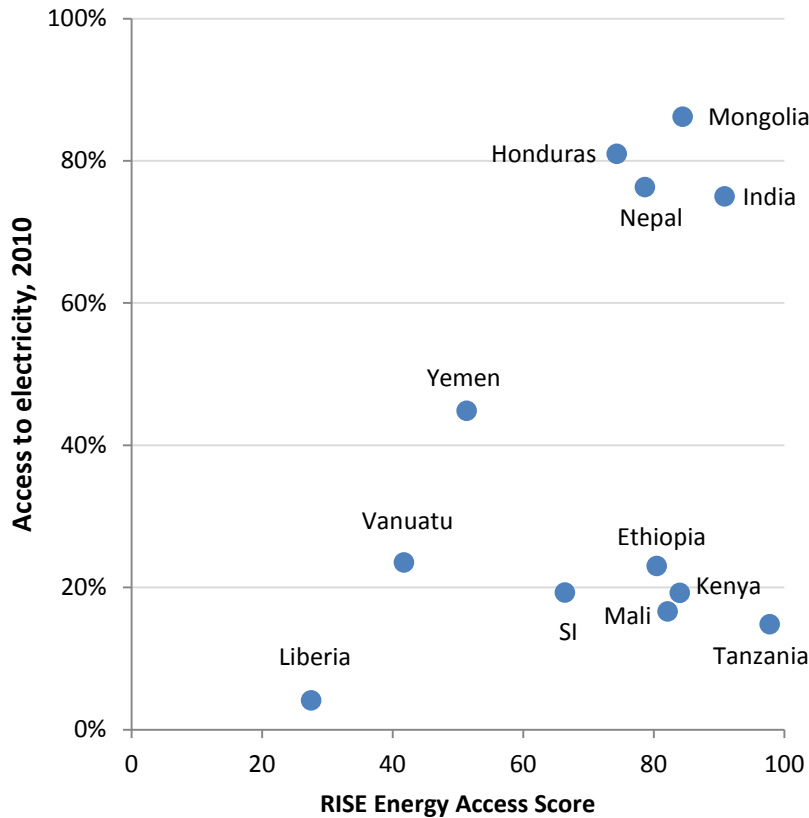
# Procedural Efficiency



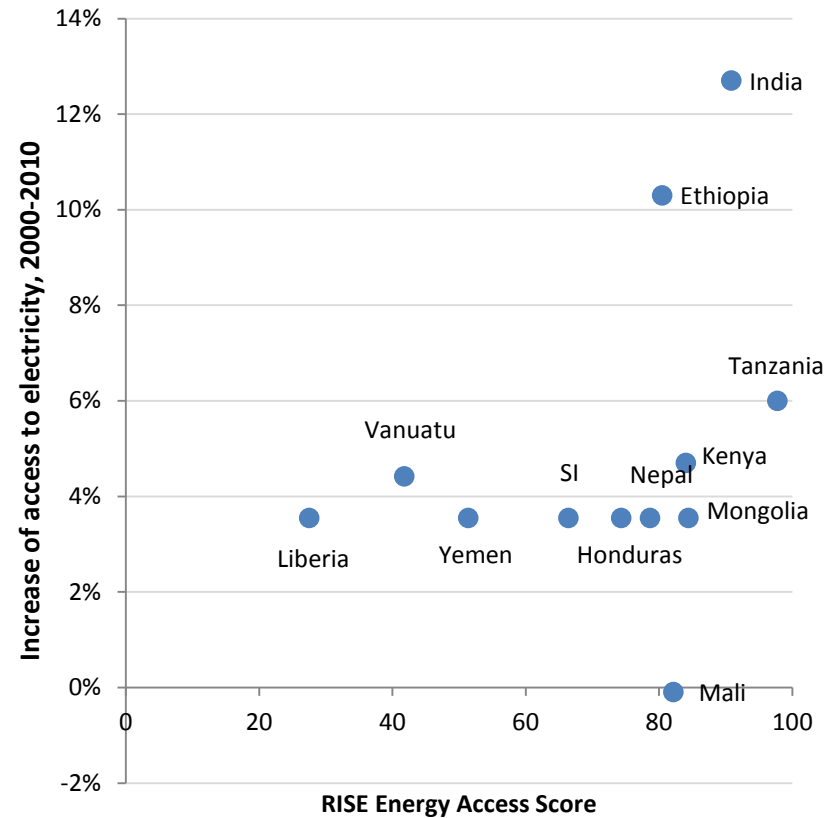
- A rural consumer in Liberia takes 14 days and \$20 to get a connection, but only for a limited number of people since grid extension outside Monrovia is rare
- A rural consumer has to wait a year to get a connection in Ethiopia



# RISE and Sector Outcome



RISE and Access to Electricity (2010)



RISE and Increase of Access to Electricity (2000 - 2010)



