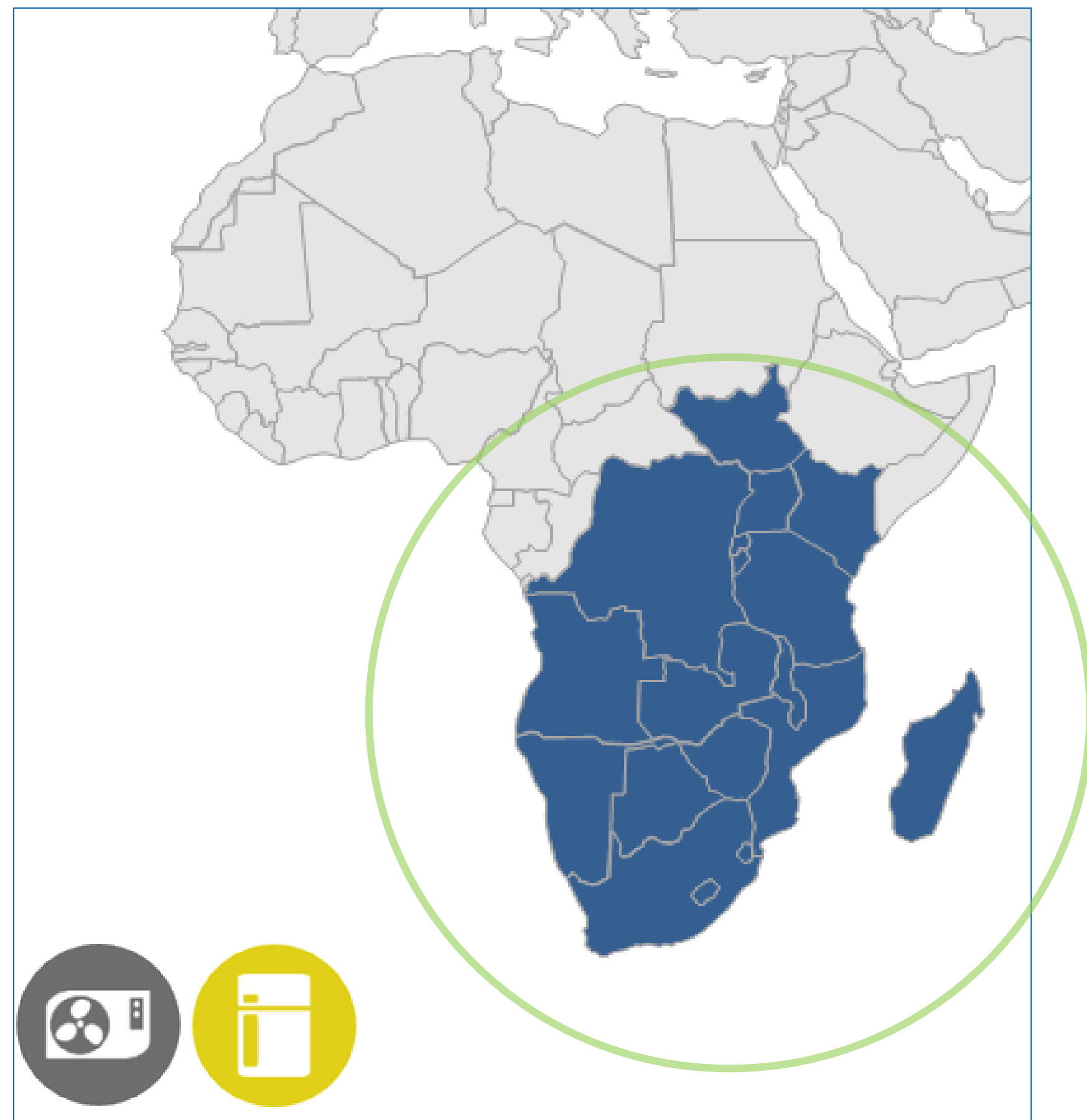




# Market Assessment on Room Air Conditioners and Refrigerating Appliances

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# Objective and Scope



## Included countries

- Includes 21 countries of both regions
- Representative set of countries for each region for more detailed information

## Technologies

- Room Air Conditioners
- Residential Refrigerators

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

# Methodology for Data Collection

Type of source	SADC	EAC
Focal points questionnaire	14 questionnaires received	8 questionnaires received
Private sector questionnaire	1 questionnaire received	3 questionnaires received
Data from key stakeholders	<ul style="list-style-type: none"> <li>Revenue, Environment &amp; Standard Authorities</li> <li>Energy Departments &amp; Ministries</li> </ul>	
Internet research	<ul style="list-style-type: none"> <li>Databases</li> <li>Reports</li> <li>Business &amp; Internet sales webpages</li> </ul>	
Project partner data	<ul style="list-style-type: none"> <li>Lighting market assessment</li> <li>Data from projects in countries</li> </ul>	
Country Saving Assessments data	<ul style="list-style-type: none"> <li>High level data to support data validation, fill missing data and used for future projections</li> </ul>	

