

AGENDA

**Workshop on the Strategic Framework
for the African Bioenergy Data Management**

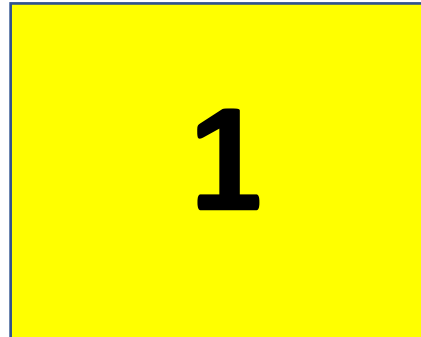
24-26 April 2023 | Lomé, Togo

SESSION 1: BIOFUELS IN AFRICA

**Role of biomass in Africa and impacts of biofuels consumption on various socio-economic and other sectors:
Health, Environment, GDP, Employment, Education, etc**

AFREC

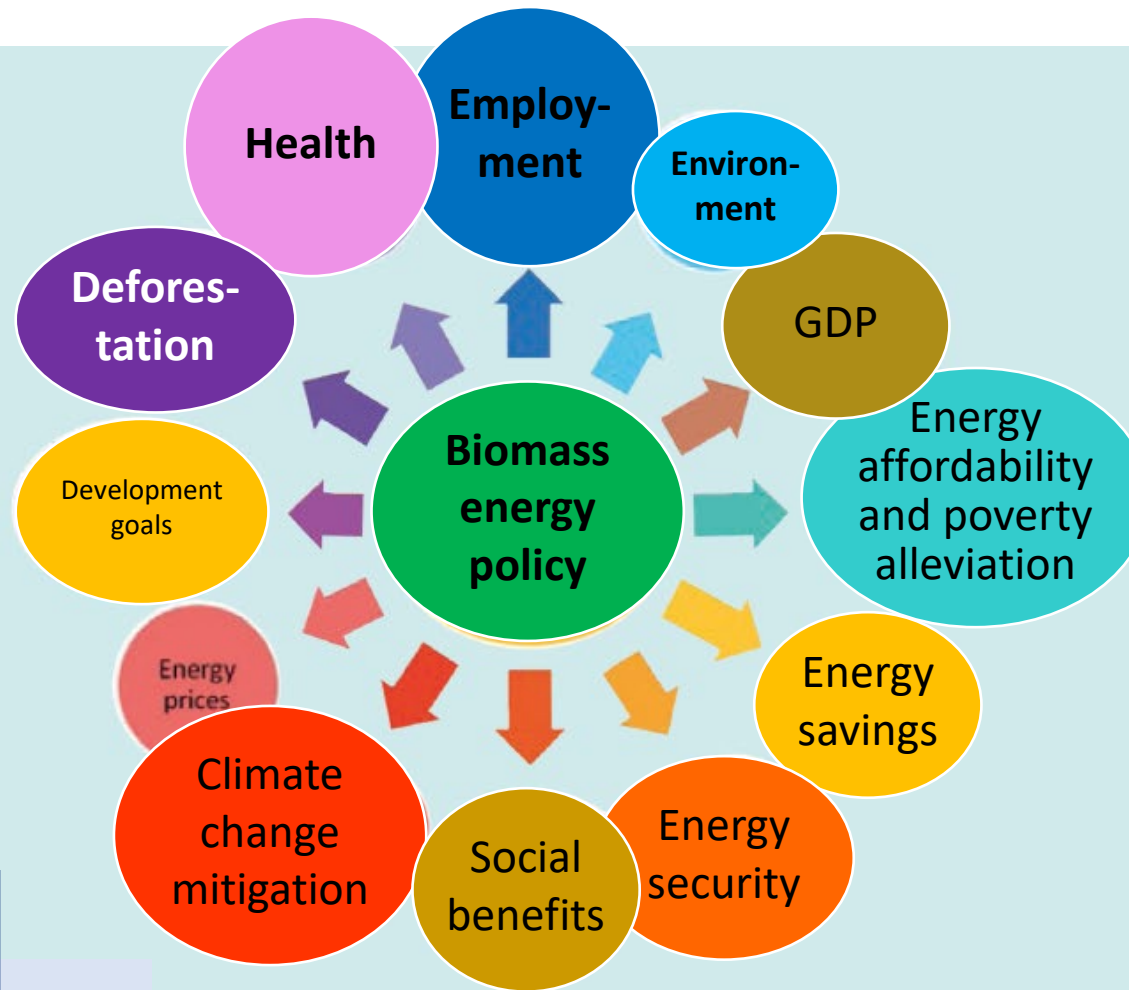
Jean-Yves Garnier



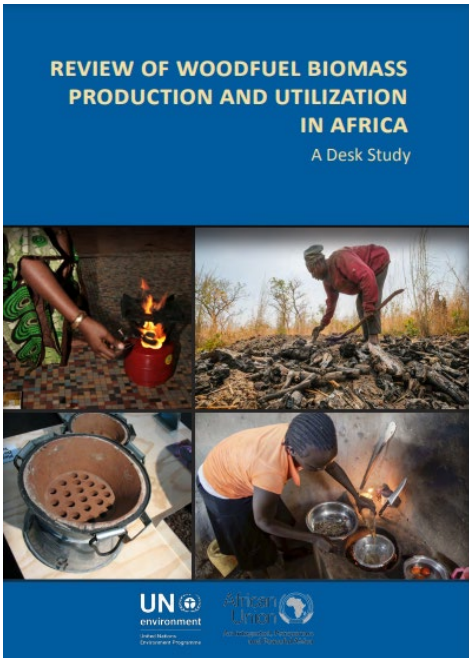
Shares in the energy mix of final consumption

Is it good or bad? Difficult to say if one does not have the full picture of the situation. And as mentioned earlier, the full picture includes the impacts on many sectors.

The central role of biomass energy policy



Let's look at the some of the main impacts



Impacts of woodfuel

Health

- Indoor pollution from biomass cooking — a task usually carried out by women — will soon kill more people than do malaria and HIV/AIDS combined.

Economic costs

- More than 40 million worker years are used each year on fuelwood gathering and slow biomass cooking. Cooking with traditional fuels and stoves represents a US\$32 billion opportunity cost (3 per cent of SSA's GDP).

Forest loss

- According to FAO Forest Resources Assessment 2015, in Africa net annual forest change between 2010–2015 was 2.8 million hectares, however, there is no reliable estimate about how much was due to woodfuel productions.