## **II. Developing the Indicators**

### **Energy Efficiency**

# Indicators



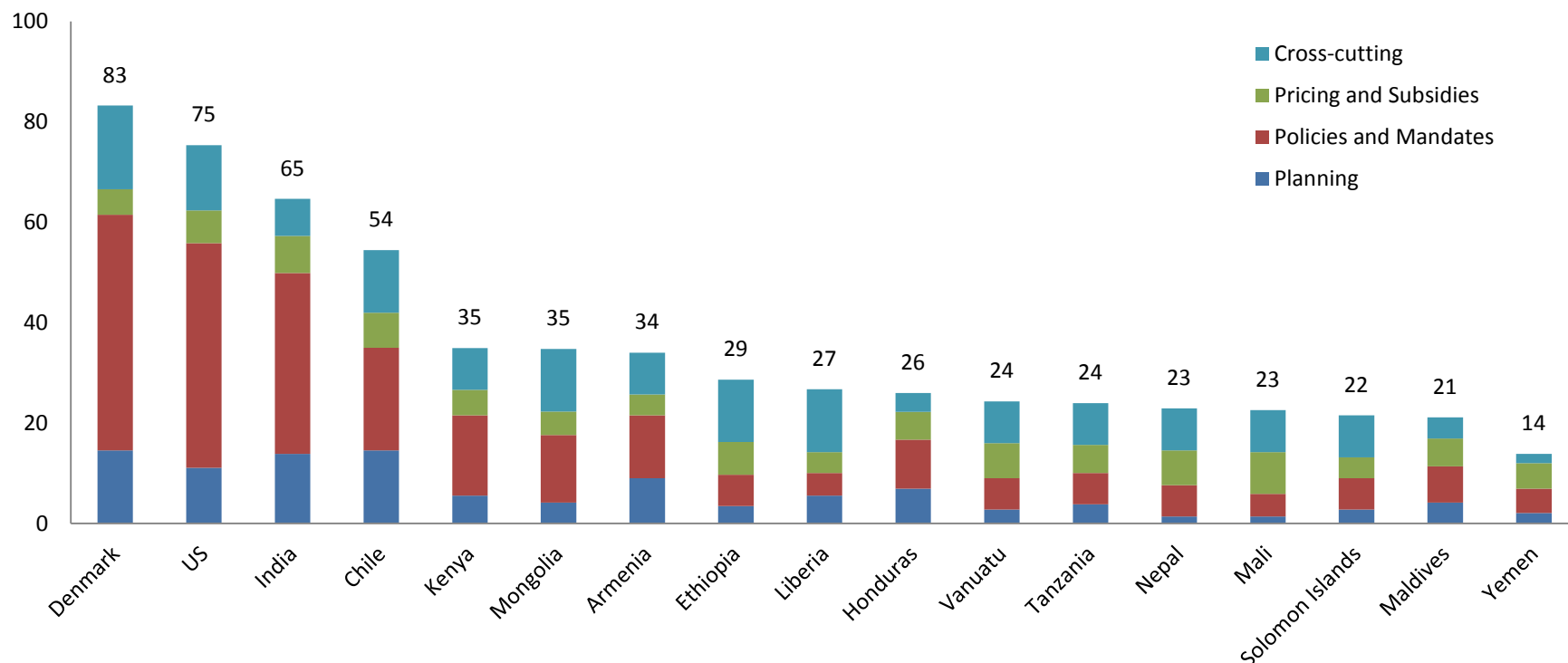
Frame work	Indicators	Definition	Source*
Planning	<b>National Plan for Increasing EE</b>	Existence of a national target, sector-specific targets and national energy efficiency legislation/action plan	P
	<b>Entities for EE Policy, Regulation and Implementation</b>	Existence of entities responsible for key functions regarding formulation and implementation of energy efficiency strategy, policy and regulation	P
Policies and Mandates	<b>Quality of Information Provided to Consumers</b>	Billing cycle; type of information available on electricity bills; provision of EE information by utilities to consumers	P
	<b>Incentives or Mandates for Utilities to Invest in EE</b>	Existence of energy efficiency mandates on utilities; penalties for non-compliance in place; M&V for savings; cost-recovery mechanism for utilities	P
	<b>Incentives or Mandates for Public Entities to Invest in EE</b>	Energy saving obligations on public buildings and facilities; public procurement of EE products; whether allowed for multi-year contracts and energy savings retention	P
	<b>Incentives or Mandates for Large-scale Users to Invest in EE</b>	Existence of energy efficiency mandates on large energy users; penalties for non-compliance in place; M&V for savings; types of incentives provided	P
	<b>Minimum Energy Efficiency Performance Standards (MEPS)</b>	Existence of MEPS for appliances, lighting, electric motors and industrial equipment; provision for regular updates; penalties for non-compliance in place	P
	<b>Energy Labeling Systems</b>	Existence of energy labeling schemes for appliances, lighting, electric motors and industrial equipment	P
	<b>Building Energy Codes and Information</b>	Existence of building energy codes and compliance system; application to renovated buildings; systems to disclose building energy usage information in place	P
Pricing and Subsidies	<b>Incentives from Electricity Pricing</b>	Examine electricity tariff structure - among increasing, constant or declining block rates or flat fee per connection; whether large users are charged based on demand (kW) and reactive power (kVAr) in addition to consumption (kWh)	P

\*P: Primary data collected by reviewing laws/regulations/policies

# Energy Efficiency Overall



- All piloted countries have initiated some measures targeting energy efficiency
- India stands out among emerging economies – due to recent promulgation of new policies

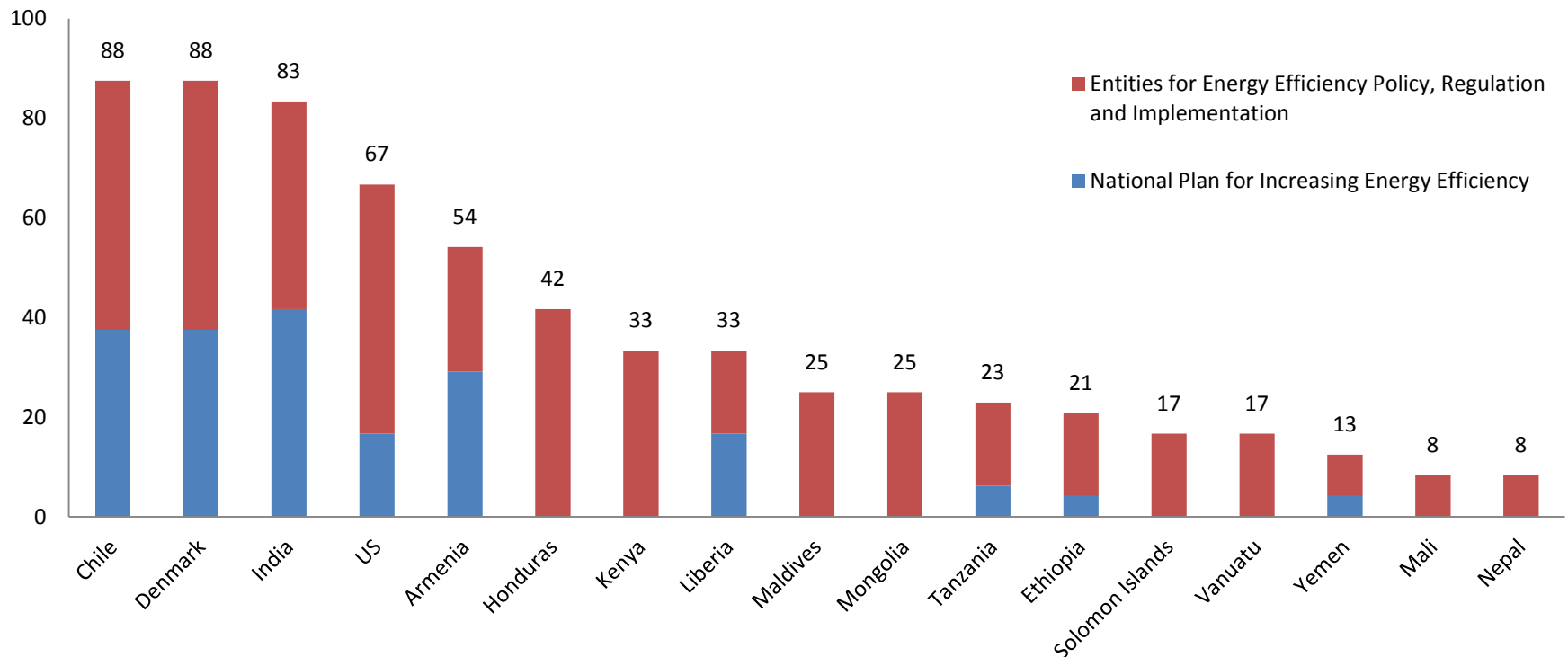


\*Two cross-cutting indicators, “Fossil Fuel Subsidy” and “Carbon Pricing Mechanism” are included in scoring energy efficiency

