

ITUC

GROWING GREEN AND DECENT JOBS

International Trade Union Confederation



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How investments in the green economy of 12 countries and seven industries can create 48 million jobs over 5 years

This is a summary of the ITUC report 'Growing Green and Decent Jobs', which demonstrates how investments in the green economy can generate new employment that contributes to poverty alleviation and social progress. The economic analysis from the Millennium Institute as well as country case studies from Germany, Spain, Bulgaria, Brazil, Dominican Republic, USA, South Africa, Ghana, Tunisia, Indonesia, Nepal, Australia are available at www.ituc-csi.org



Economic analysis by the
Millennium Institute



April 2012

Growing Green and Decent Jobs

Environmental deterioration and rising social inequality are twin perils of the 21st century.

Many countries are living through the biggest crisis of unemployment in 100 years, and the gap between the rich and working people is growing. The majority of governments are focusing on short-term economic policies, while making little effort to build a healthy society and environment for the long term.

There is no choice but to transition to a greener economy, where social needs and environmental protection are at the heart of decision making. Economic research by the Millennium Institute forecast that investments of 2% of GDP in the green economy over each of the next 5 years in 12 countries could create up to 48 million new jobs.

The Decent Work Challenge

200 million unemployed people
900 million people live in dire poverty
1.52 billion workers are in precarious work

The Environmental Challenge

1.8 billion people expected to face water scarcity by 2025
180 million people affected by food shortages
200 million climate migrants by 2050

Governments and corporations have traditionally used employment concerns to stall or postpone decisions on wages, safety standards, social protection, and environmental regulation.

Current business models in many countries, based on competition over the lowest social and environmental standards, are not creating jobs, nor are they protecting our planet. Jobs-centred growth is essential to kick start economies in developed, developing and emerging countries.

A new green investment model challenges the business-as-usual approach to planning and managing national economies and demonstrates how public and private investment in the green economy can create decent green jobs.

This report makes the employment case for the green economy on a country and industry basis, and provides the international community, governments, business and trade unions with new benchmark data and policy recommendations on how investing in the green economy creates decent jobs.



We can create 48 million green and decent jobs over five years in just 12 countries. Imagine what we can do in 24 countries, imagine in 50 countries, how many hundreds of millions of jobs that would create.



Sharan Burrow, General Secretary,
International Trade Union Confederation.

- United Nations agencies can use this cross country study as a framework so countries can work in concert with each other, so national actions promote positive synergies, accelerate progress and do not offset one another;
- Governments, including finance ministers, labour ministers, planning ministers, environmental ministers and aid donors can use the benchmark data to inform policy packages that stimulate job creation in specific industries, while also supporting national sustainable development goals;
- Business leaders can use the research to plan sustainable investment decisions in industries which have opportunities for future green jobs growth;
- Trade union leaders can use this report in negotiations on investment and job creation with employers and governments, alongside national social policies.



The outlook for transforming to a greener economy with decent work will benefit workers, business, national economies and future generations.



What is the green economy?

An economy where investment in sustainable production and in cleaner technologies is shaped by key principles of social justice, social protection, and decent work.

What is a green and decent job?

A green job reduces the environmental impacts of enterprises and economic sectors to sustainable levels, while providing decent work and living conditions to all those involved in production, and ensures workers' rights are respected.

Green jobs are not only those traditional jobs people think of as green – like making solar panels, manufacturing wind turbines, water conservation and sustainable forestry. They also include retrofitting related jobs in the construction and public transport sectors, and making energy efficiency improvements in manufacturing plants, along with services supporting all industries.

A decent job ensures safe work, fair wages, respect for workers' rights and social protection.

Growing green and decent jobs research

This research provides benchmark data on the potential for creating decent jobs through investments in greening economic sectors and targeted social policies. This investment will need public stewardship and regulatory measures to drive private-sector action.

The results from the Millennium Institute provide an indication of the potential for employment creation, which depends on government policies. Further national research would be required to more precisely determine the effects of investment on the labour markets in individual countries and identify the best areas for investment. While more research is important, it is imperative that action to encourage investment in the green economy begins now, without delay.

A green investment model for countries

Economic research in 12 countries by the Millennium Institute shows that investing 2% of GDP in the green economy could create up to 9.6 million new jobs per year in the countries and industries analyzed.

The potential for job creation, and employment opportunities from green investments, is considerable across countries and industries.

The outlook for transitioning to a greener economy will benefit workers, business, national economies and future generations.