Figure 3-7: The health impacts of cooking indoors with woodfuels and kerosene

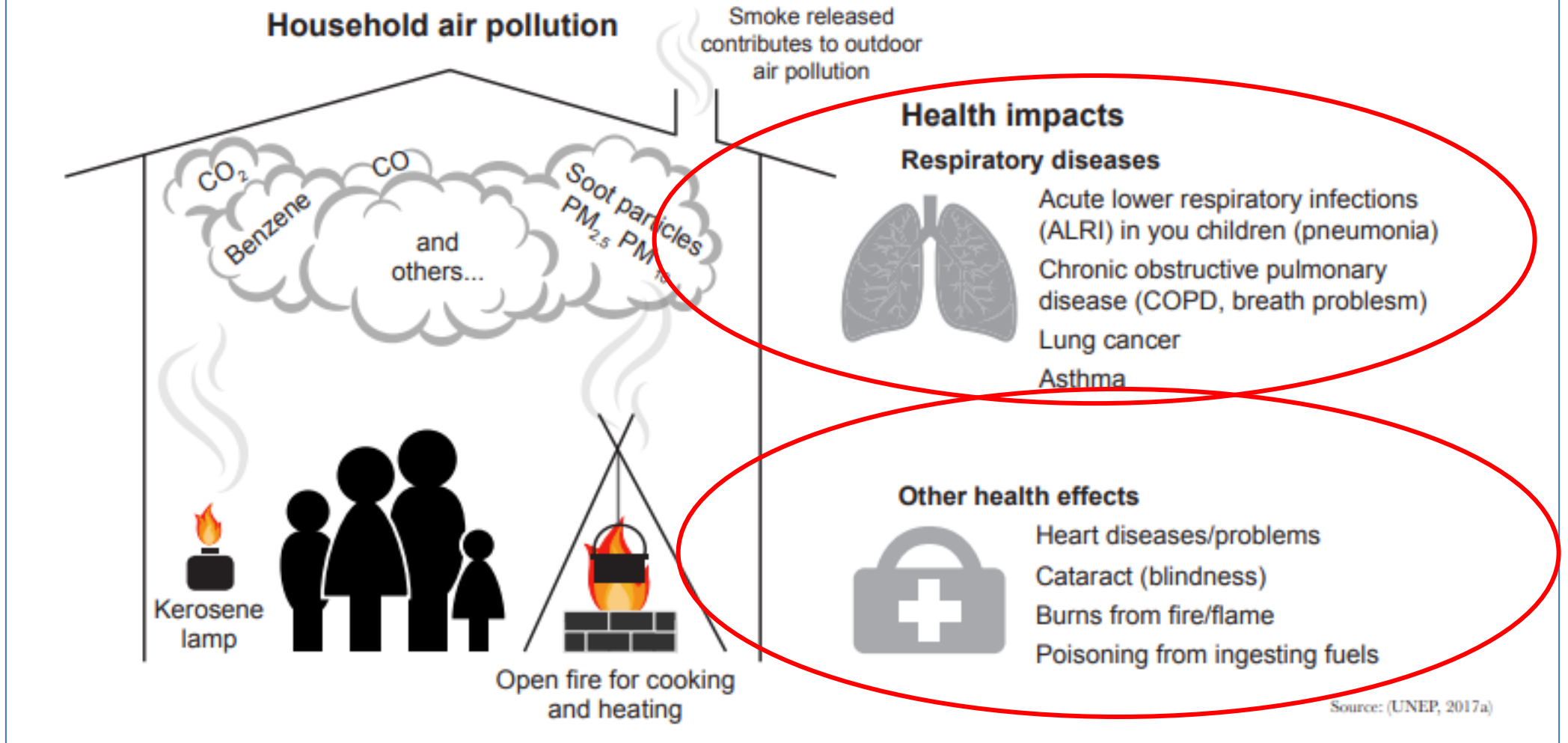
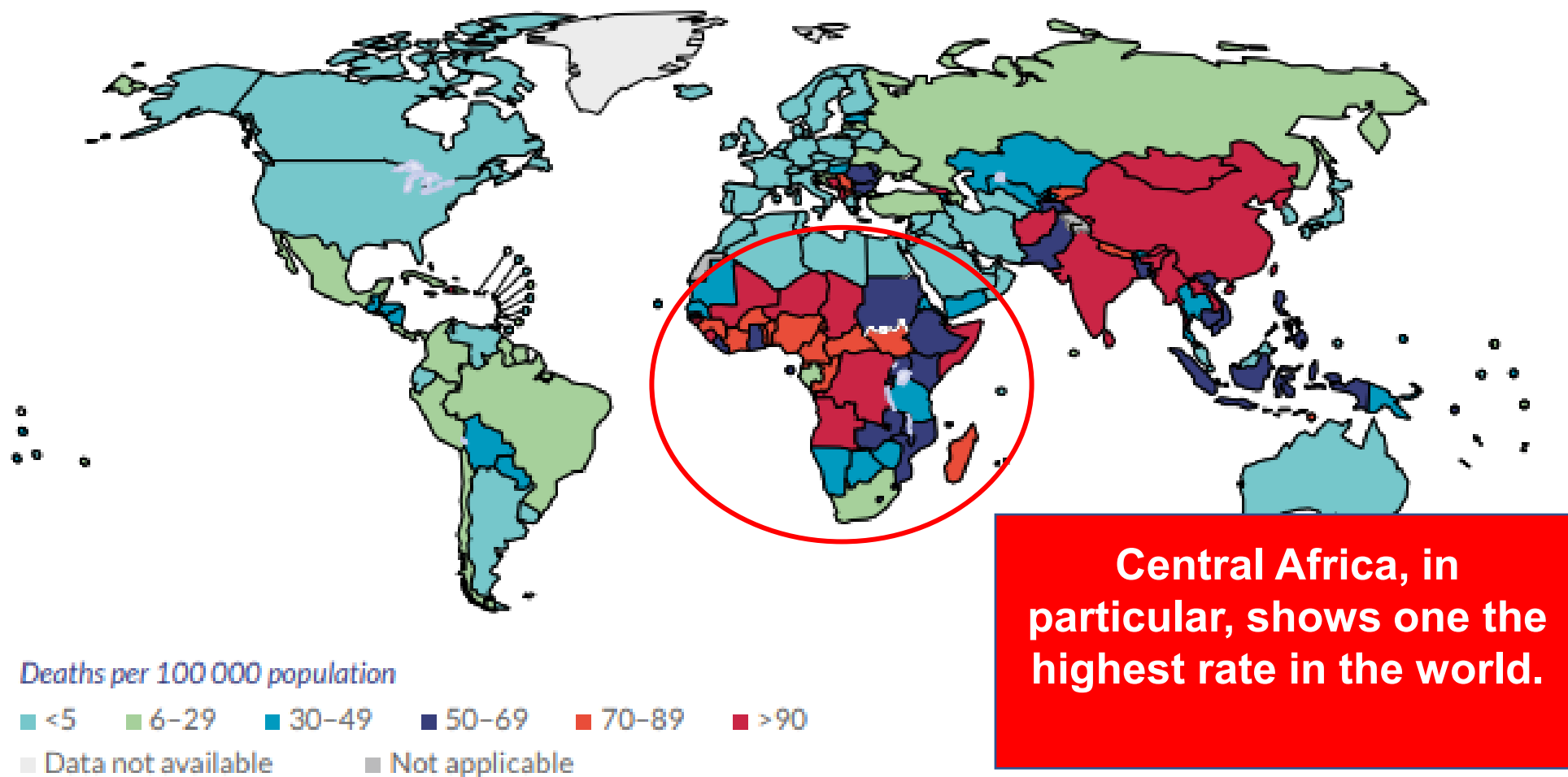


Figure 4. Map of deaths per 100,000 population, per year, attributable to HAP from polluting cooking energy use in 2012



20 OCT 2016 | STORY | AIR

Air Pollution: Africa's Invisible, Silent Killer

Air pollution remains a major challenge in Africa. About 600,000 deaths every year across the continent are associated with this invisible killer.

linked to environmental
deaths every year.

responsible for 7 million

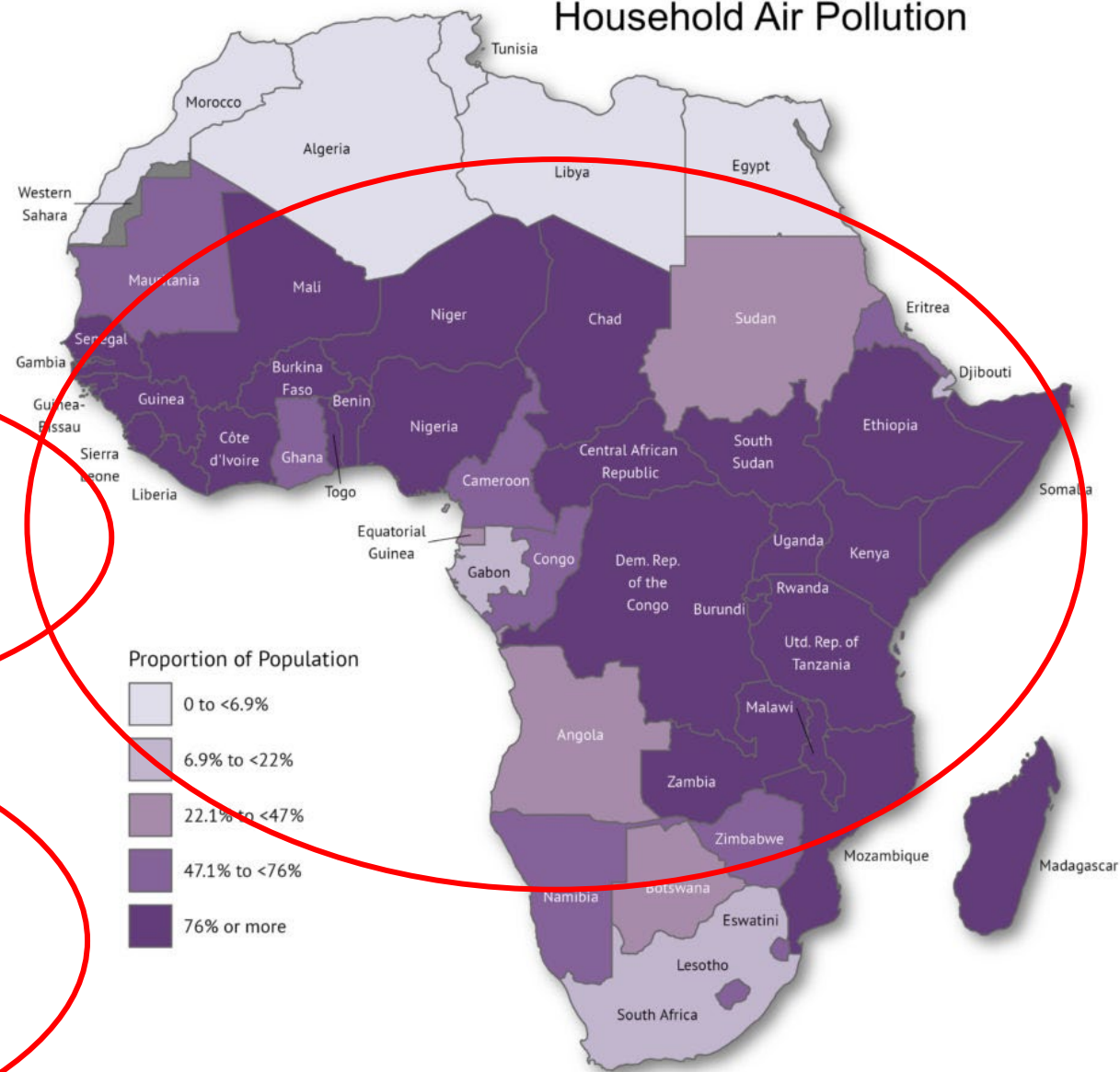
Percentage of the population using solid fuels for cooking in countries across Africa in 2019

Health

Household Air Pollution

According to the HEI report, some **236,000 African newborns die within the first month of life from air pollution exposures**, mostly related to household air pollution from biomass and charcoal use.