# Planning



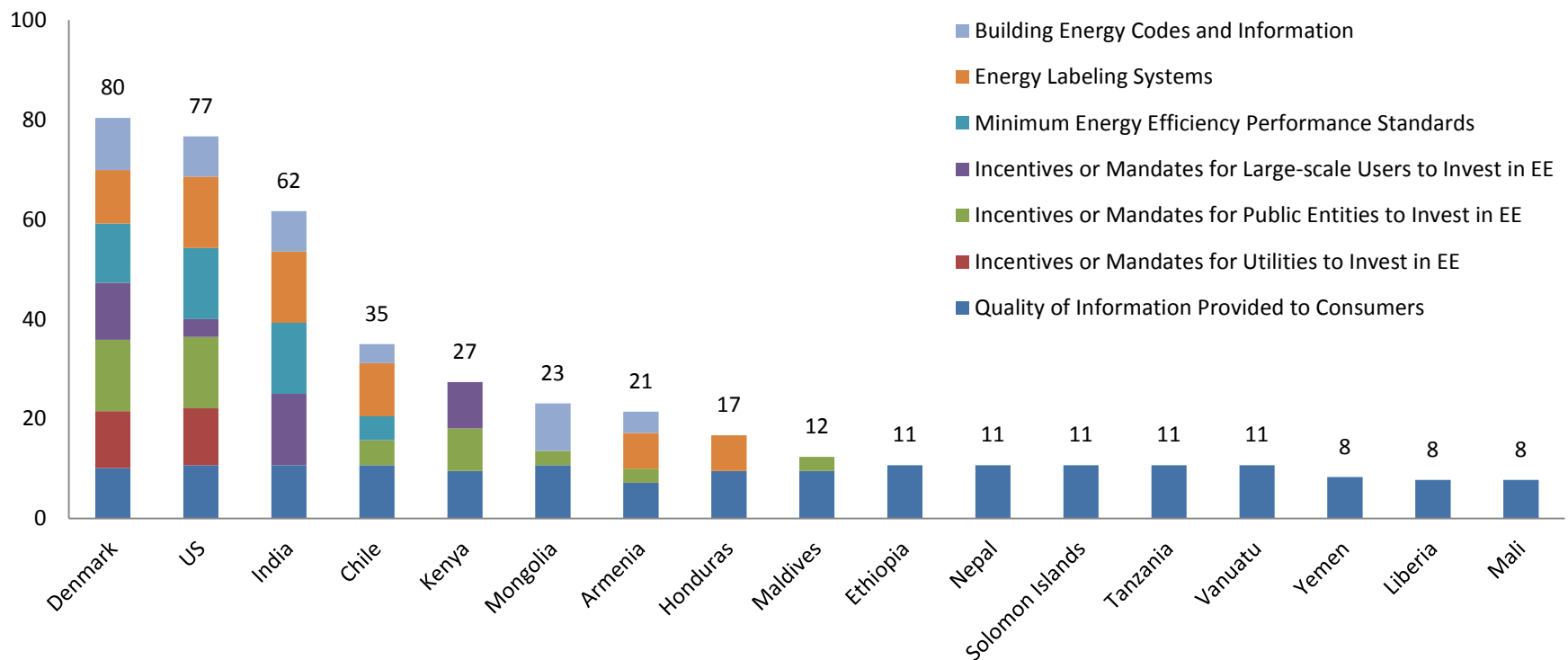
- 8 SREP countries don't have EE national target or related legislation/action plan
- All countries have entities responsible for formulation and implementation of EE strategy, policy and regulation



# Policies and Mandates



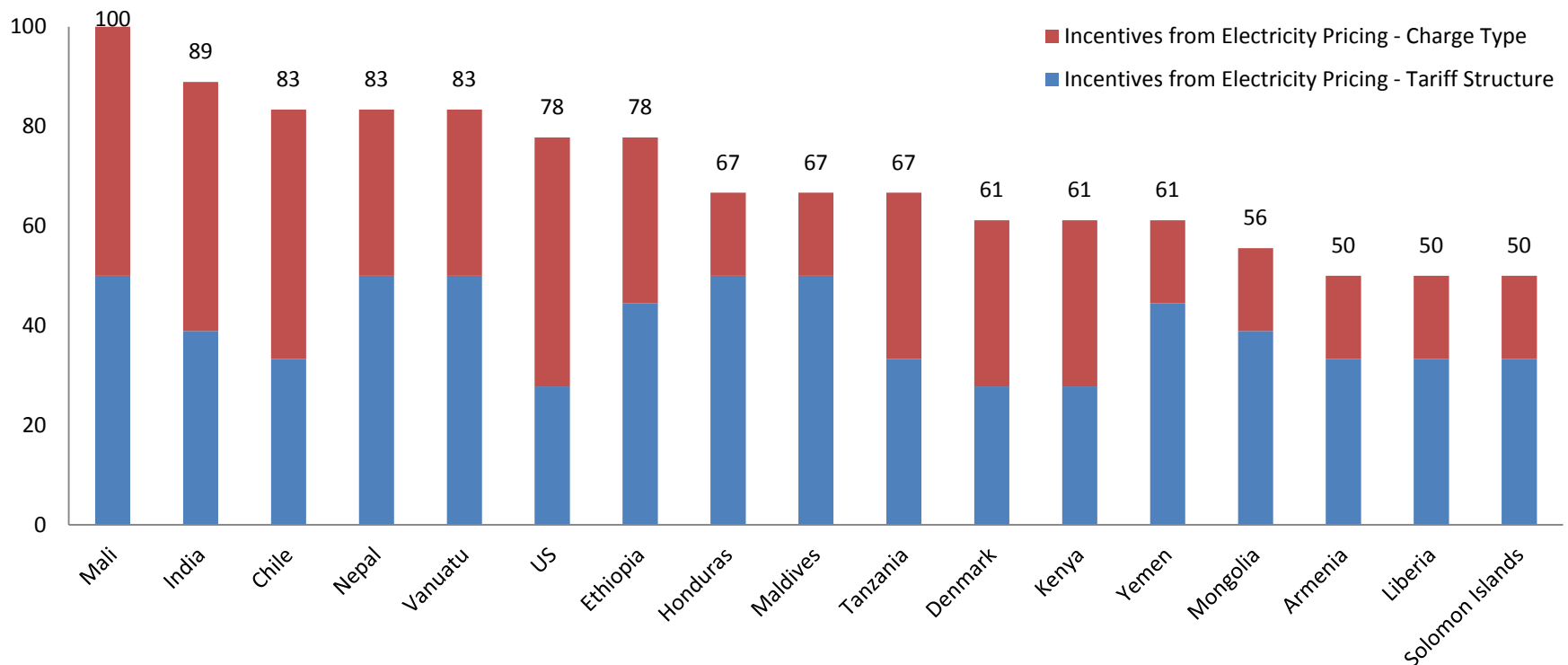
- A lot needs to be done in most countries
- Consumers in all countries receive information on electricity usage and cost – yet lacking energy efficient behavior