# Main Conclusions

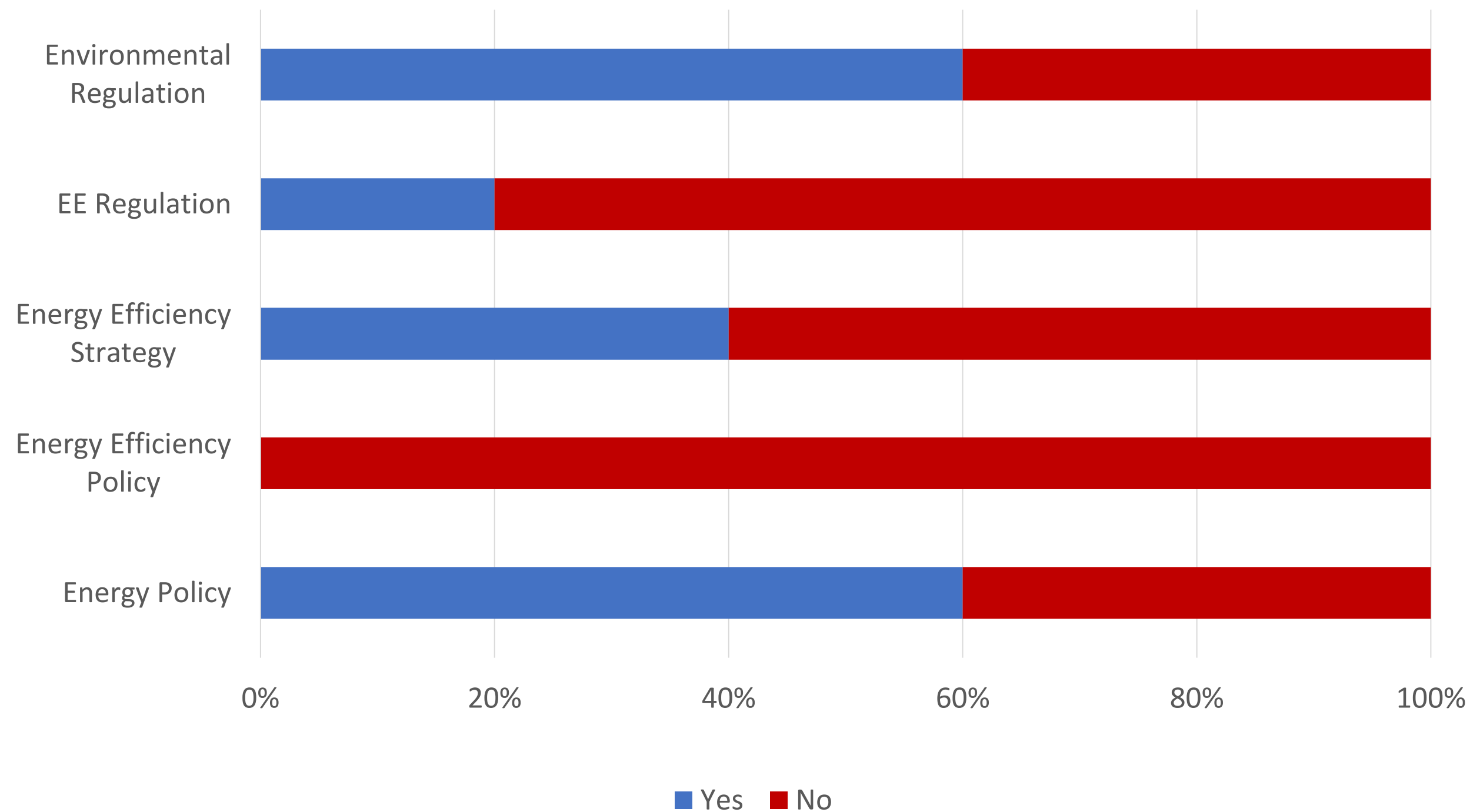
<b>Minimum Energy Performance Standards (MEPS)</b>	<ul style="list-style-type: none"><li>• Only 7 countries have MEPS in place (3 in EAC and 4 in SADC)</li><li>• About half of those MEPS are voluntary</li><li>• Mostly not harmonized</li></ul>
<b>Labels</b>	<ul style="list-style-type: none"><li>• Even less countries (3) have labels, which are all mandatory</li><li>• Many of the appliances have already labels from their country of origin</li></ul>
<b>Refrigerants</b>	<ul style="list-style-type: none"><li>• Three countries have committed to the Kigali Amendment to the Montreal protocol</li><li>• Room Air Conditioners are mostly equipped with R-410a (HFC) or R-22 (HCFC)</li><li>• Residential Refrigerators are mostly equipped with R-134a (HFC) and in very rare cases with R-600a (HC)</li></ul>
<b>Institutions</b>	<ul style="list-style-type: none"><li>• Nearly all countries have standards bodies, while energy efficiency entities are not very common</li><li>• Most of the countries have developed general energy policies</li></ul>
<b>Additional conclusions</b>	<ul style="list-style-type: none"><li>• Product registration systems are not very common and in place in 5 countries</li><li>• Financial incentives for cooling appliances are implemented in 2 countries</li></ul>



# Key Findings EAC Region

Eng. Godfrey Marambe

# Policy Frameworks in EAC Region



## Findings

- *Rwanda, Kenya and Uganda are the only countries with energy policy in place*
- *Kenya and Uganda are the only countries with energy efficiency strategy in place in the region*
- *Kenya is the only country with energy efficiency regulations in the region*
- *Kenya Rwanda and Uganda are the only countries with environmental regulations in the region*



# Refrigerators- Technology and Supply Chain

## Common Brands in EAC Region



**Hisense**



## Supply Chain

### Region Manufacturers

- *ALMAHA in Rwanda*
- *Gayaza Electronic Works in Uganda*

### Importers

- *Brand subsidiaries*
- *Brand dealers*
- *Individual importers*

### Retail

- *Furniture Shops*
- *Supermarkets*
- *Electronic Shops*

## Technologies

- Refrigerator, Freezer- Refrigerator, Freezer



# Air Conditioners- Technology and Supply Chain

## Common Brands in EAC Region

**GREE**

**LG**

**SHARP**

**SAMSUNG**

**Hisense**

**DAIKIN**

**SIEMENS**

**BOSCH**

## Technologies

- Portable, Window Units, Split units: Constant Speed, Inverter Units.