In 2019, **14% of all deaths in children under the age of 5 across Africa were linked to air pollution**, situating air pollution as the third largest risk factor for those deaths after malnutrition, unsafe water, sanitation and hygiene in sub-Saharan African regions.



Health



EXECUTIVE SUMMARY

Bioenergy is an important form of energy for Kenya, contributing 68% of the country's final energy demand for diverse needs, especially cooking and heating. As a renewable energy source, it can contribute to energy security in the country as espoused in the Energy Policy and Energy Act, and to meeting the country's other national goals covered under Vision 2030—such as agriculture, health and commerce—for which energy is an enabler. Bioenergy can also support the country in meeting its global commitments such as its Nationally Determined Contribution (NDC) under the Paris Agreement, Sustainable Development Goals (SDGs) including SDG 1 on poverty reduction, SDG 3 on improved health and wellbeing, SDG 7 on sustainable energy; SDG 13 on climate action; and SDG 17 on partnerships for development. Despite its significance to the country's growth, bioenergy development from biomass resources has not received adequate attention it deserves to optimise its potential contribution.

The strategy is founded on intelligence from global and regional trends in bioenergy production and consumption and an understanding of the local bioenergy industry status. The document aims to guide development and promotion of bioenergy as a formal industry that can be a vehicle for Kenya's economic development. It embodies the national and county governments' renewable energy priorities and intentions to deliver modern energy solutions from available bioenergy feedstock through innovation and consultation. The strategy will support the development of bioenergy to meet the long-term sustainable energy demand.

Being the inaugural bioenergy strategy for the country with no precedent, it sets forth guidelines and approaches, and further identifies strategic interventions that can promote the development and sustainable utilisation of bioenergy resources in Kenya over the 2020-2027 period. It identifies strategic interventions to be considered by able actors for implementation and that promise to fast-track the country along the sustainable-energy-for-all pathway. Three key features of the strategy that stand out are: a delivery and coordination mechanism at the Department of Renewable Energy to oversee overall implementation of the strategy; recognition of adaptive planning and multi-stakeholder consultations around innovation platforms; and the critical role of learning and feedback. It is worth noting that this strategy does not set hard quantitative targets (these will be determined by sub-sector stakeholders convening around their innovation platforms) but provides guidance on realisable outcomes over the short- (2020-2022) to medium-term (2023-2027).

Some countries have started to collect data on the impact on health. This is the case of Kenya.

The strategy is being launched at a time when the world is turning its attention to health concerns attributed to cooking fuels, both at household and institutional level. Kenya is a testimony of these, with respiratory-related diseases comprising 25% of the total burden of disease reported by the Economic Survey in 2019. The strategy also comes at a time when a range

Figure 7. Global polluting fuel use in 2014 (for low- and middle-income WHO Member States)

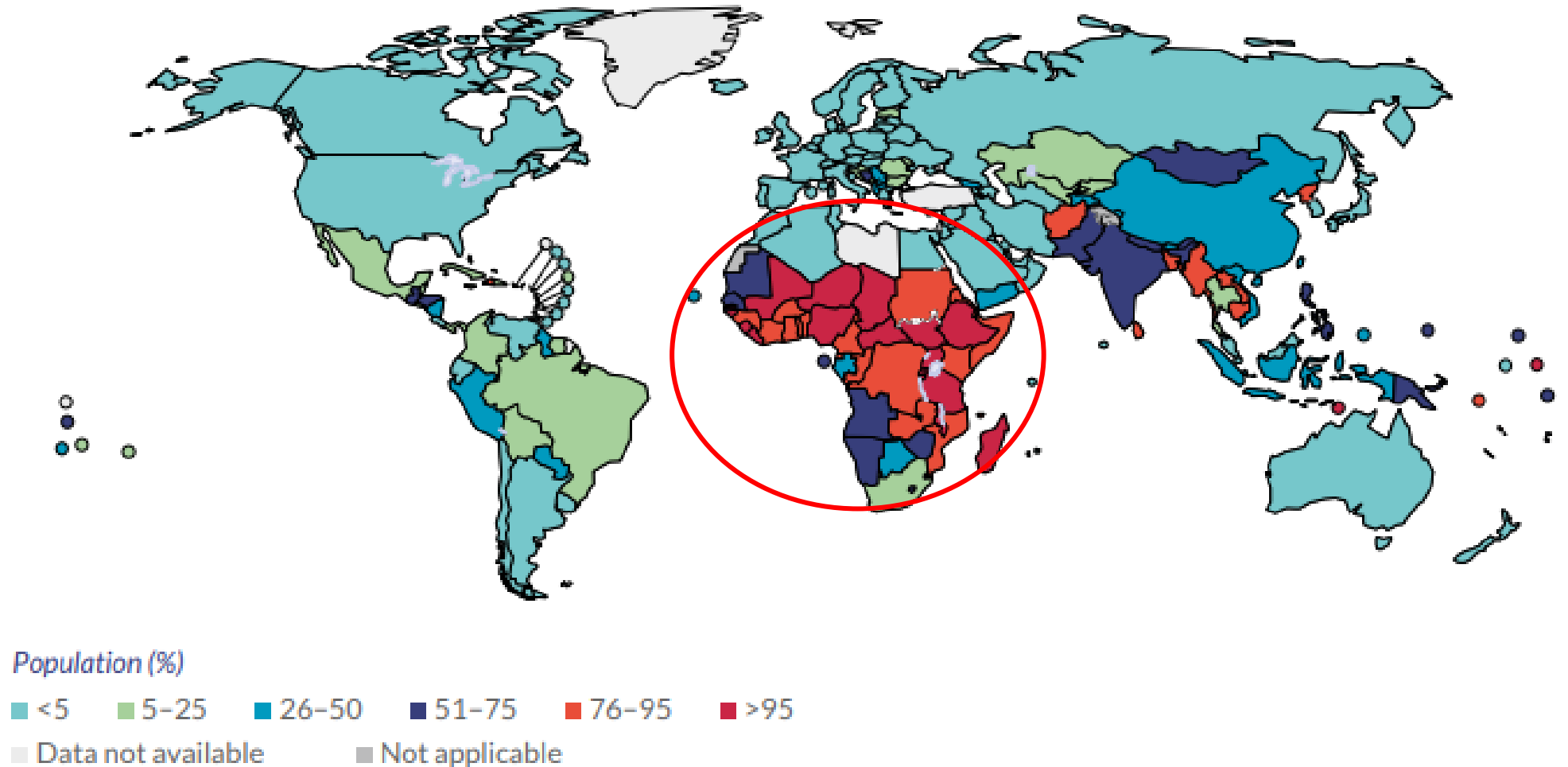
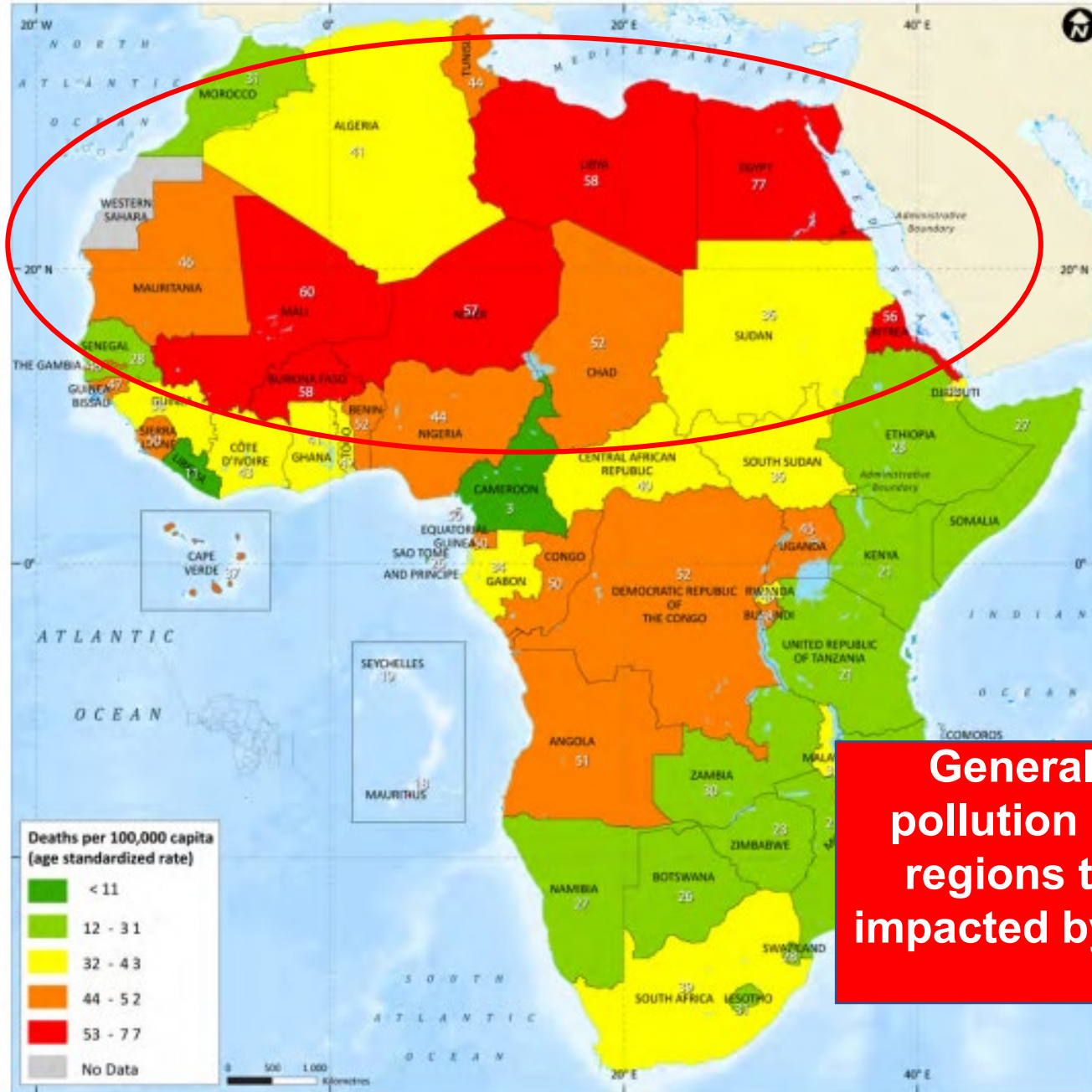