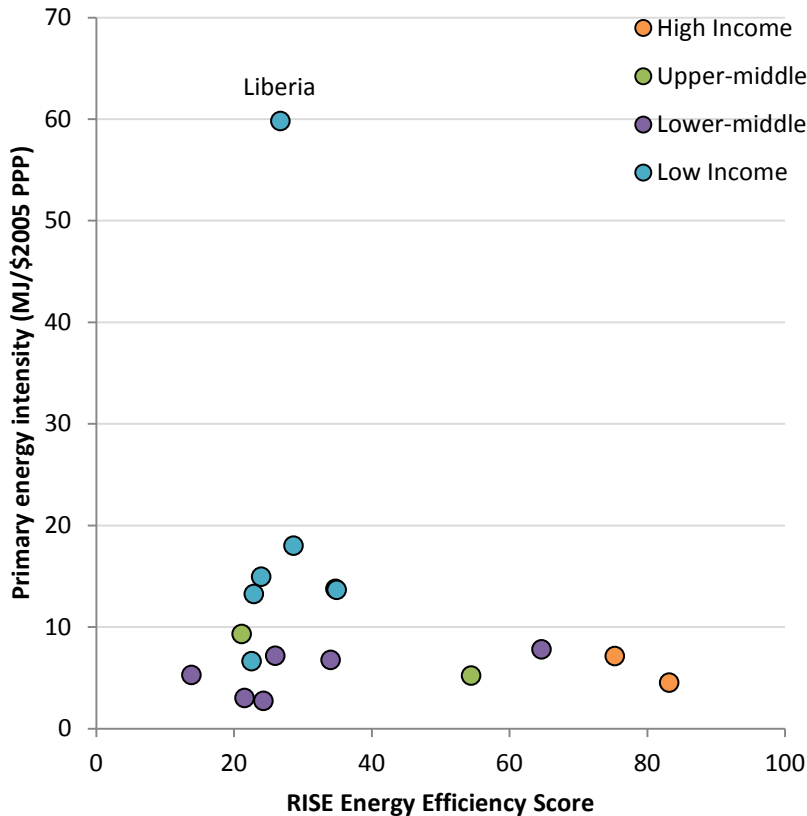
# Pricing and Subsidies



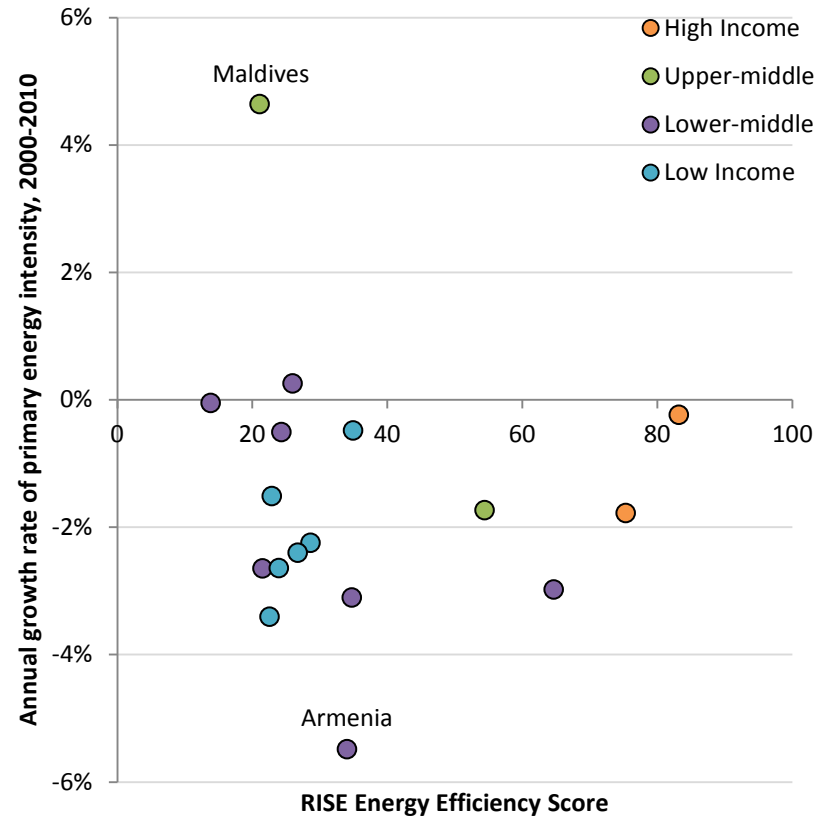
- Residential consumers in most countries are charged at increasing block rates
- On the contrary, industrial consumers in many countries have constant or declining block tariff rate, discouraging energy efficient behavior



# RISE and Sector Outcome



RISE and Primary Energy Intensity (2010)



RISE and CAGR of Primary Energy Intensity (2000 - 2010)

## **II. Developing the Indicators Renewable Energy**



# Indicators



Framework	Indicators	Definition	Source*
Planning	<b>Planning Capacity</b>	Whether an electricity expansion plan includes RE development; whether transmission planning considers RE scale-up and incorporates proactive planning process; existence of RE target and action plan; existence of high quality national atlas on resource potential and strategic planning and zoning guidance on existing RE resources	P
Policies and Mandates	<b>Legal Framework in RE</b>	Existence of a legal framework on RE development	P
	<b>Transmission Connection and Pricing</b>	Existence of policies for connection cost allocation and wheeling charge	P
Pricing and Subsidies	<b>Economic Incentives</b>	Existence of price/quota policies that provide economic incentives to RE developers, e.g. Feed-in Tariff, REC, price premium, auction, etc.	P
	<b>Investment Grade Attributes</b>	Examination on the predictability of price and the existence of purchase obligation; whether the price subsidy is passed through to the consumer tariff; whether the total volume of price subsidy is affordable; whether the price level is appropriate; assessment of accessibility to the grid by examining prioritized access, grid code and curtailment cost policies	P, C
	<b>Public Financial Support Mechanism</b>	Provision of fiscal incentives, public financing supports, credit enhancement, and utility payment guarantee	P
Procedural Efficiency	<b>Starting a New RE Project</b>	Time, cost and number of agencies to go through in order to obtain licenses and permits to start a new renewable energy generation facility	I
Cross-cutting	<b>Utility Performance</b>	Introduced in the cross-cutting indicator section	C
	<b>Carbon Pricing Mechanism</b>	Introduced in the cross-cutting indicator section	P