## Supply Chain

### Manufacture

- *No Air conditioner manufacturers in the region*

### Importers

- *Brand subsidiaries*
- *Brand dealers*
- *Individual importers*

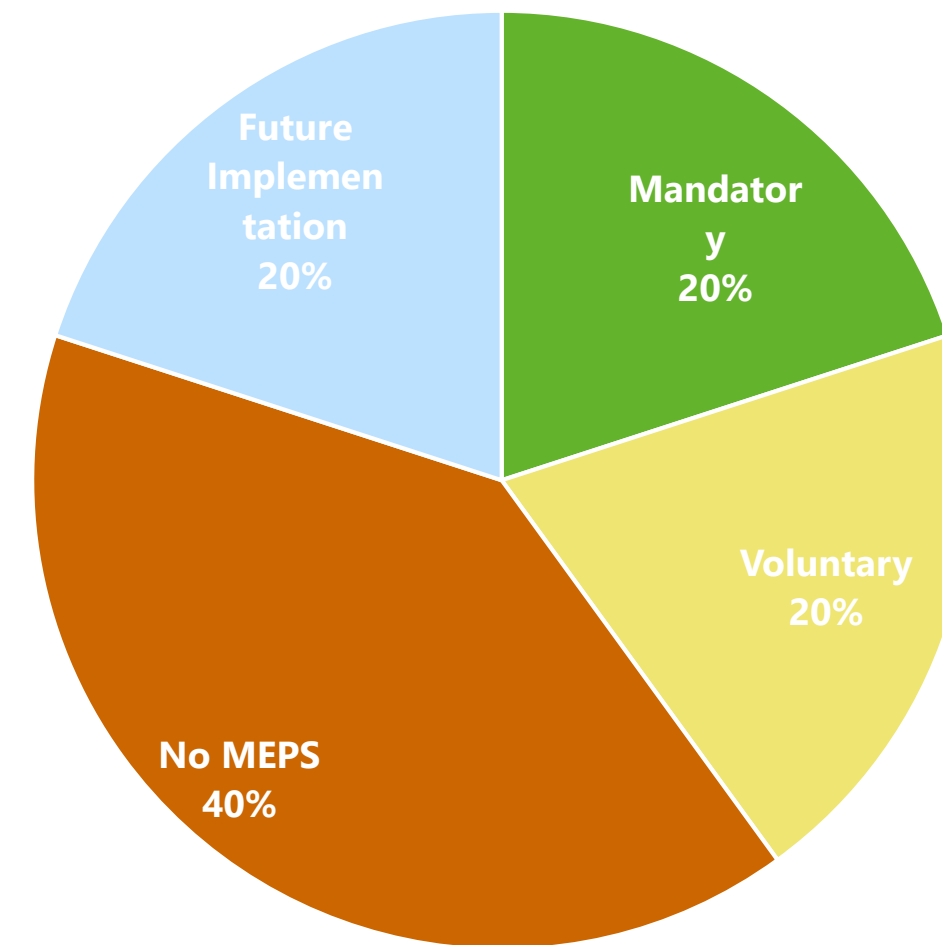
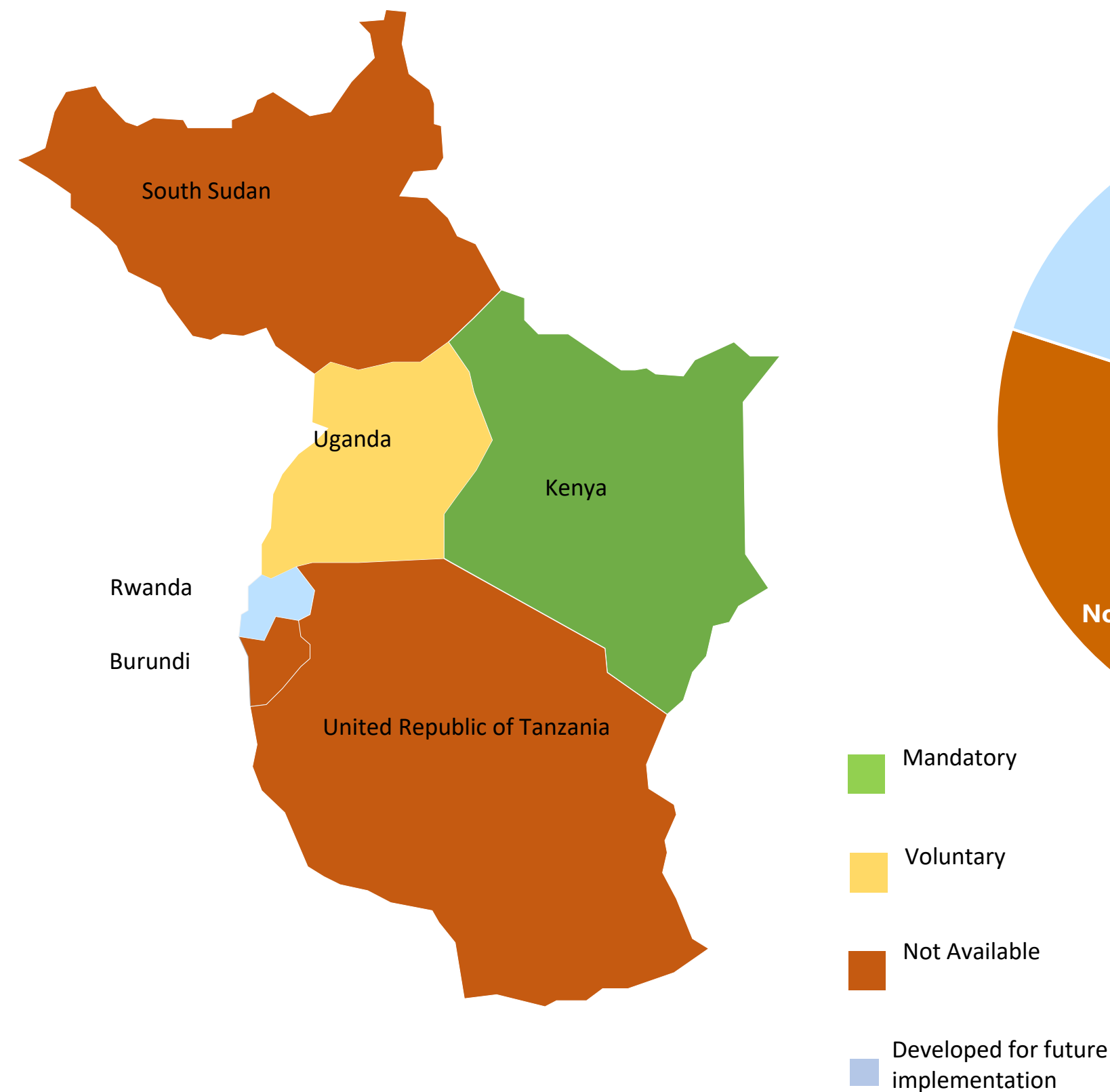
### Retail