Figure 3-8: Number of deaths in Africa attributable to ambient air pollution, per 100,000 people, 2012



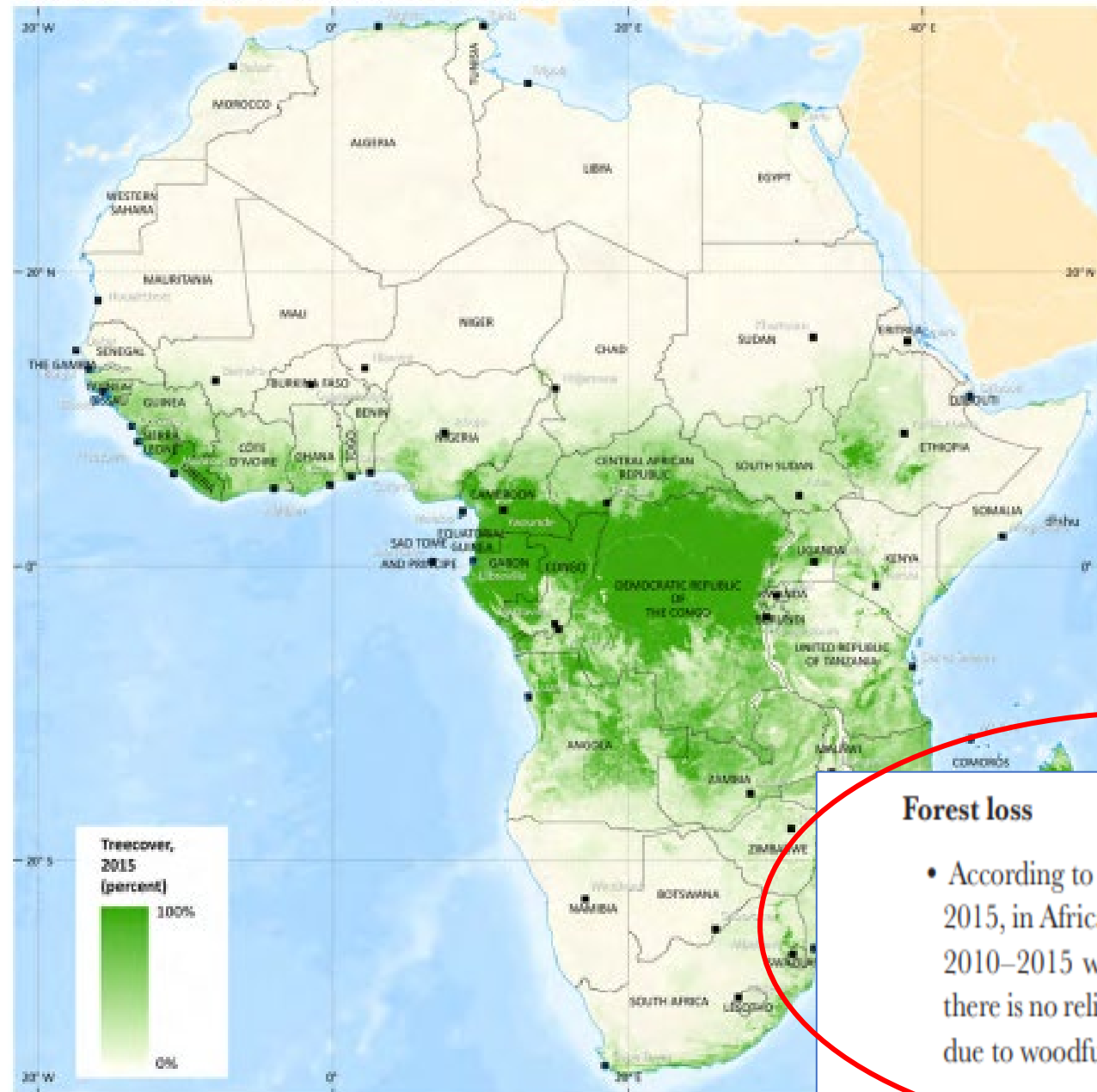
Environment

Health

General ambient air pollution impacts other regions than the ones impacted by biomass only.

Deforestation

Figure 2-6: Tree cover distribution map of Africa derived from satellite



Deforestation

Who We Are
Mandate
Results



Consequently, deforestation has become a major environmental and climate change significantly.

The major drivers of deforestation are

According to FAO, indigenous forests are being remarkably cut down at 4 million hectares/year.

predominantly for agricultural expansion, grazing,

development of housing settlements and other activities, and for the production of charcoal intended for domestic purposes.

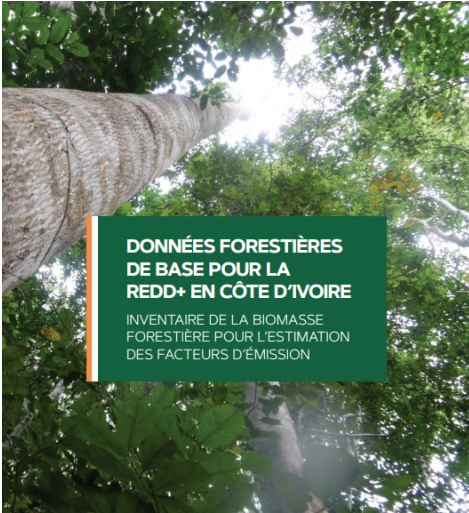
An estimated 90% of wood is removed for fuel purposes. Furthermore, 29% of that wood is converted into charcoal.

approximately 100 million people in Africa have access to wood for fuel. This has

Consequently, this has led to massive deforestation across the African continent.

contemporary, systems of energy sources for African households, businesses, industries, and institutions.[4] Therefore, there is a need for African countries to replace firewood and charcoal that are currently predominant fuel technology sources for several African

Deforestation



2. ÉTAT DES FORÊTS DE LA CÔTE D'IVOIRE

La forêt ivoirienne, qui occupait toute la moitié sud du pays, a souffert d'une dégradation accélérée de ces dernières années 1970. La Côte d'Ivoire compte huit parcs nationaux couvrant une superficie totale de 1 732 100 hectares, cinq réserves naturelles qui couvrent 339 630 hectares et 16 réserves botaniques d'une superficie totale de 198 418 hectares dédiées à la conservation *in situ* (6,5% du territoire national abritant la biodiversité de la région). 231 forêts classées de 4 200 000 hectares dont certaines sont particulièrement riches et d'autres forêts dégradées (13% du territoire national) : 6 703 hectares de forêts classées dégradées et six sites Ramsar (République de Côte d'Ivoire).

The forest cover has decreased from 7.85 million ha in 1986 to 5.09 in 2000 to 3.4 in 2015.

- l'expansion des zones agricoles (notamment le palmier à huile) et les cultures;
- l'exploitation du bois-énergie;
- l'exploitation anarchique des sols au-delà de leurs capacités de régénération;

les feux de brousse incontrôlés.