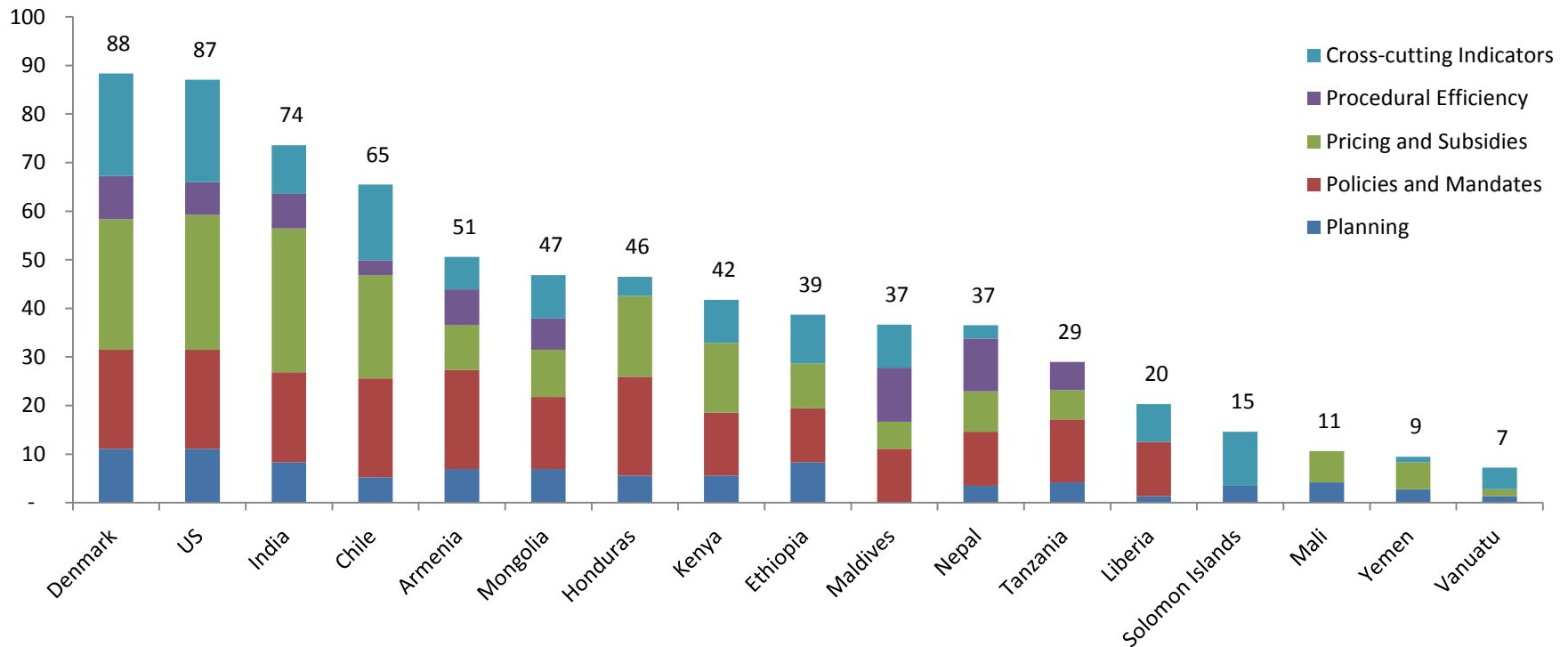
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# Renewable Energy Overall



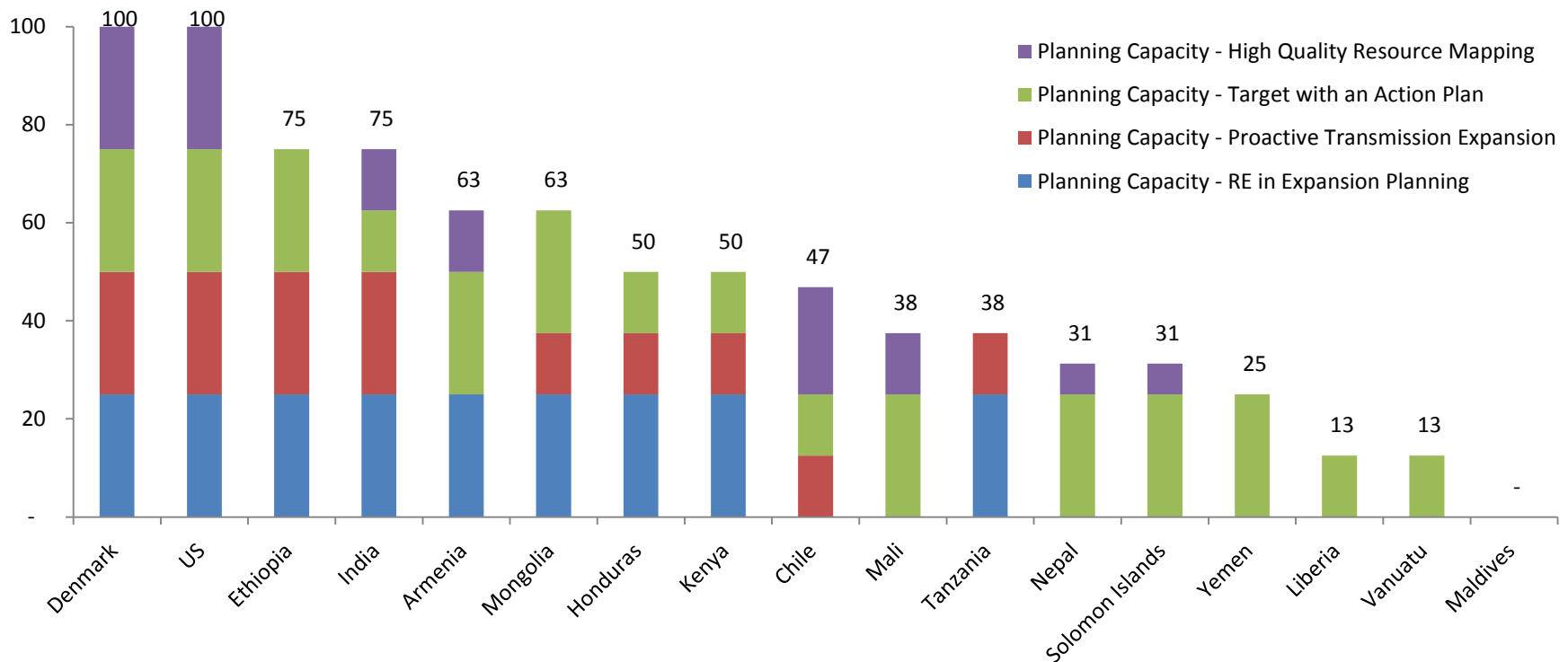
- All piloted countries have introduced some measures to increase renewable energy generation
- India leads among developing countries in the sample due to its extensive experience in policy design and implementation and the measures it has introduced with time



