



***Curso de actualización:
APLICACIONES PRODUCTIVAS DE LA ENERGIA SOLAR
Parte 1: Contextualización del tema***

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Sumario de la Presentación

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Parte II: Usos productivos de la energía

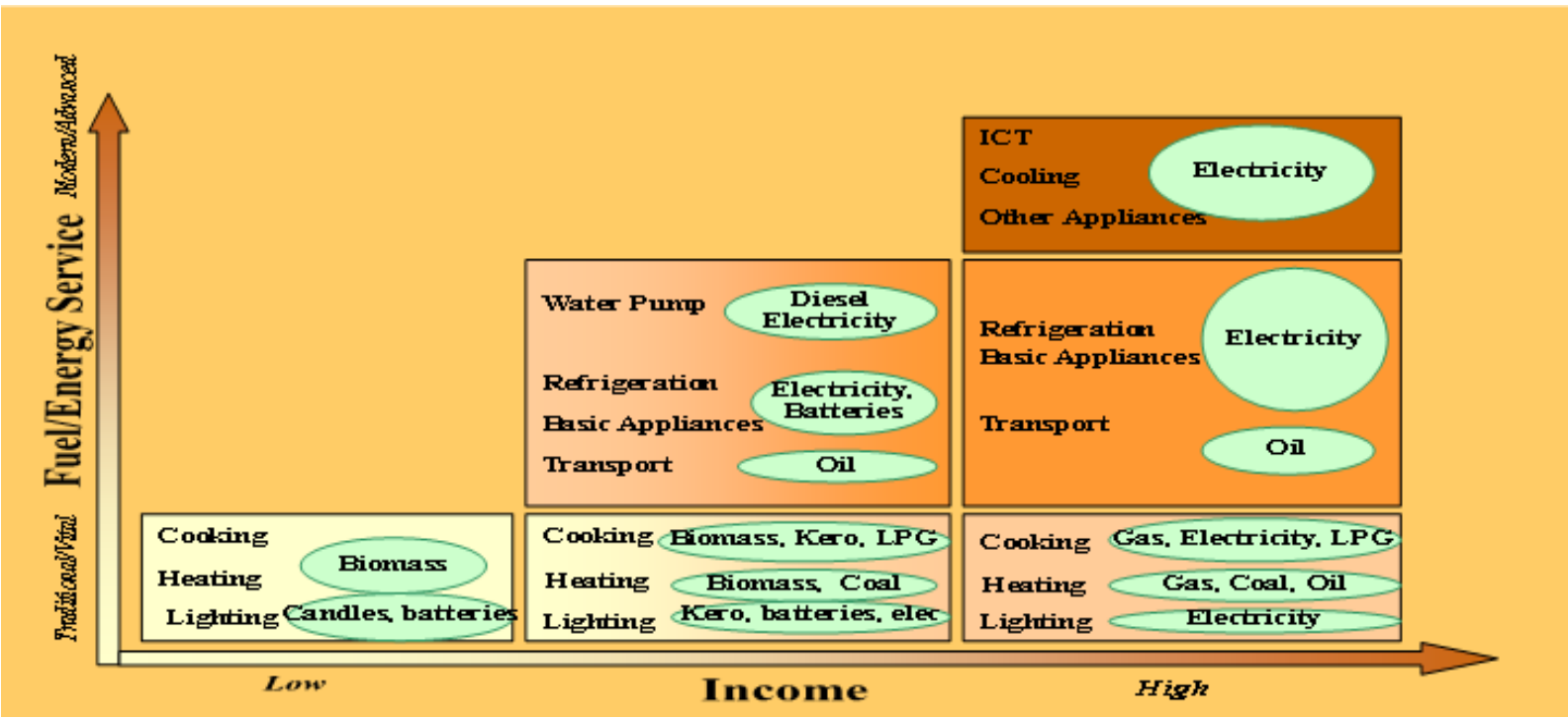
Parte III: La energía solar fotovoltaica

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Contextualización del tema

Alto número de personas sin acceso a fuentes modernas de energía y que viven en condiciones de pobreza