Leurs indirects de la déforestation et de la dégradation des forêts sont:

la faiblesse de la gouvernance;

le manque de coordination entre la politique forestière et les autres politiques sectorielles utilisatrices de l'espace;

le manque de sécurisation foncière et la pression démographique (migrations et accroissement);

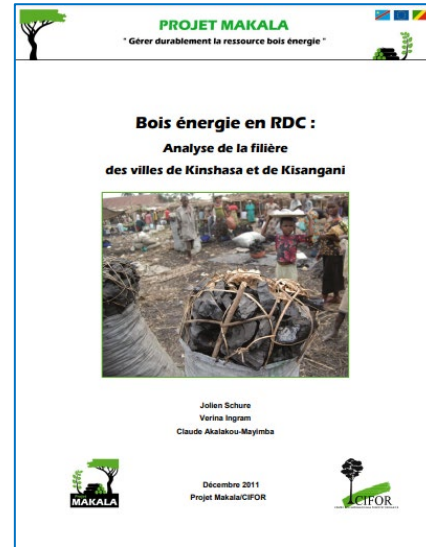
ainsi que les crises sociopolitiques et l'instabilité politique de 2002 et 2010.

(EtcTerra, 2015; EtcTerra, 2016).

Some countries have started to collect data on the impact on desertification. This is the case of Ivory Coast.

The production of fuelwood has clearly been identified as a cause of the loss of forest coverage.

Employment



Chiffres clés (2010)

	Kinshasa	Kisangani
Marché total de charbon de bois (en tonnes)	490 000	16 000
Marché total de bois de chauffe (en tonnes)	60 000	32 000
Volume total du marché bois énergie (m3)	4 800 000	200 000
Valeur totale du marché bois énergie (USD)	143 000 000	2 500 000
Nombre d'acteurs impliqués :		
Producteurs	290 000	10 000
Transporteurs	900	1600
Vendeurs	21 000	12 100
Total filière	311 900	23 700
Consommateurs (ménages & industriels)	5 000 000	1 000 000
Revenu net moyen par producteur et par an (USD) :		
Producteur charbon de bois	405	296
Producteur bois de chauffe	288	93

Synthèse

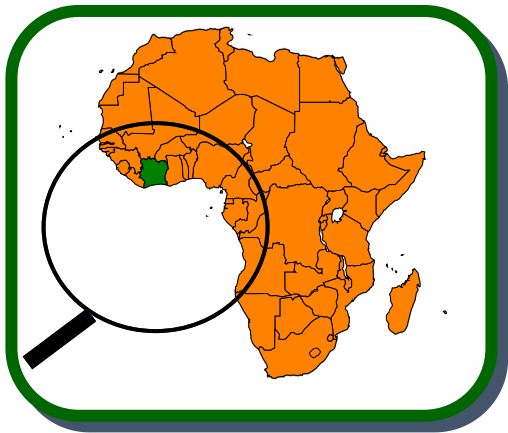
Conclusions clés

Over 300 000 people work on fuelwood in Kinshasa, this is **20 times** the official total number of people working in the whole country

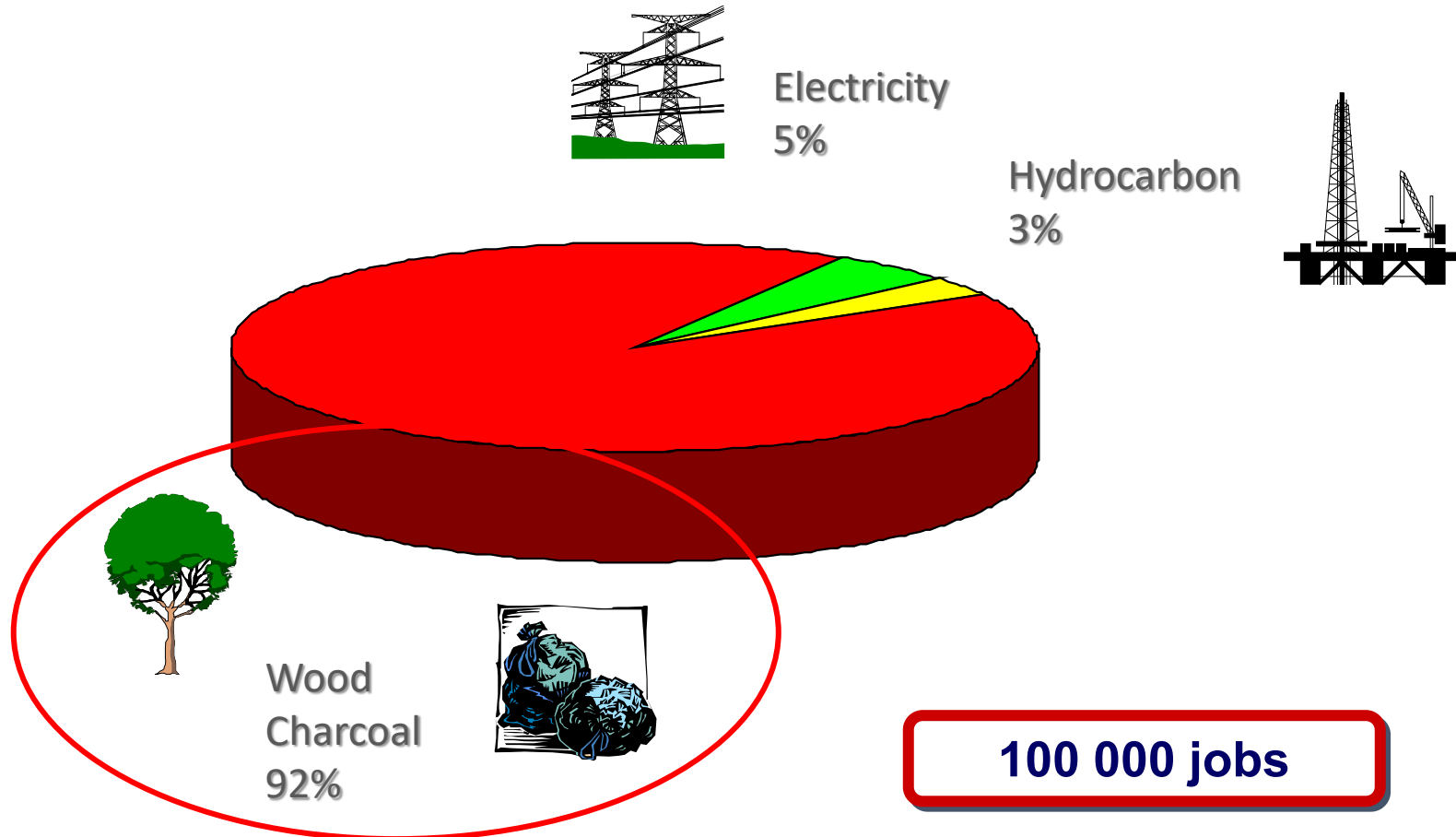
Some countries have started to collect data on the employment. This is the case of RDC.