Independent economic analysis demonstrates the possibilities of job creation in 12 countries with targeted investments in selected industries. Nationally-based analysis outlines the key social measures to ensure decent jobs.

Investments are allocated according to a green investment model, shifting away from the business-as-usual scenario favoured by some governments and parts of the private sector. Government policies, regulations and financial investments can generate the investment funds.

The carbon price in Australia, the growth pact in South Africa, President Obama's jobs pledge in the USA and renewable energy transition in Germany all demonstrate how policies, regulation and investment can drive investment into the green economy and create jobs.

The projections for job creation ensure that all jobs are in the formal economy and are framed by labour legislation and regulatory conditions.



48 million jobs in 12 countries over five years are direct jobs and have the potential through multiplier effects to create even more.



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Millennium Institute Methodology

Using an innovative, flexible and transparent methodology, the Millennium Institute has demonstrated the employment case for the green economy on a country and industry basis.

The 12 countries studied span four geographic regions – Europe, the Americas, Asia-Pacific and Africa. The analysis reflects lower, middle and higher-income economies.

Analysis and data collection are made within the context of the formal economy for all the countries. Only direct employment is included in the employment coefficients calculated for each of the industries analysed.

The Millennium Institute analysed green investment scenarios in seven industries including energy, construction, transport, manufacturing, agriculture, forestry and water. The investments simulated are a guide to measure job creation.

The number of jobs quantified that could be created or transformed into green and decent jobs under green investment scenarios were identified through quantitative simulations.

The integrated modeling evaluates job creation under green investment scenarios that takes into account economic and social data, as well as environmental time series data.

For each country modeled, the following scenario analysis was conducted:

A simulation of green investments (2 percent of GDP) in four key industries per country, with a 1 – 5 year scenario time frame. The industries selected for the investments vary between countries.

For each industry and country, the number of jobs have been estimated as the key indicators to analyse the impact of green economy policies and investments.



The Millennium Institute has demonstrated the employment case for the green economy on a country and industry basis.



Job creation with green investment of 2% GDP by country

Table One: Job creation per country over a 1-5 year timeframe (low to high range) and share of employment

	1 Year job creation low	% Share of employment	5 Year job creation low	%Share of employment	1 Year job creation high	% Share of employment	5 Year job creation high	% Share of employment
Australia	135,868	1.3	679,340	6.5	183,821	1.71	919,106	8.56
Brazil	1,591,732	1.8	7,958,660	9	2,153,520	2.4	10,767,600	12
Bulgaria	22,214	0.8	111,070	4	35,466	1.1	177,330	5.5
Dominican Republic	64,462	1.8	322,310	9	87,213	2.5	436,065	12.5
Germany	715,472	1.8	3,577,360	9	967,992	2.5	4,839,960	12.5
Ghana	25,067	0.3	125,335	1.5	33,914	0.4	169,570	2
Indonesia	938,984	0.92	4,694,920	4.6	1,270,390	1.2	6,351,950	6
Nepal	65,904	0.6	329,520	3	89,165	0.8	445,855	4
South Africa	222,173	1.6	1,110,865	8	300,586	2.2	1,502,930	11
Spain	263,920	1.3	1,319,600	6.5	357,068	1.8	1,785,340	9
Tunisia	45,411	1.4	227,055	7	61,438	1.9	307,190	9.5
USA	3,065,298	2.1	15,326,490	10.5	4,147,168	2.8	20,735,840	14
Total	7,156,505		35,782,525		9,687,741		48,438,736	

Key Findings

- The USA (15.3 million to 20.7 million jobs), Brazil (7.9 million to 10.7 million jobs), and Indonesia (4.6 million to 6.3 million jobs) lead the ranking for most job creation potential from green investments over five years.
- The highest share of employment for green and decent jobs is in the USA with 14% share of employment based on investment over five years followed by Germany and Dominican Republic with 12.5% and Brazil with 12%.

Job creation with green investment of 2% GDP by region

Impact of green investments amounting to 2% of GDP in 3 countries in Europe

In European countries, green investment analysis was carried out in energy, construction, transport and manufacturing. Energy investments are focused on renewable energy, while energy efficiency investments are considered in manufacturing and construction industries.

Energy is crucial to economic productivity, and Europe has leaders in renewable energy to learn from. Manufacturing is under considerable pressure, and increasing its productivity is high on the agenda of all higher-income economies. Construction is struggling after the boom and bust ahead of the financial crisis which began in 2008. The current stock of buildings has to be retrofitted, and employment needs to be brought back to the sector. Transport relies heavily on fossil fuels in many countries, and a transition to low-carbon public transport would increase efficiency and create employment in infrastructure construction such as railways.