Transición de consumo energético según el nivel de ingresos

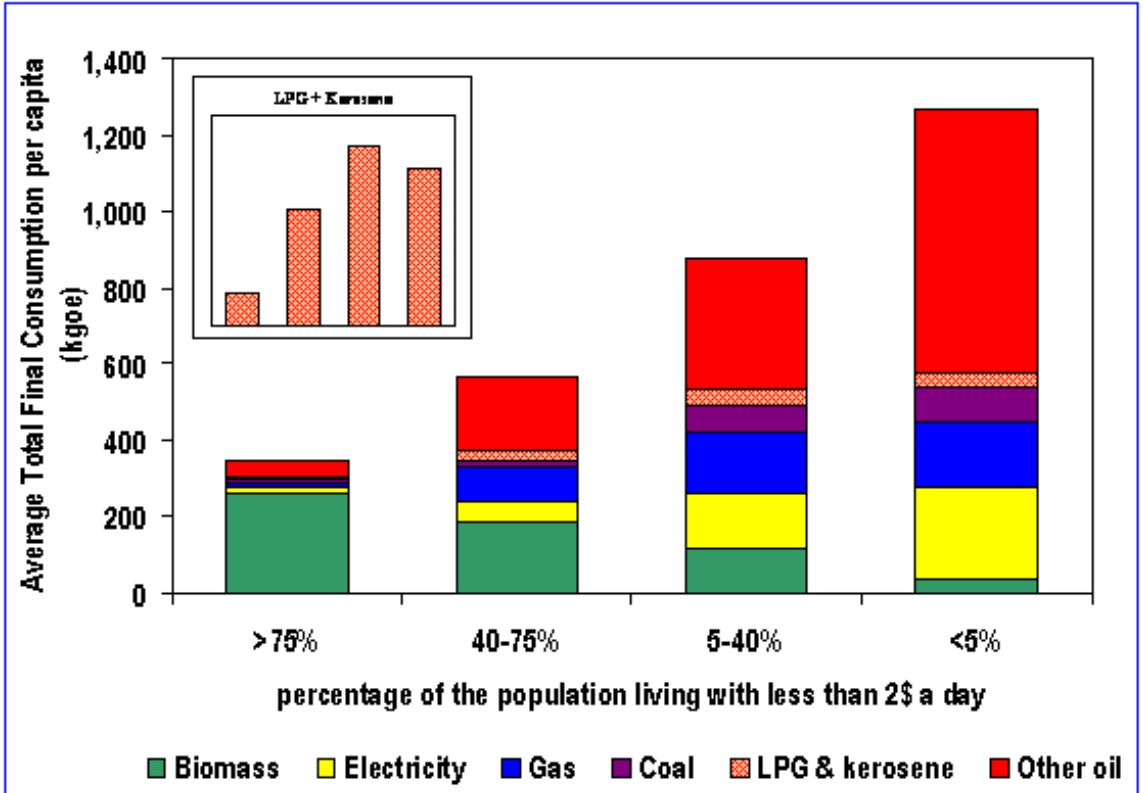


Fuente: IEA, World Energy Outlook 2002

Contextualización del tema

Alto número de personas sin acceso a fuentes modernas de energía y que viven en condiciones de pobreza