Employment

Share of biomass in the energy sector employment

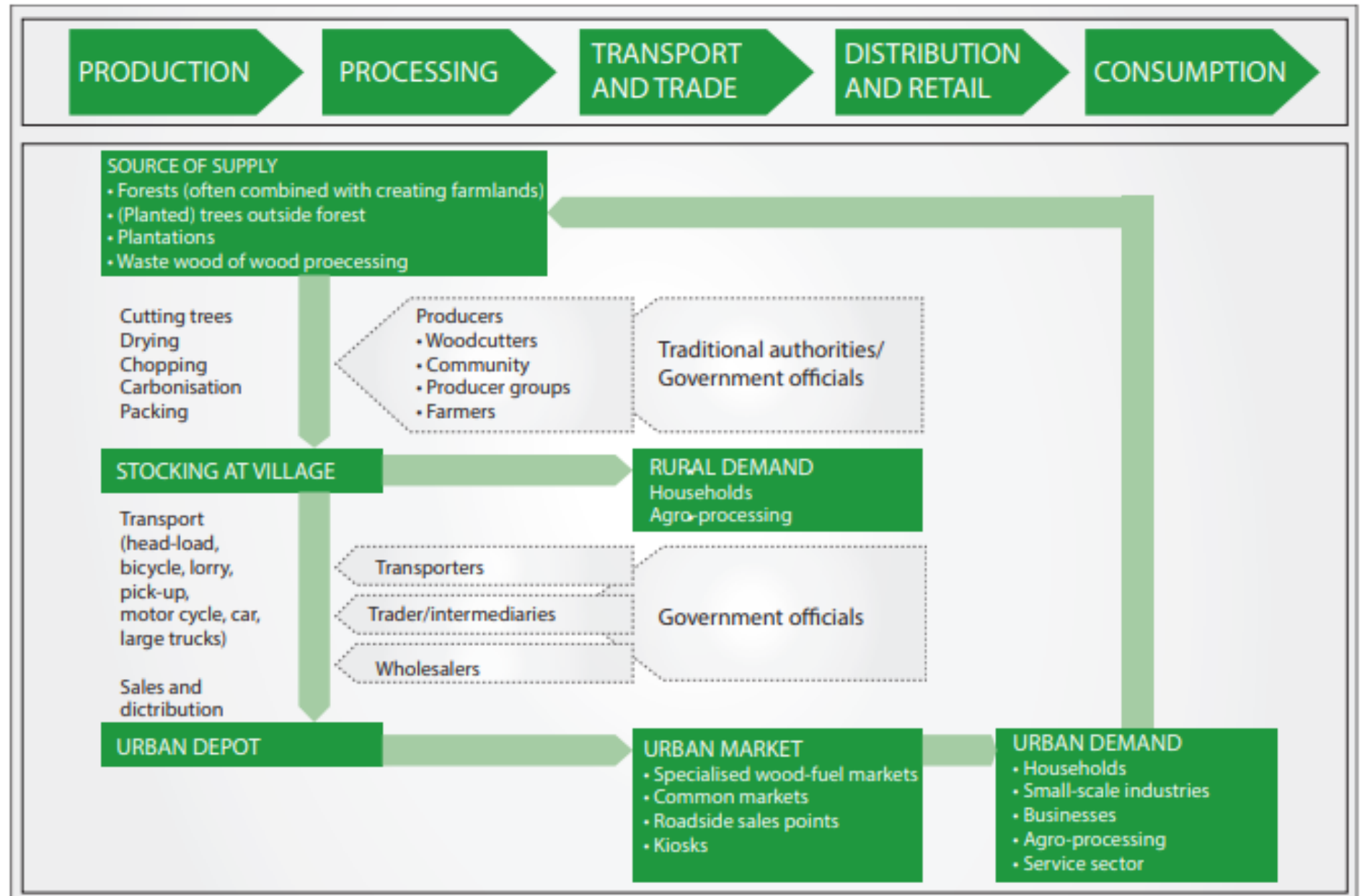


Plan National de l'Énergie
1990



Note: Does not include self wood harvesting (75% of total wood consumption)

Figure 3-1: Basic steps in a typical value chain



Employment

GDP

GDP



Some countries have started to collect data on revenues and GDP. This is the case of RDC.

Chiffres clés (2010)

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Sources d'énergies utilisées pour la cuisson par ménage urbain (%) :

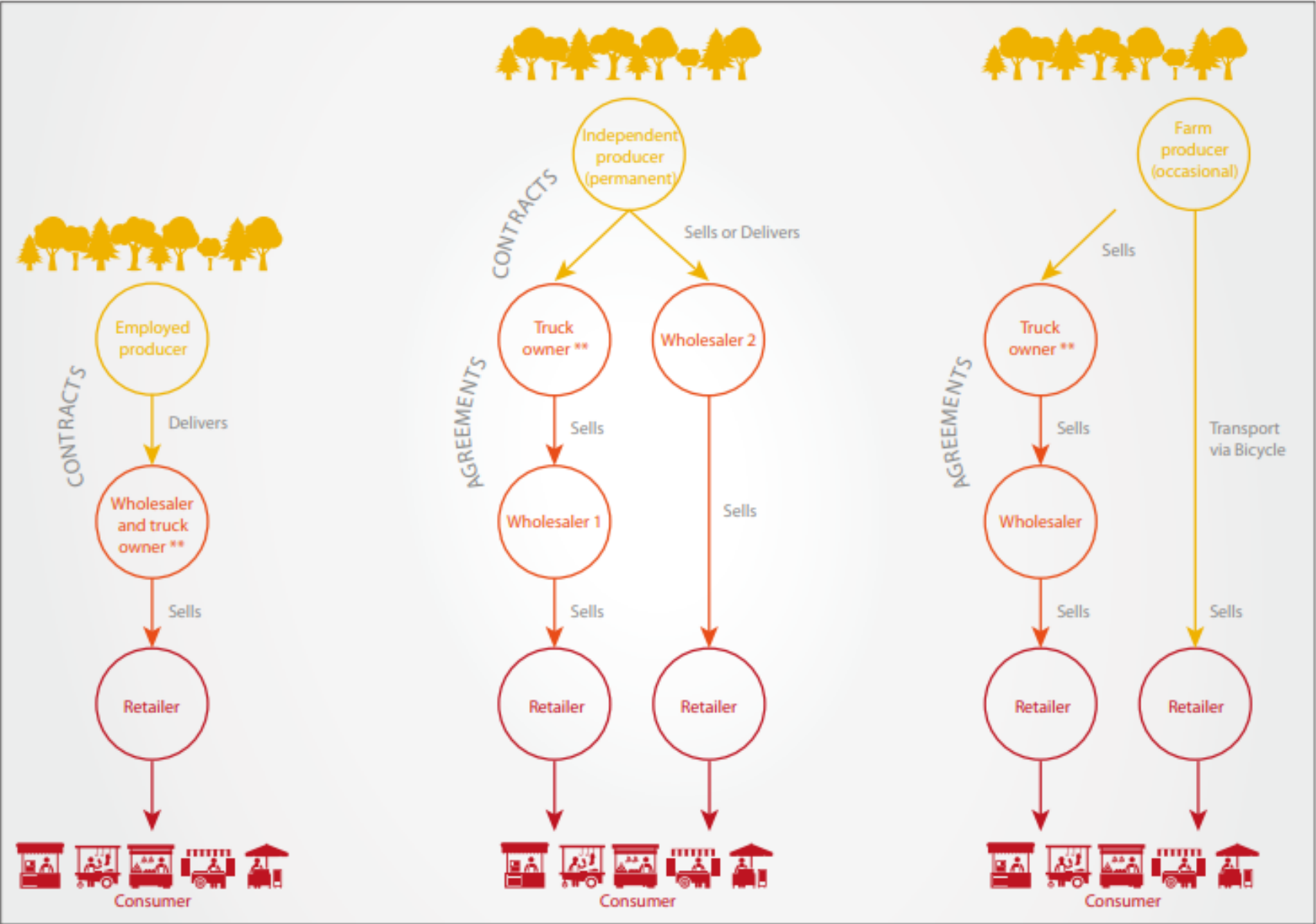
Charbon de bois	75	72
Bois de chauffe	12	23
Electricité	12	1
Pétrole	1	4

Type de foyers utilisés dans les ménages urbains (%) :

Brasero simple	73	54
Foyer traditionnel à 3 pierres	14	42
Brasero à piles	9	2
Foyer amélioré	4	3