- *Furniture Shops*
- *Electronic Shops*



# MEPS for Refrigerators & AC's in EAC Region

Refrigerator MEPS in the Region



## Refrigerators:

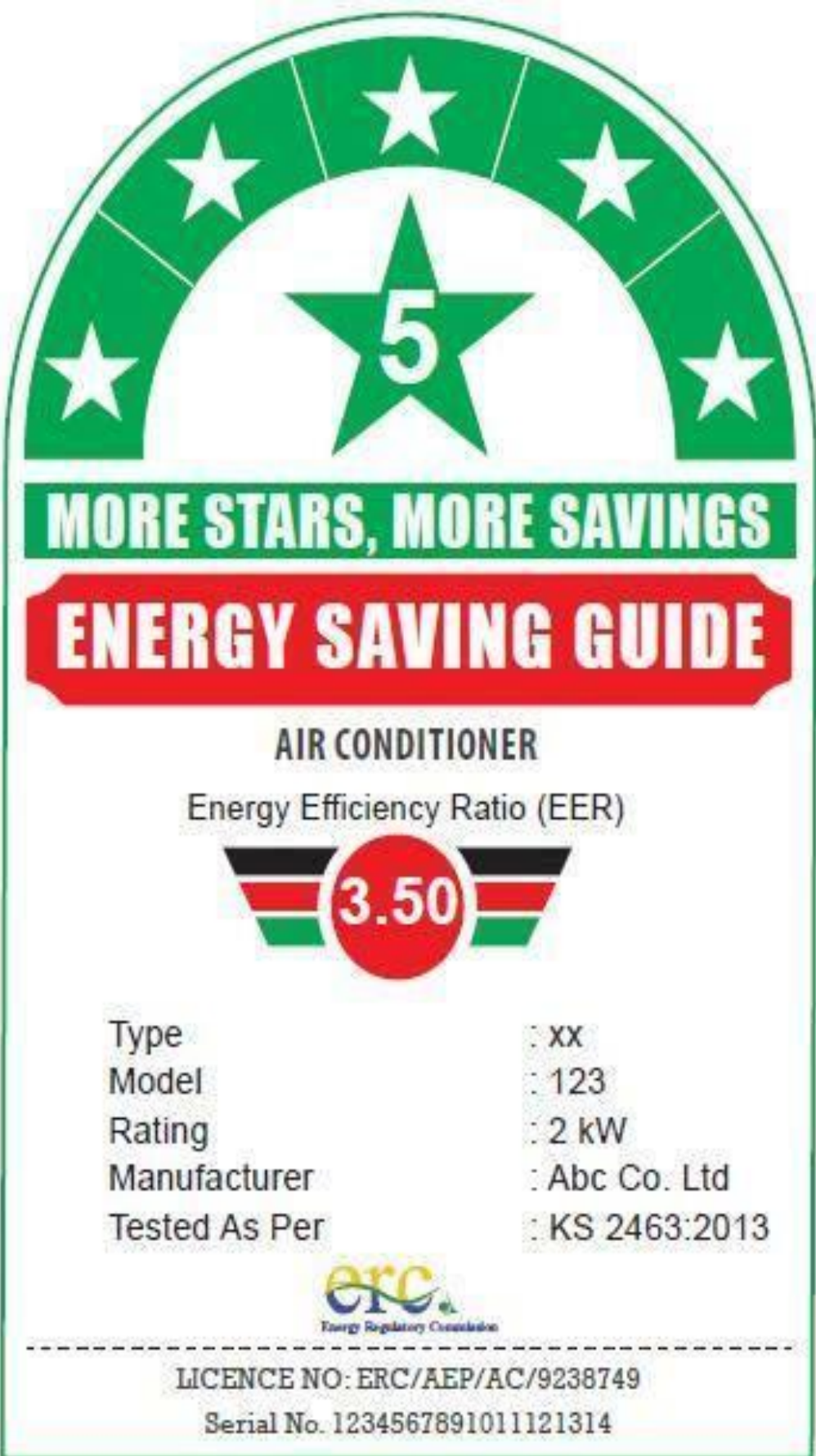
- MEPS requirements in the EAC region is a limit of appliance's maximum annual energy consumption.
- Based on appliance capacity, technology, climate conditions.
- Rating of appliances vary from region: RSEER (Rwanda), SRI (Kenya).