Transición de consumo energético según el nivel de ingresos

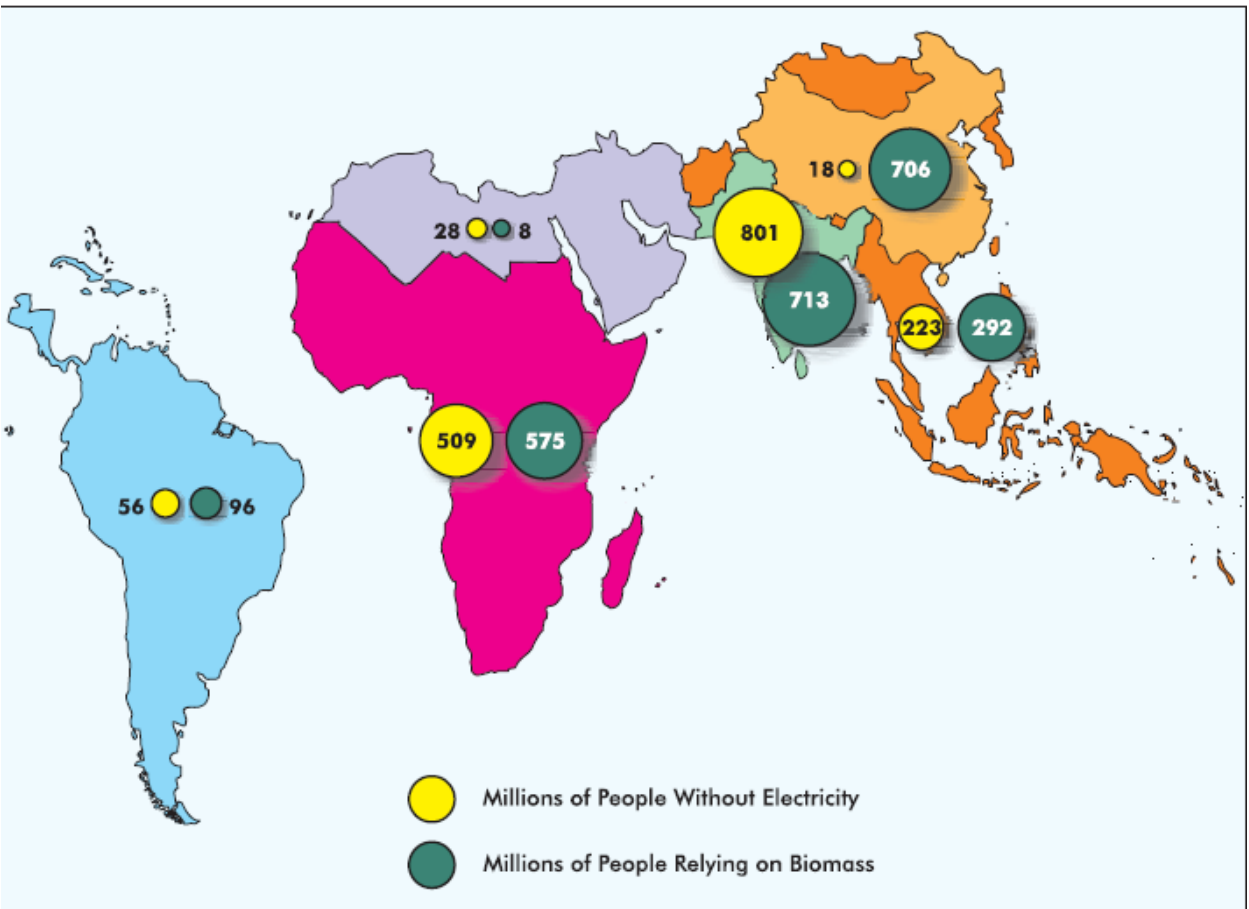


Fuente: IEA, World Energy Outlook 2002

Contextualización del tema

Alto número de personas sin acceso a fuentes modernas de energía y que viven en condiciones de pobreza