# Planning



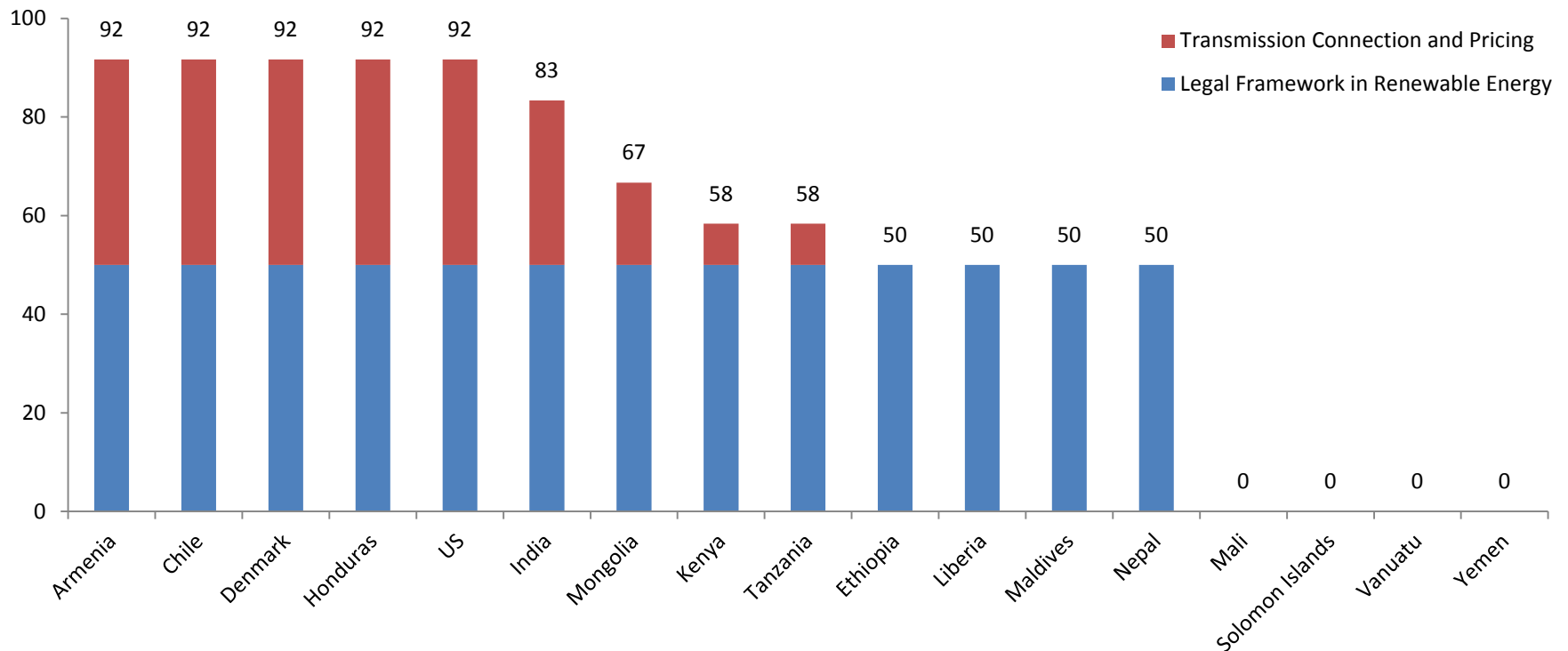
- All SREP countries except Maldives have planning capacity to some extent
- Most SREP countries do not have high quality resource mapping information published by the government



# Policies and Mandates



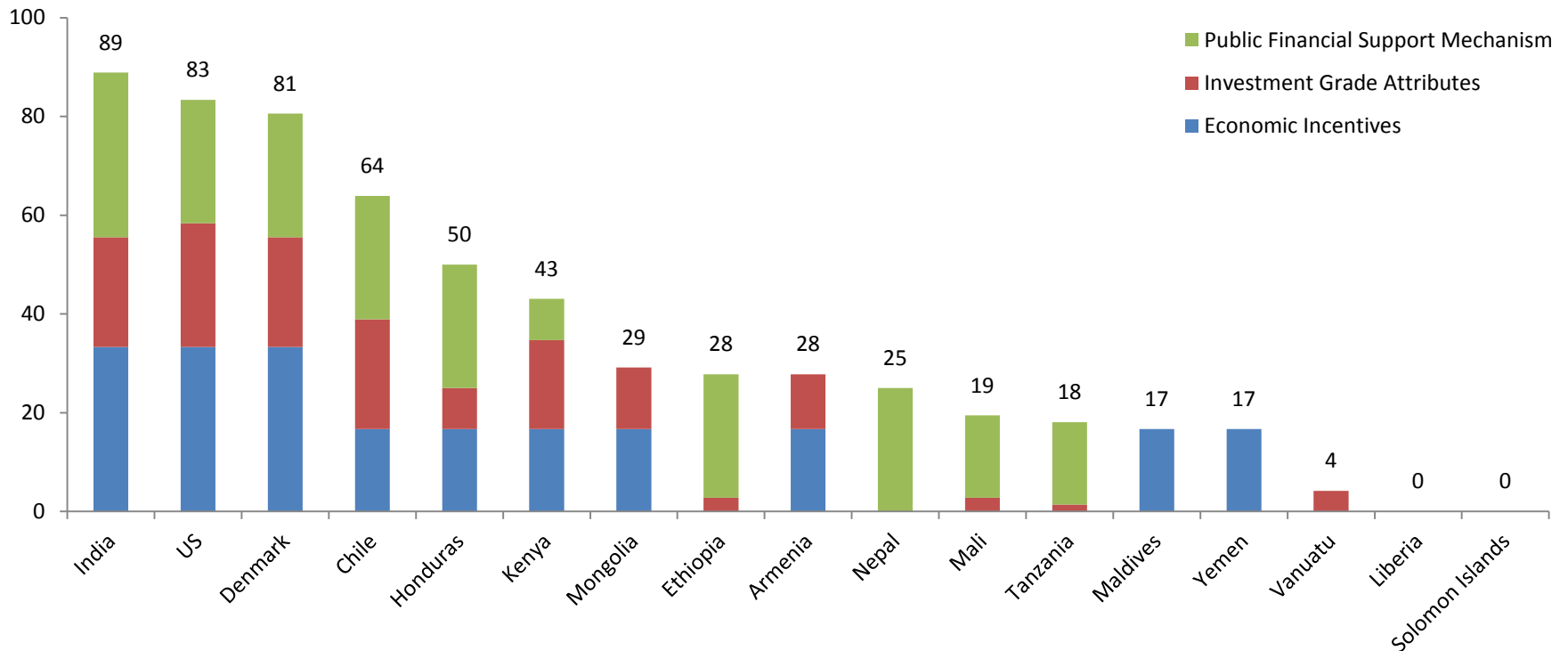
- All countries with a score have a legal framework on renewable energy
- Countries which lead in this category (those with a score of 92) have also a clearly defined policy or rules on connection cost and network usage pricing.