## Air Conditioners.

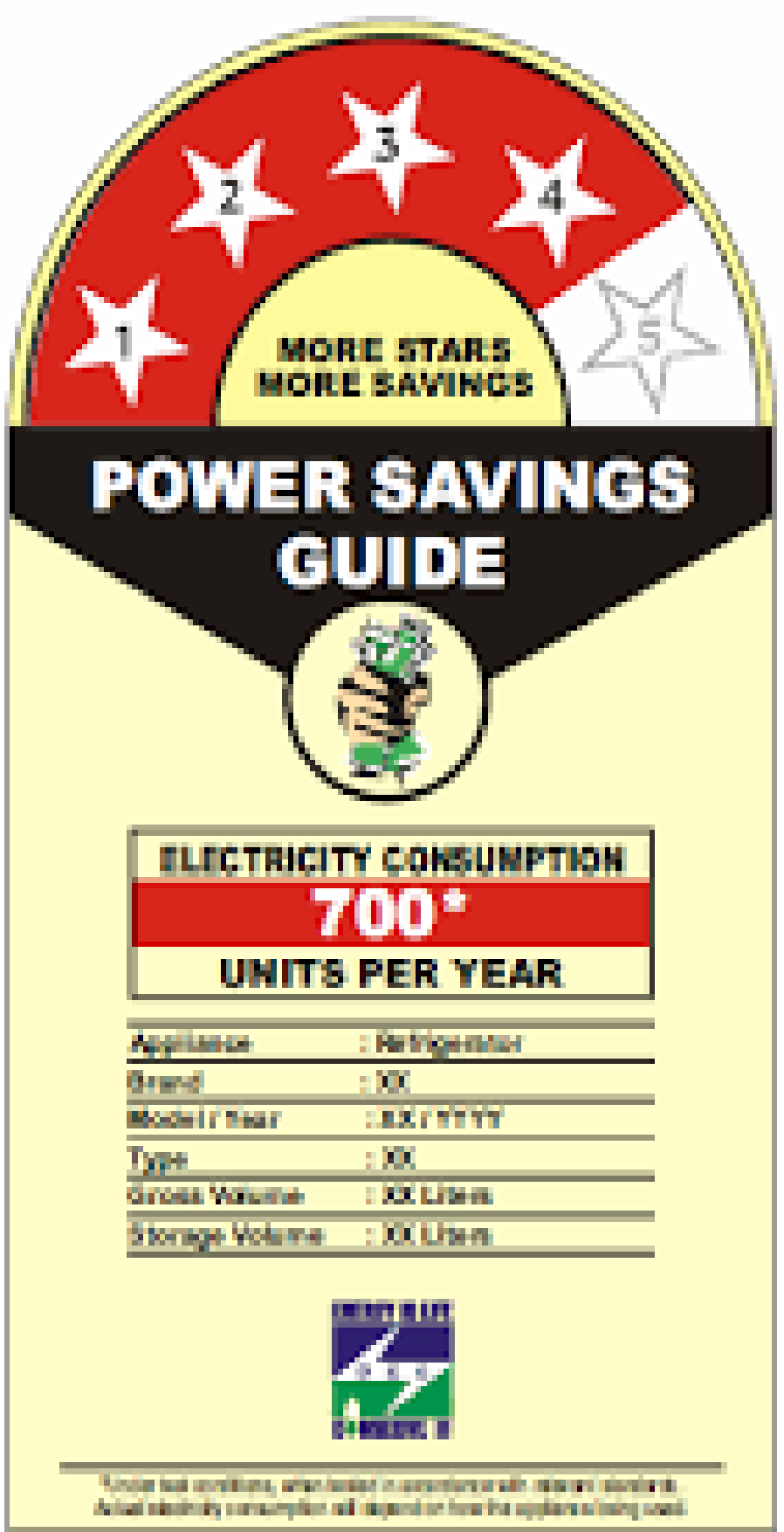
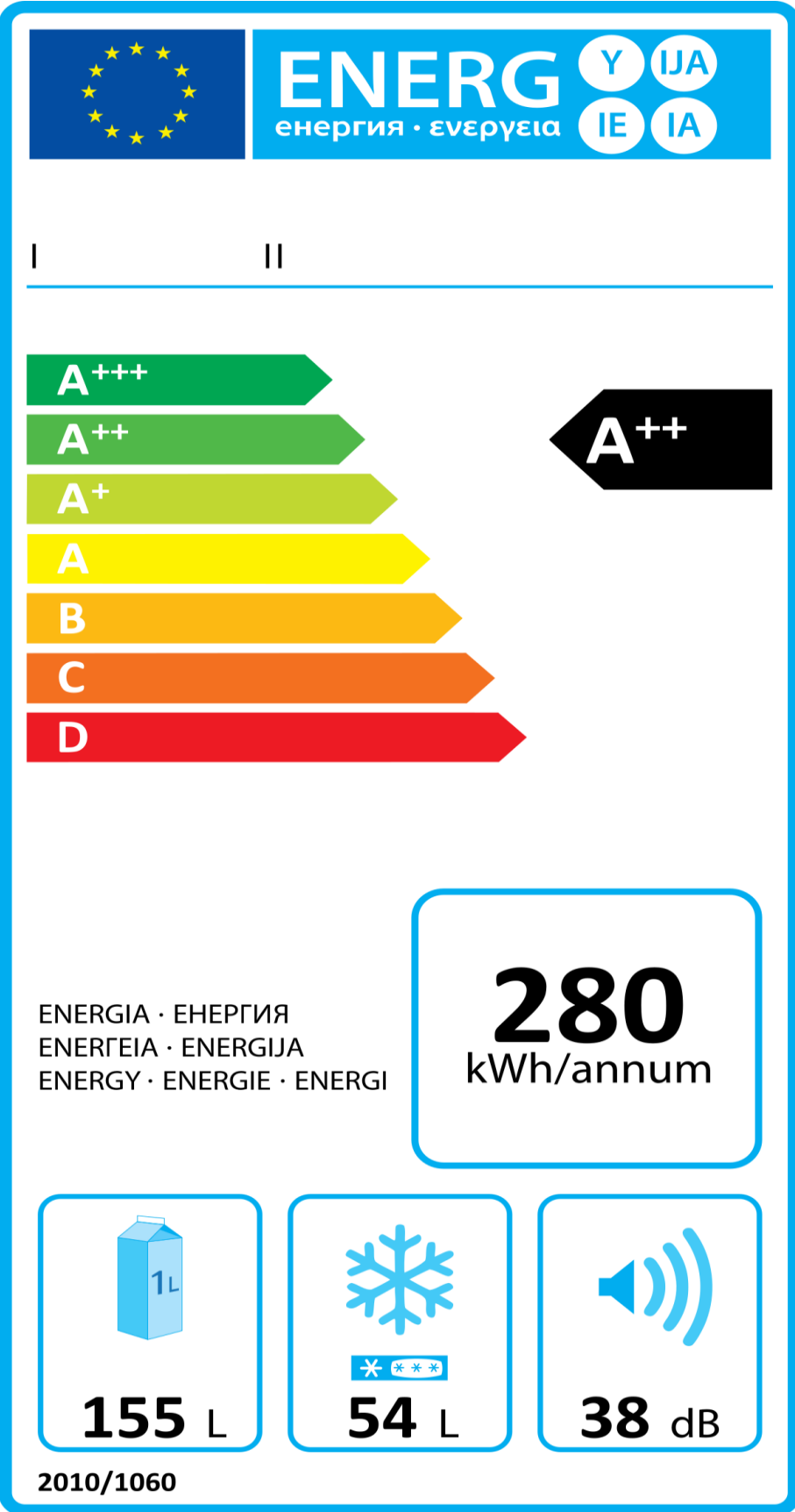
- Rating of appliances vary from region: RSEER (Rwanda), EER(Kenya).
- MEPS requirement is a limit of appliances rating based capacity and technology.