Mapa de la pobreza energética mundial

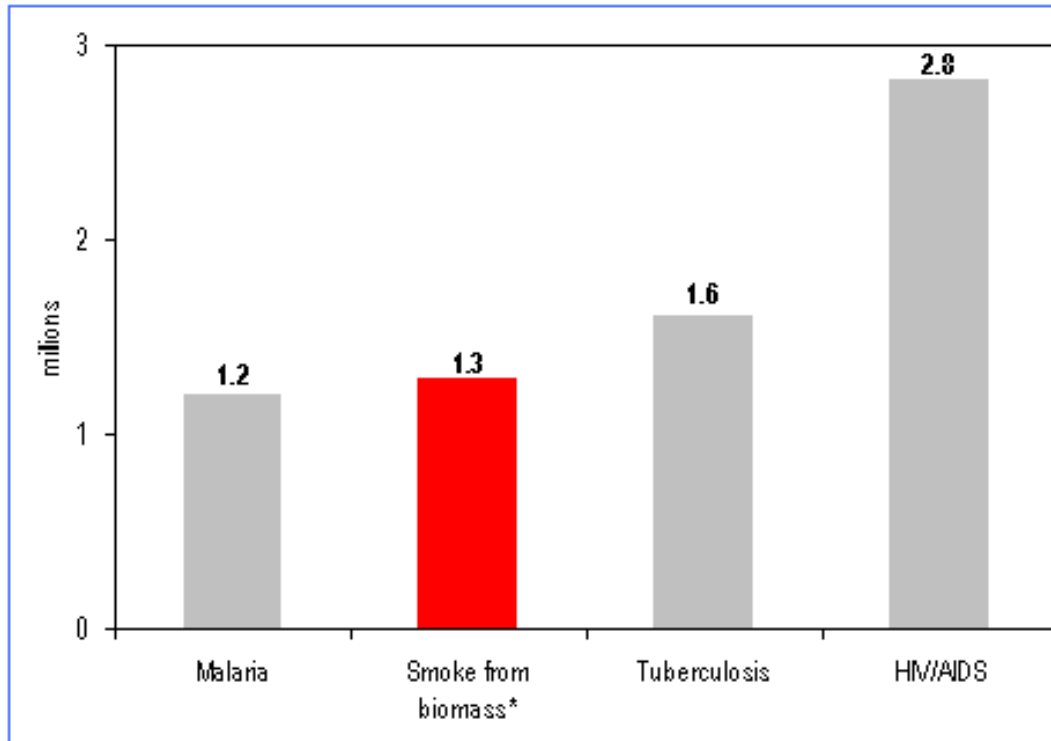


Fuente: IEA, World Energy Outlook 2002

Contextualización del tema

Alto número de personas sin acceso a fuentes modernas de energía y que viven en condiciones de pobreza

Muertes anuales a nivel mundial según la causa



Fuente: IEA, World Energy Outlook 2006

Aproximadamente 1,5 millones de muertes prematuras por año (4000 muertes por día) son directamente atribuibles a la contaminación del aire en interiores debido al uso de combustibles sólidos (85% - 1,3 M debido a la biomasa y el resto al carbón). Mas de la mitad de estas muertes son de niños menos a cinco años.

Fuente: IEA, World Energy Outlook 2006

Contextualización del tema

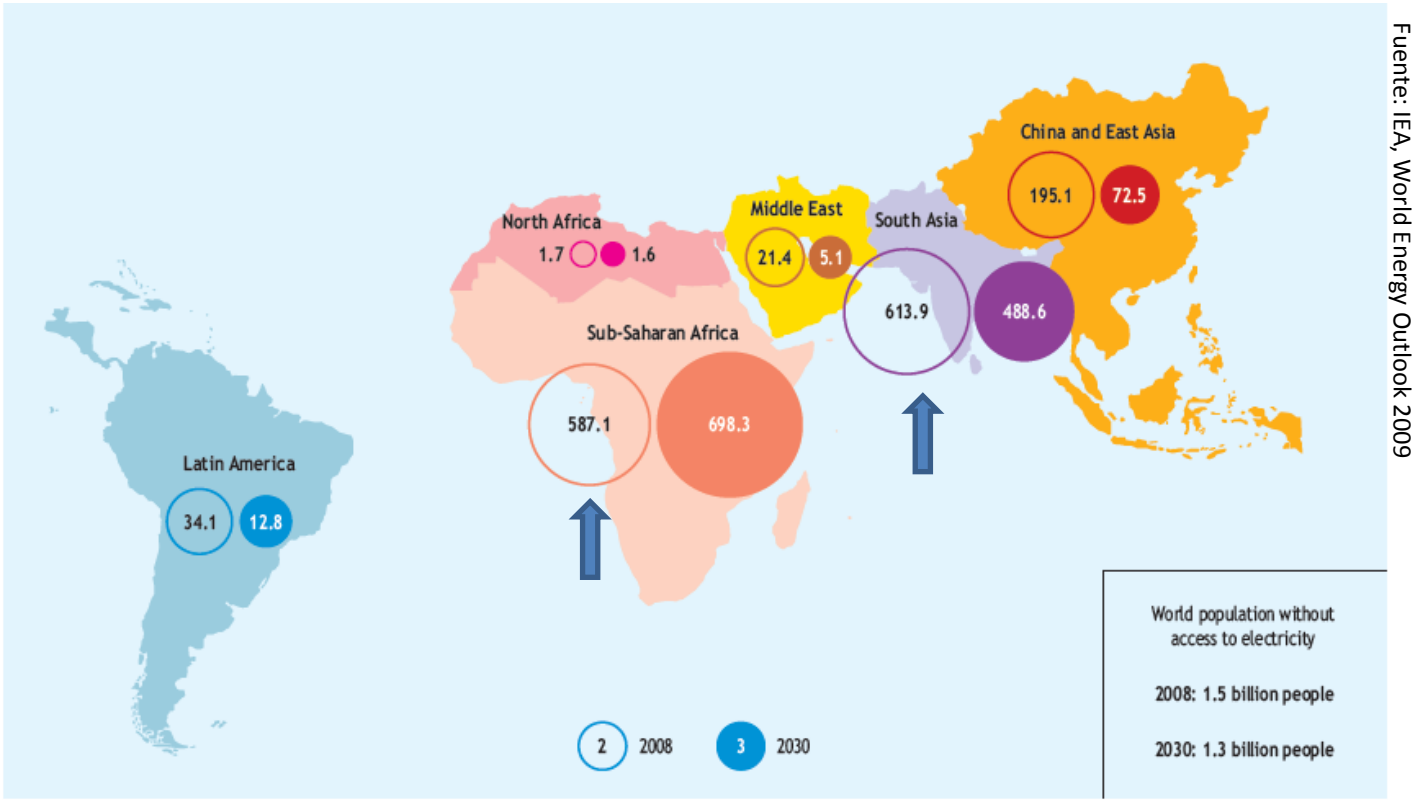
Alto número de personas sin acceso a fuentes modernas de energía y que viven en condiciones de pobreza