# Pricing and Subsidies



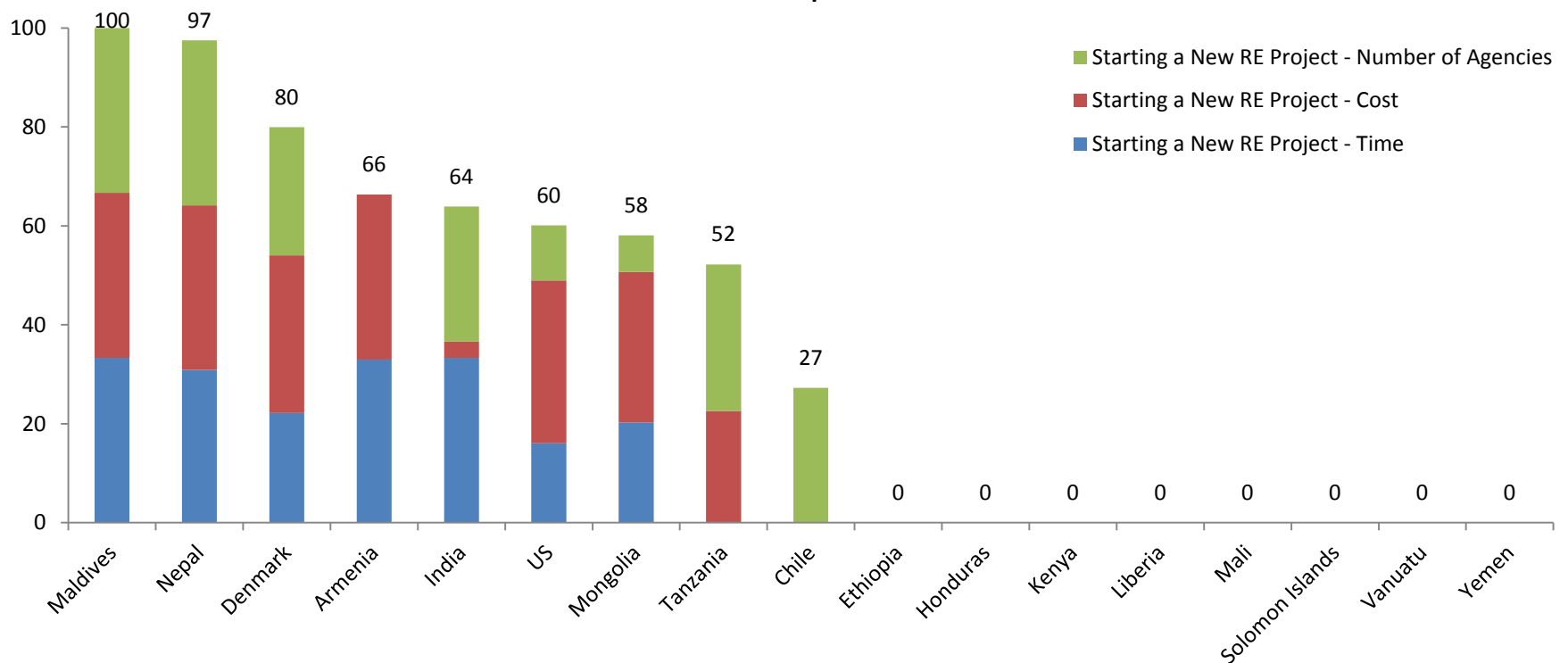
- India is the frontrunner in this category as it is the only country which offers utility payment guarantees as well as economic incentives and fiscal/financial incentives
- Yemen and Maldives have economic incentives but lack the attributes that are considered significant in attracting investment



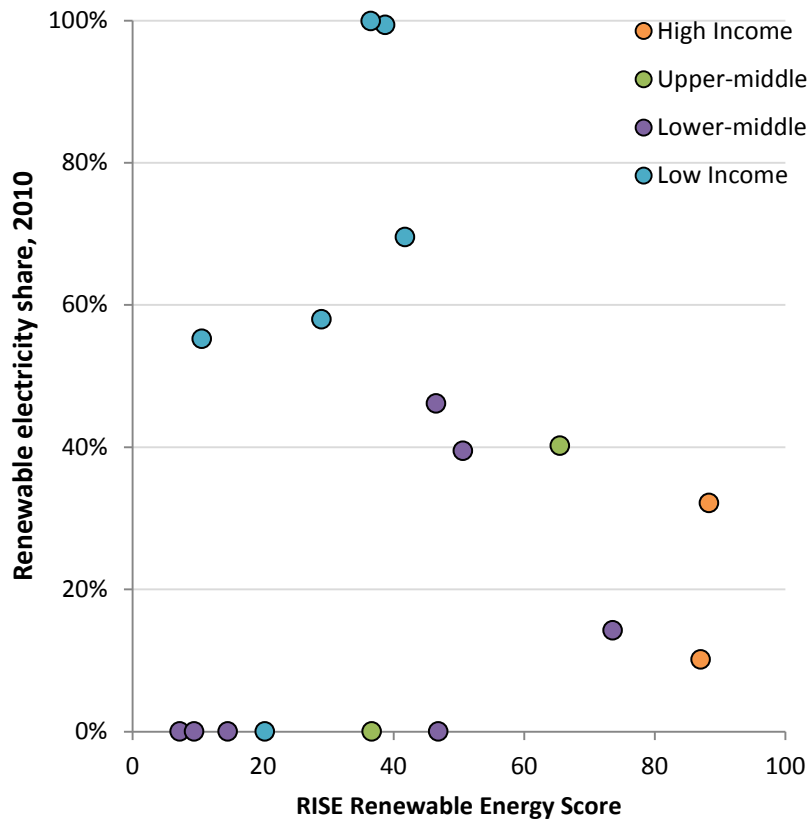
# Procedural Efficiency



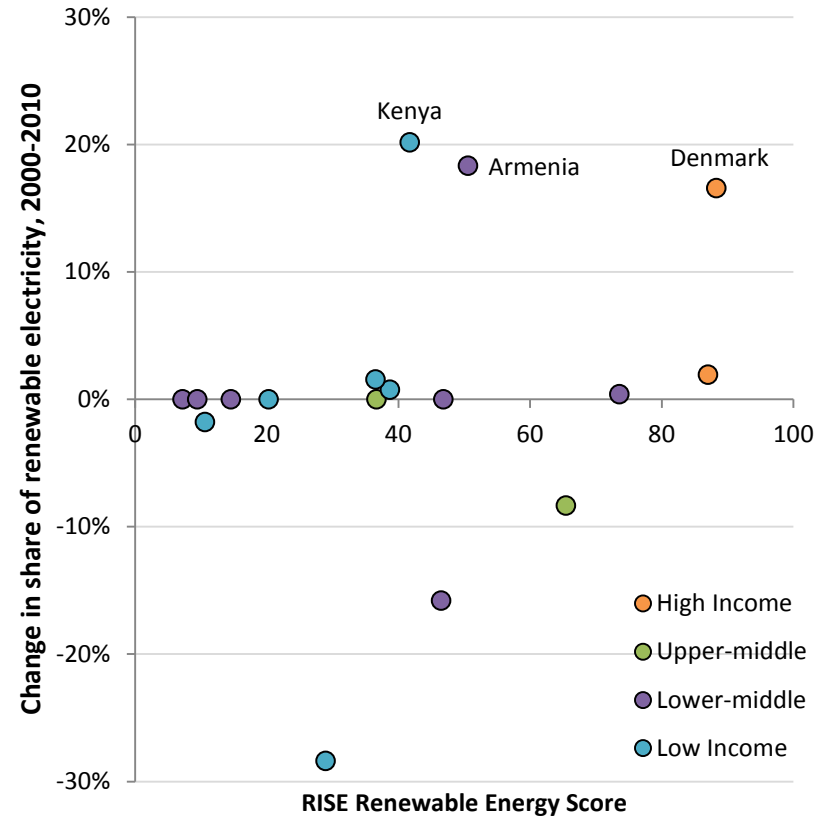
- Maldives scores the highest in this category due to the relatively low time, cost and number of agencies required to started a RE project, Nepal has demonstrated good practice on this front as well
- Some countries score zero due to lack of private sector market or information