# Air Conditioner & Refrigerator Labels in EAC

## Labels developed within EAC region



## Other Labels in EAC region



# Refrigerating Gases

- *Countries in the EAC region have enacted policies controlling the use of Ozone depleting Substances including refrigerants used in AC and refrigerators.*
- *These policies outline the phase out/ phase down of substances with different ODP's and GWP's in accordance with international protocols.*
- *The countries are also set GWP limit for there refrigerants used in the countries.*





## Key findings in the SADC region

Mzwandile Thwala



# Policy Framework in SADC Countries

Country	Energy Policy	Energy Efficiency Policy	Energy Efficiency Strategy	EE Regulation	ODS Regulation	Financial Incentives
Angola	YES	NO	YES	NO	YES	NO
Botswana	Draft	NO	YES	NO	YES	NO
Comoros	NO	NO	NO	NO	YES	NO
DRC Congo	YES	NO	NO	NO	YES	NO
Eswatini	YES	YES	YES	NO	YES	NO
Lesotho	YES	NO	NO	NO	YES	NO
Madagascar	YES	NO	NO	NO	YES	NO
Malawi	YES	NO	NO	NO	YES	NO
Mauritius	YES	YES	YES	YES	YES	YES
Mozambique	YES	NO	NO	Draft	YES	NO
Namibia	YES	NO	NO	NO	YES	NO
Seychelles	YES	NO	YES	NO	YES	YES
South Africa	YES	YES	YES	YES	YES	NO
Tanzania	YES	NO	Draft	NO	YES	NO
Zambia	YES	NO	Under Development	NO	YES	NO
Zimbabwe	YES	Under Development	YES	NO	YES	NO