Zona geográfica	Combustibles	Escasez
Costa	Leña	Si
	Carbón	Si
	Desechos agrícolas	Por periodos
Sierra (hasta 3800 m.s.n.m.)	Leña	En algunos lugares
	Desechos agrícolas	Por periodos
	Estiercol	En algunos lugares
Sierra (> 3800 m.s.n.m.)	Estiercol	En algunos lugares
	lcchu	No, pero no es adecuado
	Yareta	Si
	Arbustos	Si
Selva	Leña	No

Contextualización del tema

Alto número de personas sin acceso a electricidad y que viven en condiciones de pobreza

Población mundial sin acceso a electricidad



41% de la población mundial sin acceso a electricidad vive en Asia del Sur, 39% en Africa subhariana*

*Datos del 2008

Contextualización del tema

Alto número de personas sin acceso a electricidad y que viven en condiciones de pobreza

Población mundial sin acceso a electricidad

Região	População sem acesso a eletricidade (milhões de pessoas)	Taxa de eletrificação (%)		
		Total	Urbana	Rural
África	589	40	67	23
África do Norte	2	99	100	98
África subsaariana	587	29	57	12
Ásia Não OECD	809	77	94	67
China	8	99	100	99
Índia	405	65	93	53
Outros	396	63	85	48
Latino America	34	93	99	70
Meio este asiático	21	89	98	71
Subtotal	1453	72	90	58
E. Europa/Eurásia e membros do OECD	3	100	100	100
Subtotal	3	100	100	100
World	1456	78	93	63

Fuente: IEA, World Energy Outlook 2009

Contextualización del tema

Alto número de personas sin acceso a electricidad y que viven en condiciones de pobreza

Población mundial sin acceso a electricidad

	Electrification rate (%)			Population without electricity millions
	Total	Urban	Rural	
Argentina	97.2	99.6	70.0	1.1
Bolivia	77.5	98.2	38.0	2.2
Brazil	97.8	99.5	88.0	4.3
Chile	98.5	99.0	95.0	0.3
Colombia	93.6	99.6	76.0	3.0
Costa Rica	99.1	99.8	98.0	0.0
Cuba	97.0	100.0	87.8	0.3
Dominican Republic	95.9	98.4	90.4	0.4
Ecuador	92.2	99.6	78.0	1.1
El Salvador	86.4	97.1	70.0	0.9
Guatemala	80.5	93.7	68.0	2.7
Haiti	38.5	68.9	11.7	6.0
Honduras	70.3	97.9	45.0	2.1
Jamaica	92.0	99.5	83.4	0.2
Netherlands Antilles	99.9	100.0	99.0	0.0
Nicaragua	72.1	95.0	42.0	1.6
Panama	88.1	94.0	72.0	0.4
Paraguay	94.5	98.8	88.0	0.3
Peru	76.9	96.4	28.0	6.5
Trinidad and Tobago	99.0	99.9	99.0	0.0
Uruguay	99.5	99.4	82.4	0.0
Venezuela	99.0	100.0	85.0	0.3
Other Latin America	91.2	99.0	72.0	0.3
Latin America	92.7	98.7	70.2	34.1