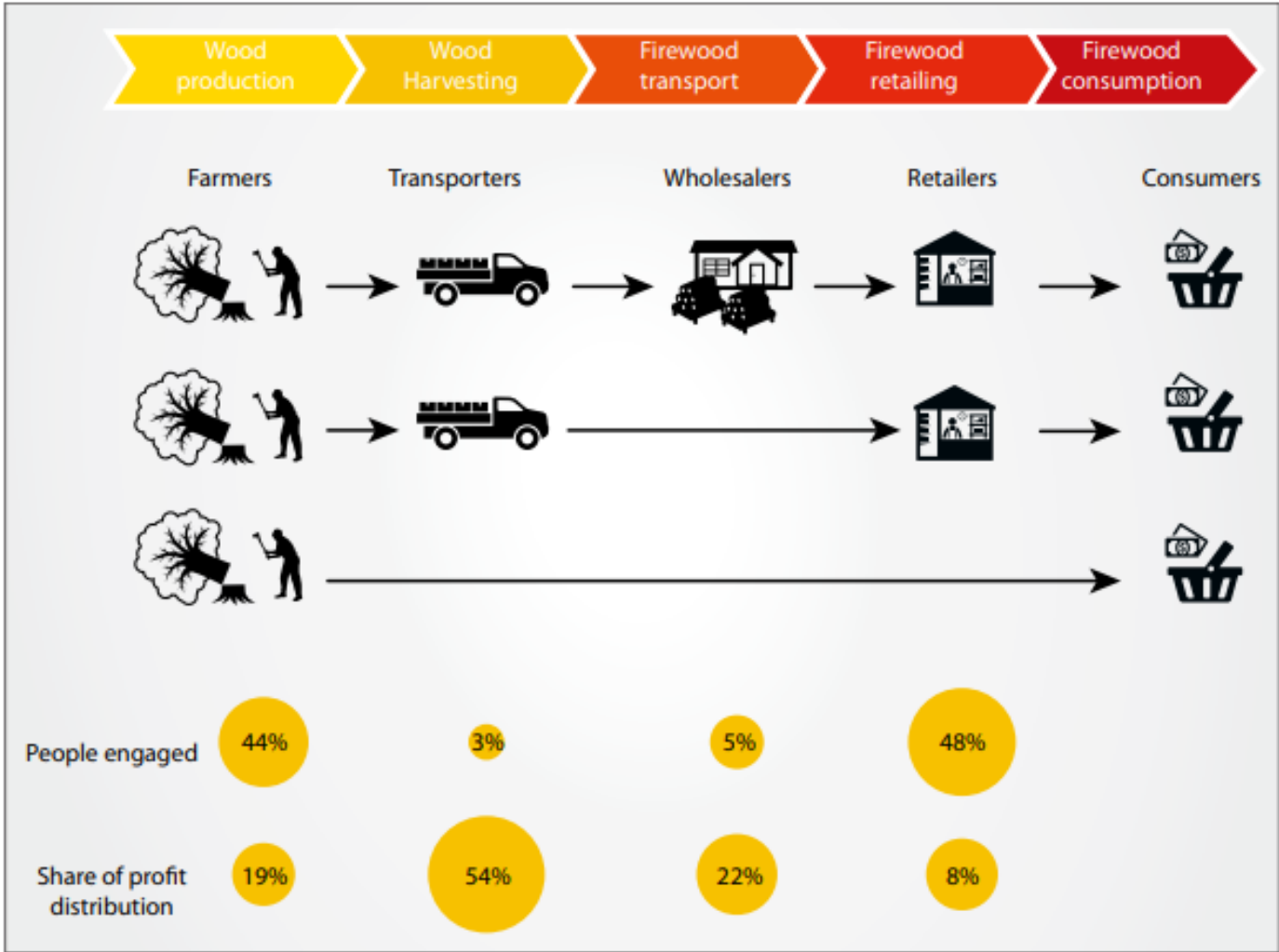


Figure 3-5: Structures of the charcoal supply chain



GDP

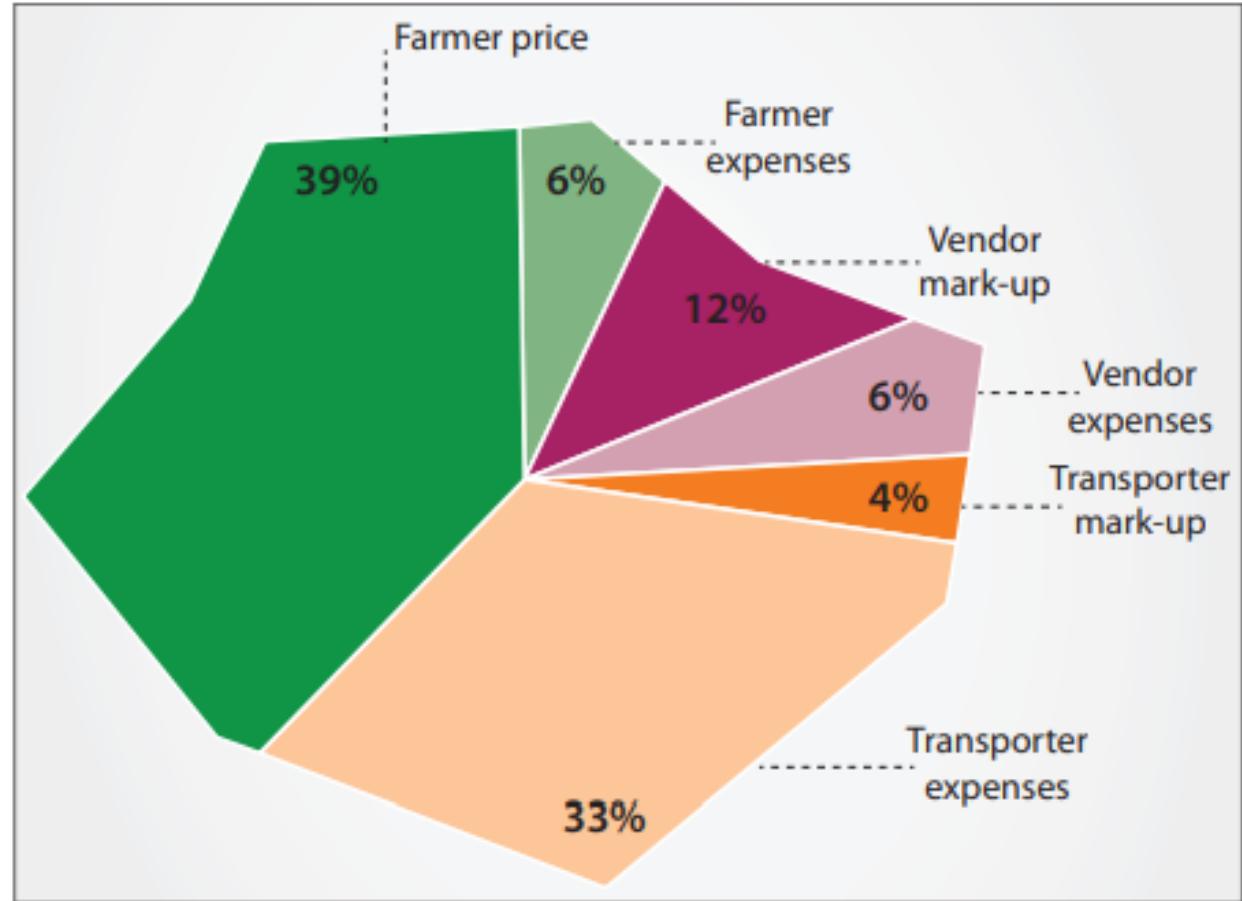
Figure 3-3: Common structure of a firewood supply chain



Source: (Sepp, 2014)

GDP

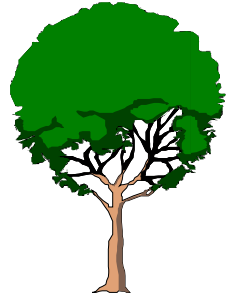
Figure 3-2: Price share for actors per sack of charcoal in Kenya



Source: (Sepp, 2014)

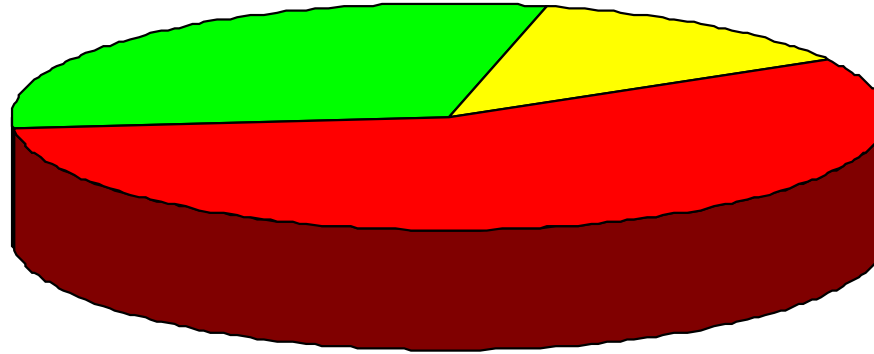
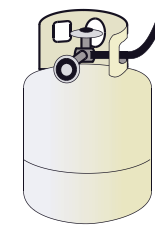
GDP

Turnover

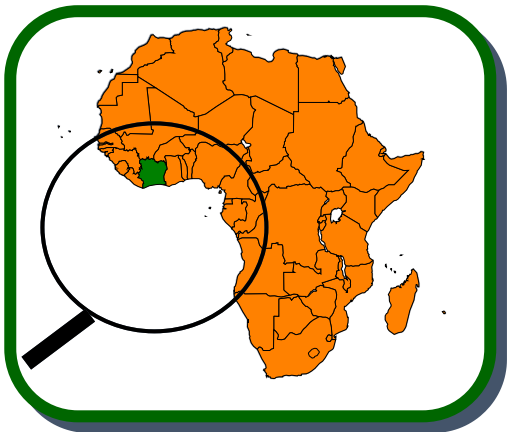


Wood
30%

LPG
13%



Charcoal
56%



Plan National de l'Énergie
1990

50 Billions FCFA

GDP

Table 3-3: Annual economic losses and opportunity costs (Billion US\$) associated with solid-fuel dependence in SSA, 2010

Activity	Low (Full adoption of higher-performing biomass stoves)	Mid (Tier 3–4 gasifier biomass stoves at the top of the range)	High (Intermediate Tier 2–3 rocket stoves at the bottom of the range)
Mortality from household air pollution	0.3	3.5	6.8
Morbidity from HAP	0.2	0.7	1.1
Other health conditions (burns, eye problems)	0.1	0.8	1.5
Total health	0.6	5.0	9.4
Spending on solid fuels	0.4	3.8	7.3
Time wastage (fuel collection)	0.6	6.5	12.4
Time wastage (cooking)	3.3	10.2	17.2
Total economic	4.2	20.6	36.9
GHG emissions (fuel consumption)	0.2	2.1	3.9
GHG emissions (charcoal production)	0.2	0.7	1.2
Deforestation	0.2	3.5	6.7
Total environment	0.6	6.3	11.9
Total all categories	5.4	31.8	58.2

Source: Lamba, 2016

Energy affordability and poverty alleviation

Table 1-1: Access to electricity and clean cooking

Region	Access to electricity (% of population)							Access to clean fuels and technologies for cooking (% of population)			
	Total					Urban	Rural	Total			
	1990	2000	2010	2012	2014	2014	2014	2000	2010	2012	2014
World	73	78	84	85	85	96	73	50	56	56	57
Africa	38	38	43	45	47	76	27	25	25	25	25
North Africa	75	81	85	86	88	95	80	75	83	84	85
Rest of Africa	23	26	32	35	37	70	17	11	12	12	12