14

3

7

2

16

2

# Refrigerators and Freezers – Common Brands



**AEG**



**BOSCH**



Chest Freezer



Upright  
Freezer/Refrigerator



Bar Refrigerator



Combined Double  
door Refrigerator



French Door  
Refrigerator



Side by Side Door  
Refrigerator

**Hisense**

**SHARP**

**SIEMENS**



**LIEBHERR**

**Panasonic**

**Miele**

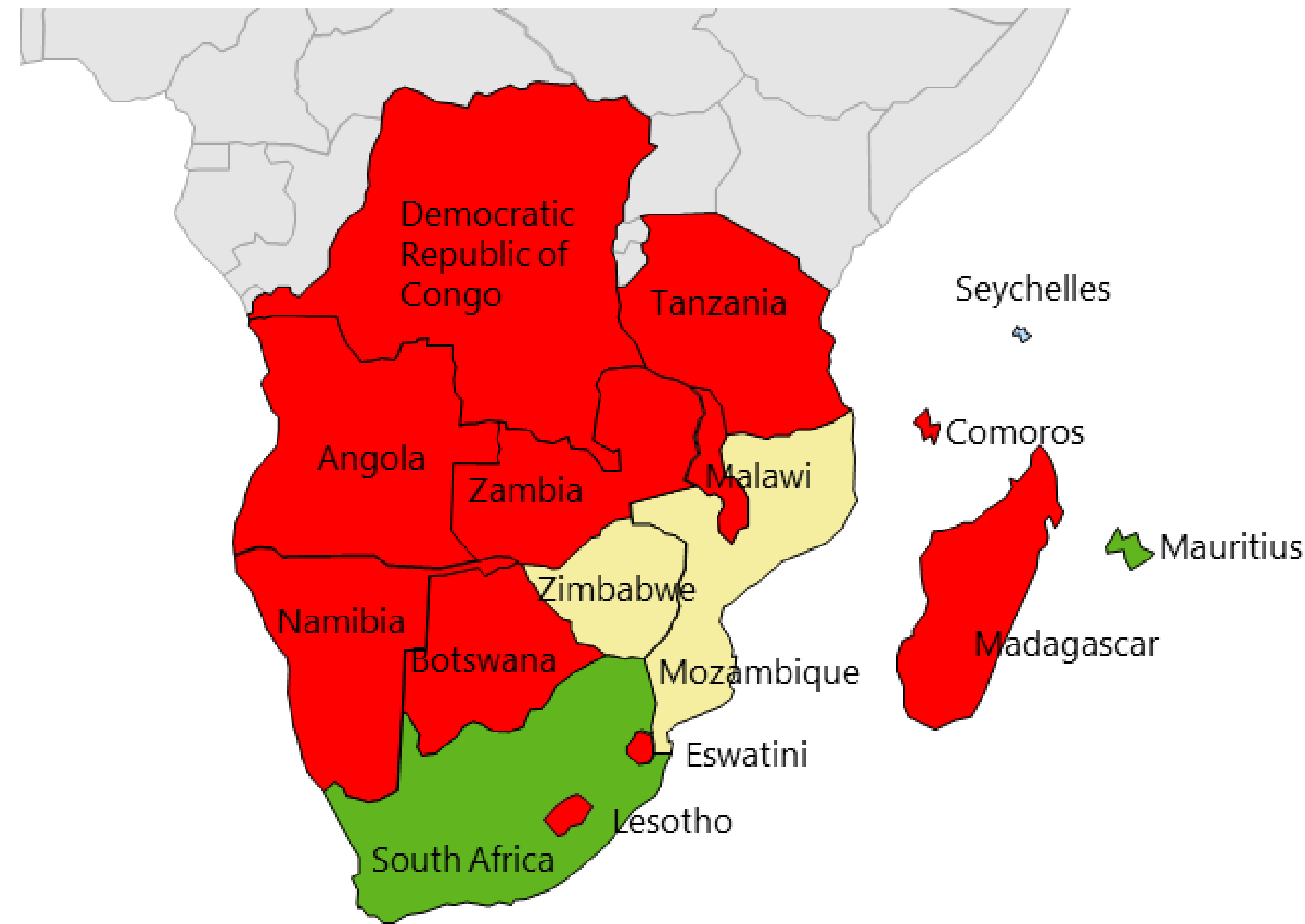


# Refrigerators - Technology, Supply Chain, MEPS & Labels

## MEPS&Labels

Freezers: **Class C** ( $75 \leq \text{EEI} < 90$ )

Refrigerators: **Class B** ( $55 \leq \text{EEI} < 75$ )