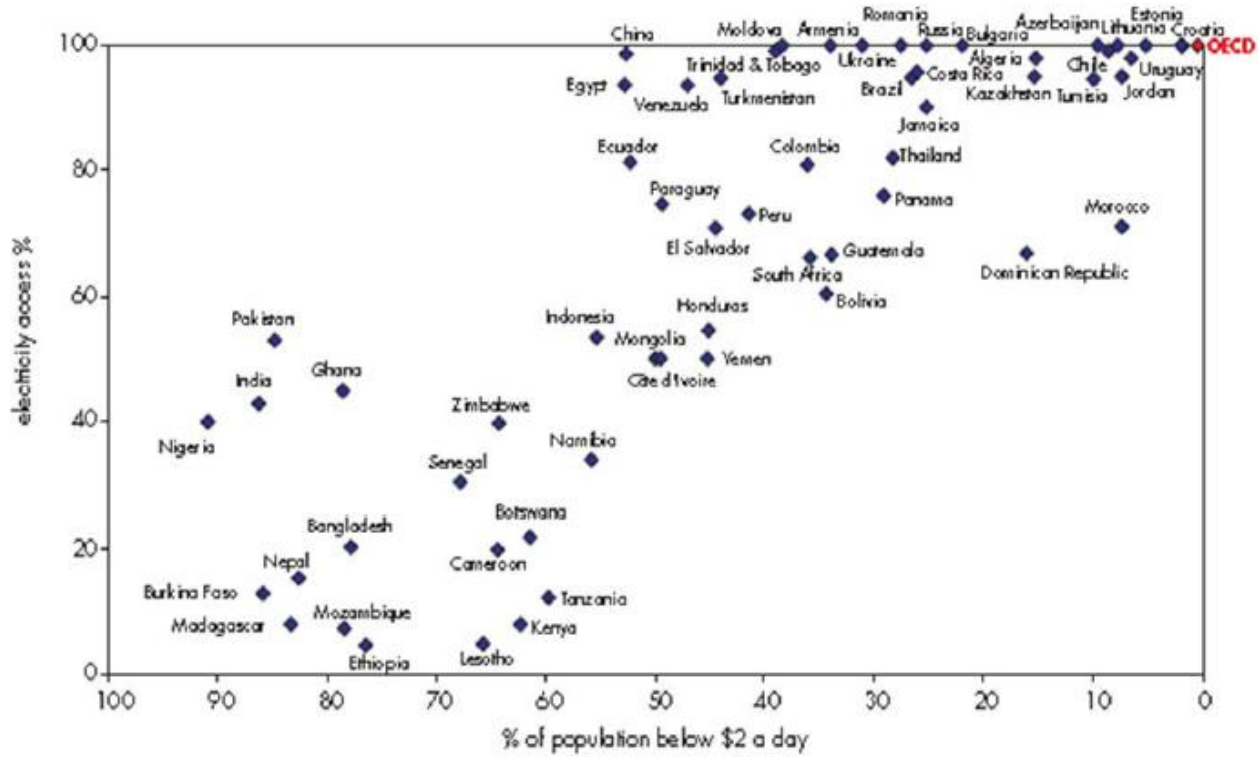
Fuente: IEA, World Energy Outlook 2009*

*Datos del 2008

Contextualización del tema

Alto número de personas sin acceso a electricidad y que viven en condiciones de pobreza