# RISE and Sector Outcome



RISE and Renewable Electricity Share (2010)



RISE and Change in Renewable Electricity Share (2000 - 2010)

# **III. Moving Forward to a Global Rollout**



# Global Rollout



**Plan to launch in late 2014**

**Aim to cover 100+ countries**

**ESMAP and IRENA have confirmed support**

# What Would Be Different



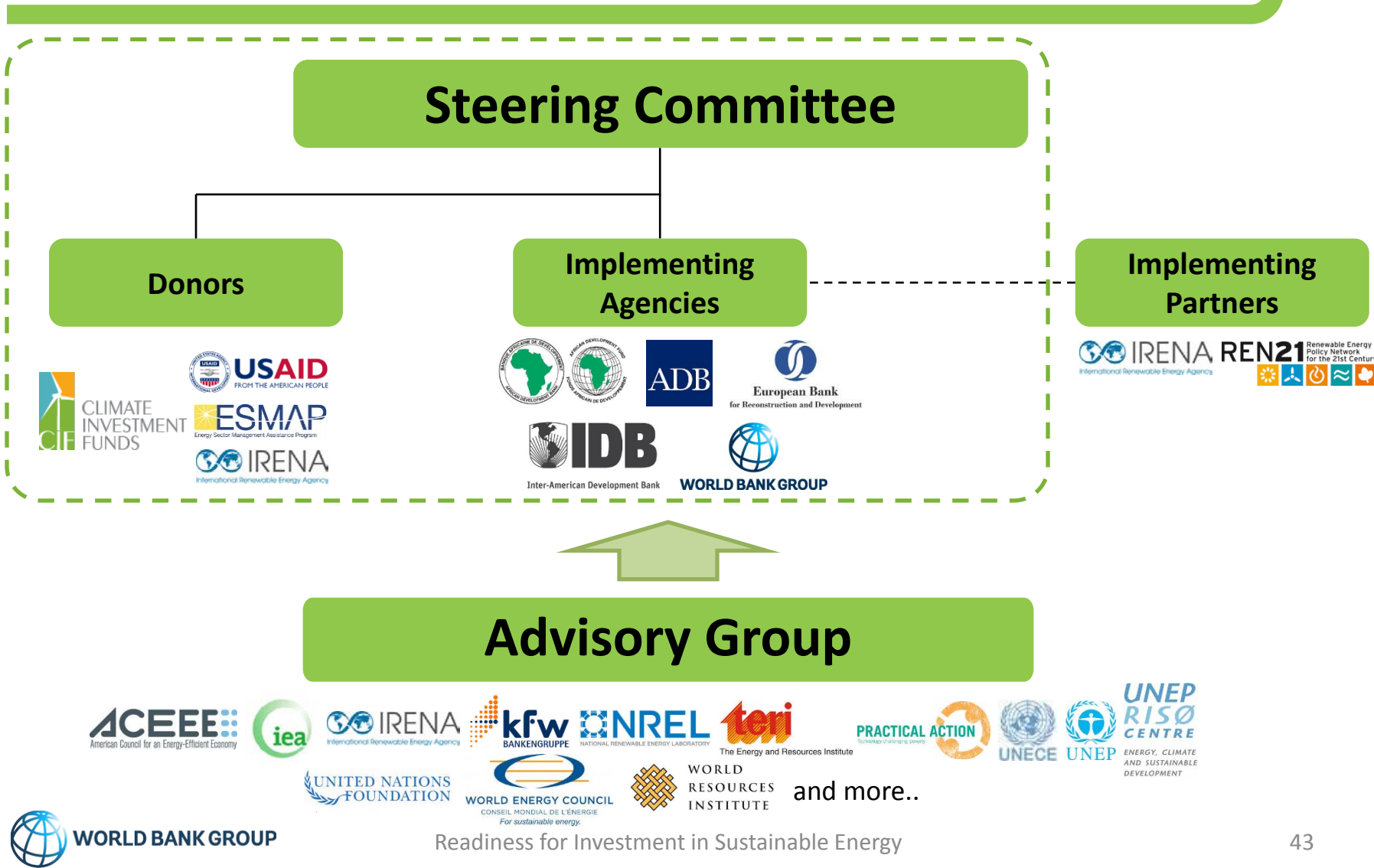
## What we do differently

- Indicators will be refined based on lessons and feedback from pilot
- Measurement of indicators will be improved (e.g. fossil fuel subsidy, RE subsidy, time and motion, etc.)
- Linkage to the SE4ALL GTF results will be established and analyzed

## What we ask countries to do differently

- Data availability needs to be improved (e.g. official documents, financial statements, LCOE, etc.)
- Support to data collection from the government can be made by strengthening monitoring capacity

# Governance Structure



# Pilot Expenditure



	Funding Source	Inflow		Outflow	
		SREP	Others	SREP	Others
Revenue	SREP	\$340,000			
	USAID		\$80,000		
	World Bank Group		\$335,000		
	ESMAP		\$25,000		
	<b>REVENUE TOTAL</b>	<b>\$340,000</b>	<b>\$440,000</b>		
Expenditure	Indicator development				\$130,000
	Data collection – hiring local experts			\$160,000	\$20,000
	Data processing, analysis and report				\$290,000
	Website and communication technology development			\$70,000	
	<b>EXPENDITURE TOTAL</b>			<b>\$230,000</b>	<b>\$440,000</b>
Balance	<b>As of June 30, 2014</b>	<b>\$110,000</b>	-		

# Global Rollout Budget



	Item	Estimate
Budget estimates	Data collection in 100+ countries – hiring local experts	\$1.5 – 2.0 million
	Data processing, analysis and report	\$0.9 – 1.8 million
	Improving website and communication technology	\$50,000 – 100,000
	Publication and dissemination	\$150,000
	<b>ANTICIPATED TOTAL</b>	<b>\$2.5 – 4 million</b>

# THANK YOU

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