## Technology

- Direct-cool type
- Frost Free type

## Manufacturers

**South Africa** : Defy  
Whirlpool/KIC

**Eswatini** : Fridge Factory

**Zimbabwe:** : CAPRI  
Imperial/Commercial  
Refrigeration

## Importers

- Furniture Shops
- Brand Companies/Agencies
- Individual

## Retailers

- Furniture Shops
- Supermarkets
- Household Appliance Shops
- Online Shops



# Air Conditioners – Common Brands



**Hisense**



**HITACHI**



**SIEMENS**



Window/Wall



Underceiling



Standing



Wall mounted



Portable



Cassette/Ceiling





# Air Conditioners - Technology, Supply Chain, MEPS & Labels

## MEPS&Labels:

**UPTO 7.1 kW (24 000 btu/h)**

## Wall Mounted Split:

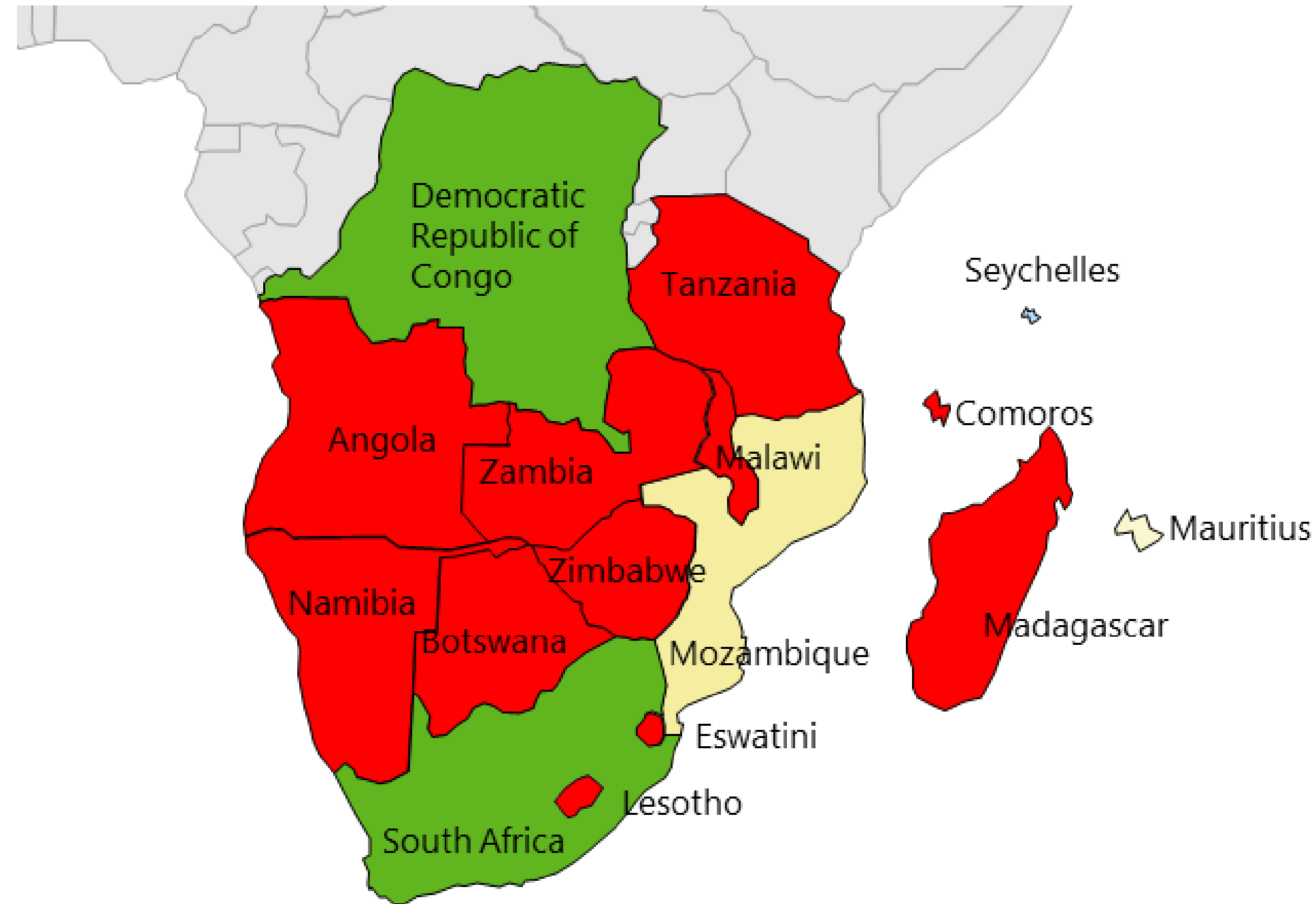
*Class B ( $3.2 \geq EER > 3.0$ )*

## Portable:

*Class B ( $2.6 \geq EER > 2.4$ )*

## Window:

*Class B ( $3.0 \geq EER > 2.8$ )*



## Technology

- Inverter type
- Non-Inverter type



**Manufacturing of Air Conditioners in the SADC Region**

## Importers

- International brand subsidiaries
- Representatives or agencies
- Independent distributors

## Retailers

- Household Appliance Shops
- Refrigeration and Air Conditioners Companies

# Applications of the appliances

Refrigerators/Freezers	Air Conditioners
Refrigerators - households	<b>Commercial Sector</b> <i>Office buildings, hotels</i>
Freezers – households and small businesses	<b>Residential Sector</b>
<b>NB:</b> <ul style="list-style-type: none"><li>• Some households have more than one refrigerator.</li><li>• Lower income households or rented facilities are more likely to have one refrigerator,</li><li>• Middle to high income households having several units per home with some owning more than one dwelling</li></ul>	<b>NB:</b> <ul style="list-style-type: none"><li>• Mostly used by middle to high income households especially in urban areas</li><li>• Lower to middle-income brackets find cooling fans as an affordable alternative to air conditioners</li></ul>

# Energy Labels in SADC