Existencia de una relación entre pobreza y el acceso a electricidad

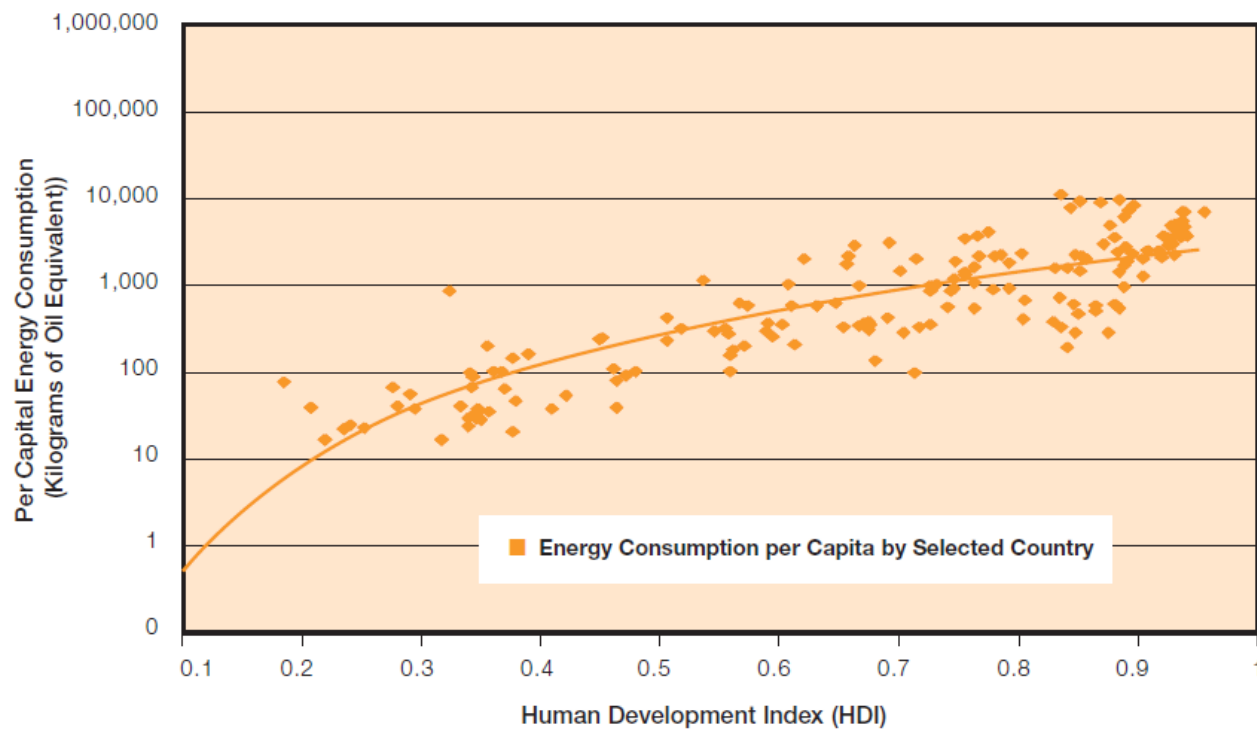


Fuente: IEA, World Energy Outlook 2002

Contextualización del tema

Alto número de personas sin acceso a electricidad y que viven en condiciones de pobreza

Existencia de una relación entre pobreza y el acceso a energía



Fuente: PNUD, The Energy Challenge for Achieving the Millennium Development Goals (2005)

Contextualización del tema

Energía y los objetivos del milenio

Goal	IMPORTANCE OF ENERGY TO ACHIEVING THE GOALS Some Direct and Indirect Contributions
<p>1) Extreme poverty and hunger</p> <ul style="list-style-type: none">■ To halve, between 1990 and 2015, the proportion of the world's people whose income is less than one dollar per day.■ To halve, between 1990 and 2015, the proportion of people who suffer from hunger.	<ul style="list-style-type: none">■ Access to affordable energy services from gaseous and liquid fuels and electricity enables enterprise development.■ Lighting permits income generation beyond daylight hours.■ Machinery increases productivity.■ Local energy supplies can often be provided by small scale, locally owned businesses creating employment in local energy service provision and maintenance, fuel crops, etc.■ Privatisation of energy services can help free up government funds for social welfare investment.■ Clean, efficient fuels reduce the large share of household income spent on cooking, lighting, and keeping warm (equity issue – poor people pay proportionately more for basic services).■ The majority (95 percent) of staple foods need cooking before they can be eaten and need water for cooking.■ Post-harvest losses are reduced through better preservation (for example, drying and smoking) and chilling/freezing■ Energy for irrigation helps increase food production and access to nutrition.
<p>2) Universal primary education</p> <ul style="list-style-type: none">■ To ensure that, by 2015, children everywhere will be able to complete a full course of primary schooling.	<ul style="list-style-type: none">■ Energy can help create a more child friendly environment (access to clean water, sanitation, lighting, and space heating/cooling), thus improving attendance at school and reducing drop out rates.■ Lighting in schools helps retain teachers, especially if their accommodation has electricity■ Electricity enables access to educational media and communications in schools and at home that increase education opportunities and allow distance learning■ Access to energy provides the opportunity to use equipment for teaching (overhead projector, computer, printer, photocopier, science equipment).■ Modern energy systems and efficient building design reduces heating/ cooling costs and thus school fees, enabling poorer families greater access to education.