Source: (World Bank, 2017)



Figure 1-2: Demographic challenges for progress on access to clean cooking

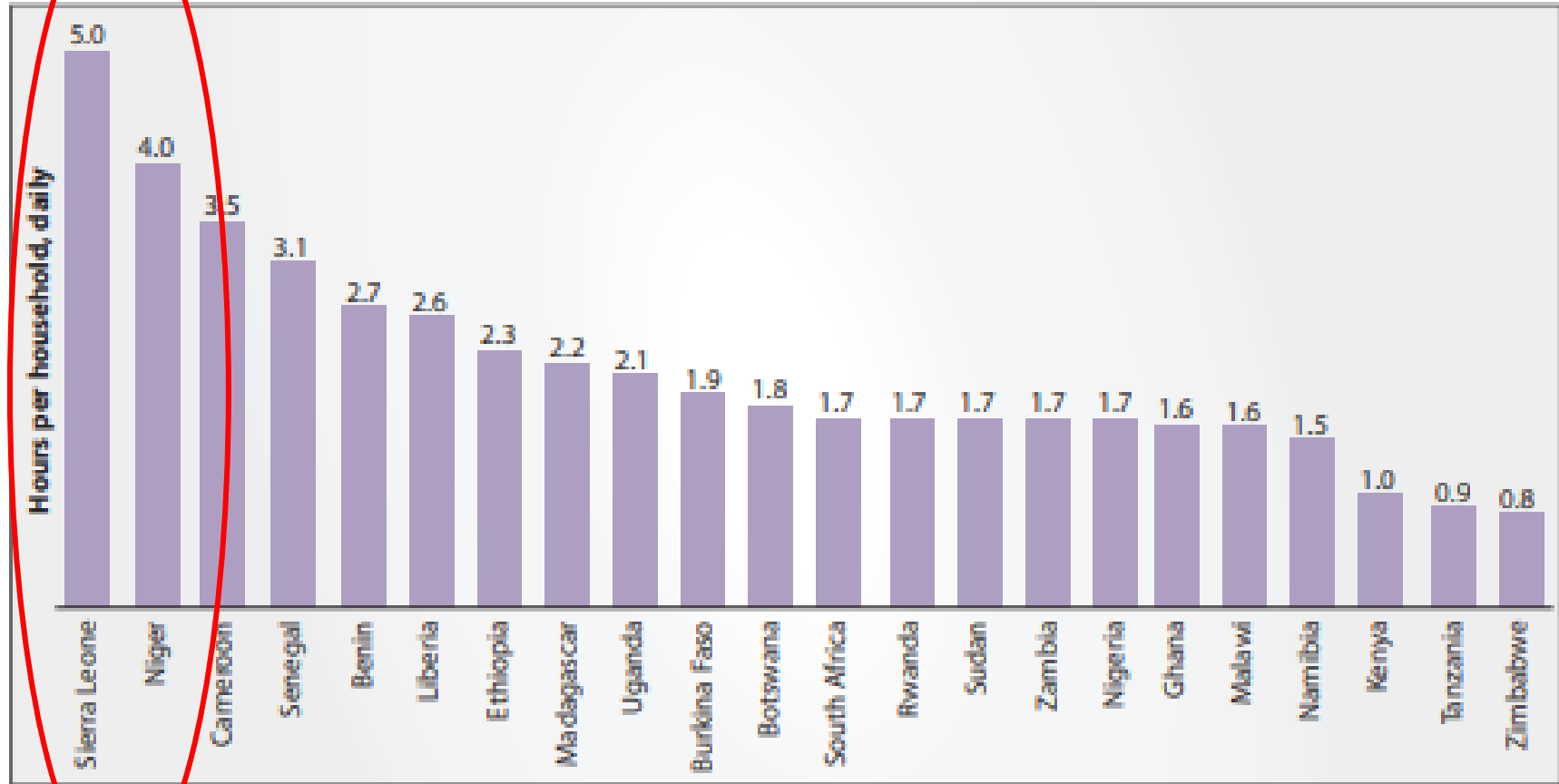


Source: (World Bank, 2017)

Energy affordability and poverty alleviation

Education

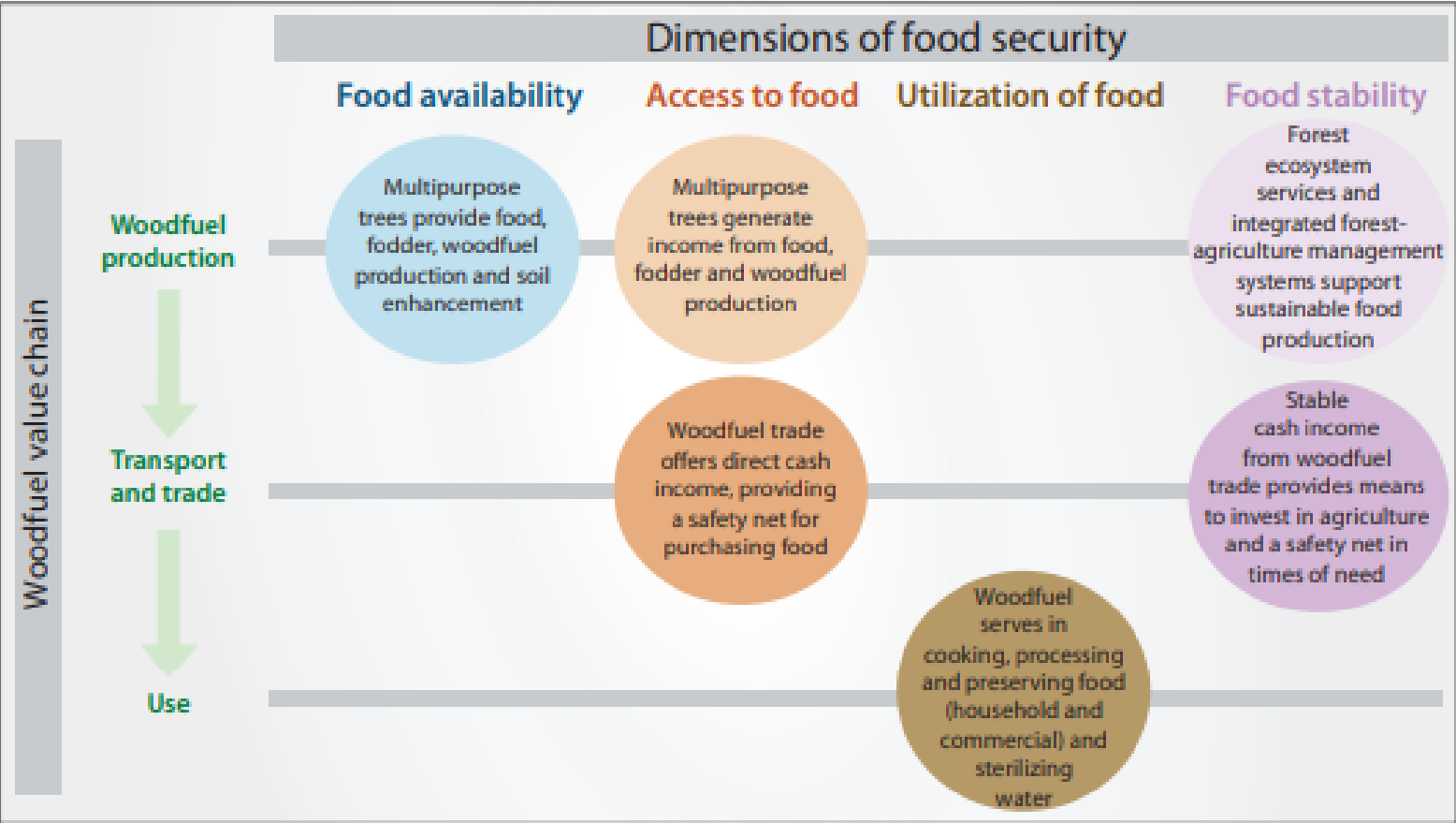
Figure 2-11: Hours spent collecting fuelwood for cooking, heating and lighting in households across Africa



Source: (UNEP, 2017a)

Energy and food security

Figure 3-9: Links between the sustainable woodfuel value chain and food security



Source: (FAO, 2007b)

In fact, most of the impacts of biomass consumption can be covered, one way or another, by one sustainable goal or another



TO SUM UP

So, as seen, biomass policy is much more than an energy issue.

The problem is that because most of the impact data are not available, policy makers cannot (or do not want) integrate the full picture in their decision making process.

Unfortunately, this leads to more desertification and more prematured deaths.

This is why it is more than urgent to start collecting all the impact data for better policies which will save energy, trees and lifes. The Sustainable Development Goals give a great opportunity to do it.

THANK YOU