Fuente: DFID. Energy for the poor. 2002

Contextualización del tema

Energía y los objetivos del milenio

Goal	IMPORTANCE OF ENERGY TO ACHIEVING THE GOALS Some Direct and Indirect Contributions
<p>3) Gender equality and women's empowerment</p> <ul style="list-style-type: none">■ Ensuring that girls and boys have equal access to primary and secondary education, preferably by 2005, and to all levels of education no later than 2015.	<ul style="list-style-type: none">■ Availability of modern energy services frees girls' and young women's time from survival activities (gathering firewood, fetching water, cooking inefficiently, crop processing by hand, manual farming work).■ Clean cooking fuels and equipment reduces exposure to indoor air pollution and improves health.■ Good quality lighting permits home study and allows evening classes.■ Street lighting improves women's safety.■ Affordable and reliable energy services offer scope for women's enterprises.
<p>4) Child mortality</p> <ul style="list-style-type: none">■ To reduce by two thirds, between 1990 and 2015, the death rate for children under the age of five years.	<ul style="list-style-type: none">■ Indoor air pollution contributes to respiratory infections that account for up to 20 percent of the 11 million deaths in children each year (WHO 2000, based on 1999 data).■ Gathering and preparing traditional fuels exposes young children to health risks and reduces time spent on child care.■ Provision of nutritious cooked food, space heating, and boiled water contributes towards better health.■ Electricity enables pumped clean water and purification.
<p>5) Maternal health</p> <ul style="list-style-type: none">■ To reduce by three quarters, between 1990 and 2015, the rate of maternal mortality.	<ul style="list-style-type: none">■ Energy services are needed to provide access to better medical facilities for maternal care, including medicine refrigeration, equipment sterilisation, and operating theatres.■ Excessive workload and heavy manual labour (carrying heavy loads of fuelwood and water) may affect a pregnant woman's general health and well being.

Fuente: DFID. Energy for the poor. 2002

Contextualización del tema

Energía y los objetivos del milenio

Goal	IMPORTANCE OF ENERGY TO ACHIEVING THE GOALS Some Direct and Indirect Contributions
6) HIV/AIDS, malaria and other major diseases. By 2015, to have halted and begun to reverse: <ul style="list-style-type: none">■ the spread of HIV/AIDS■ the scourge of malaria■ the scourge of other major diseases that afflict humanity.	<ul style="list-style-type: none">■ Electricity in health centres enables night availability, helps retain qualified staff, and allows equipment use (for example, sterilisation, medicine refrigeration).■ Energy for refrigeration allows vaccination and medicine storage for the prevention and treatment of diseases and infections.■ Safe disposal of used hypodermic syringes by incineration prevents re-use and the potential further spread of HIV/AIDS.■ Energy is needed to develop, manufacture, and distribute drugs, medicines, and vaccinations.■ Electricity enables access to health education media through information and communications technologies (ICT).
7) Environmental sustainability <ul style="list-style-type: none">■ To stop the unsustainable exploitation of natural resources; and■ To halve, between 1990 and 2015, the proportion of people who are unable to reach or to afford safe drinking water.	<ul style="list-style-type: none">■ Increased agricultural productivity is enabled through the use of machinery and irrigation, which in turn reduces the need to expand quantity of land under cultivation, reducing pressure on ecosystem conversion.■ Traditional fuel use contributes to erosion, reduced soil fertility, and desertification. Fuel substitution, improved efficiency, and energy crops can make exploitation of natural resources more sustainable.■ Using cleaner, more efficient fuels will reduce greenhouse gas emissions, which are a major contributor to climate change.■ Clean energy production can encourage better natural resource management, including improved water quality.■ Energy can be used to purify water or pump clean ground water locally, reducing time spent collecting it and reducing drudgery.

Fuente: DFID. Energy for the poor. 2002

Contextualización del tema

Habitantes de la zona rural dependen de actividades agrícolas para su subsistencia

La agricultura es una fuente de sobrevivencia para casi 86% de los habitantes de la zona rural. Proporciona empleos a 1,3 billones de pequeños agricultores y trabajadores sin tierra.

Fuente: Banco Mundial 2008.



Gracias!

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