Table Two 5 Year investment and job creation by country and industry

Country	5 Year Investment USD in millions	5 year job creation high	% Share of employment	Industry	Investment USD in millions
Germany	199,866	4,839,960	12.5	Energy, Construction,	59,960
				Transport, Manufacturing	59,960
					39,973
					39,973
Spain	71,336	1,785,340	9	Energy, Construction,	21,401
				Transport, Manufacturing	21,401
					14,267
					14,267
Bulgaria	1,916	177,330	5.5	Energy, Construction,	575
				Transport, Manufacturing	575
					383
					383

Impact of green investments amounting to 2% of GDP in 3 countries in the Americas

While modeling for the USA covers the same industrial sectors as Europe – energy, construction, transport and manufacturing – the modeling for Brazil and the Dominican Republic prioritises infrastructure and environment looking at investments in energy, transport, construction and agriculture. The 2014 World Cup and 2016 Olympics in Brazil provide opportunities for investments in construction transport and energy, while agriculture remains an important part of the economy.

Table Three 5 Year investment and job creation by country and industry

Country	5 Year Investment USD in millions	5 Year job creation high	% Share of employment	Industry	Investment USD in millions
Brazil	85,230	10,767,600	12	Energy, Transport,	25,569
				Construction, Agriculture	17,046
					17,046
					17,046
Dominican Republic	3,731	436,065	12.5	Energy, Transport,	1,492
				Construction, Agriculture	1,119
					932
					187
USA	1,135,706	20,735,840	14	Energy, Construction,	340,712
				Transport, Manufacturing	227,141
					227,141
					227,141

Impact of green investments amounting to 2% of GDP in 3 countries in Africa

Green investments in African countries focus on basic services including energy to promote energy access, water for improved sanitation, agriculture for economic development and transport for access to basic services such as health and education and productivity. Throughout many African countries, lack of infrastructure impedes economic development and growth.

Table Four 5 Year investment and job creation by country and industry

Country	5 Year Investment USD in millions	5 Year job creation high	% Share of employment	Industry	Investment USD in millions
South Africa	18,206	1,502,930	11	Energy, Construction, Transport, Water	5,462
					5,462
					3,641
					3,641
Ghana	818	169,570	2	Energy, Construction, Water, Agriculture	245
					164
					164
					245
Tunisia	2,926	307,190	9.5	Energy, Construction, Water, Agriculture	878
					585
					878
					585

Impact of green investments amounting to 2% of GDP in 3 countries in Asia Pacific

Industries selected for green investments in the Asia Pacific region focus on natural resources such as agriculture, forestry and water. Energy also plays a very important role in these countries, and transport is becoming more and more relevant for the trade of natural resources.

Table Five 5 Year investment and job creation by country and industry

Country	5 Year Investment USD in millions	5 Year job creation high	% Share of employment	Industry	Investment USD in millions
Indonesia	25,859	6,301,950	6	Energy, Construction, Transport, Forestry	10,343
					5,172
					7,758
					2,586
Nepal	770	445,825	4	Energy, Construction, Water, Agriculture	231
					154
					231
					154
Australia	54,810	919,106	8.56	Energy, Construction, Transport, Manufacturing	16,443
					16,443
					10,962
					10,962

Key Findings

- In Europe nearly seven million new jobs could be created in three countries over five years.
- Up to 32 million new jobs could be created in three countries in the Americas over five years.
- Nearly two million new jobs could be created in three countries in Africa over five years.
- In Asia-Pacific 1.6 million new jobs could be created in three countries over five years.

Job creation by economies

Table Six 5 year job creation by type of economy

Higher Income	5 Year Job Creation high	Middle Income	5 Year Job Creation high	Lower Income	5 Year Job Creation high
Australia	919,106	Brazil	10,767,600	Dominican Republic	436,065
Germany	4,839,960	Indonesia	6,351,950	Ghana	169,570
Spain	1,785,340	South Africa	1,502,930	Nepal	445,855
USA	20,735,840	Bulgaria	177,330	Tunisia	307,190
Total	28,280,245	Total	18,799,810	Total	1,358,680

Key Findings

- Higher income countries, including those affected by the European employment crisis could create up to 28 million jobs over five years.
- Middle income countries, including emerging market economies, could create over 18.7 million new jobs, in four countries over five years.
- Lower income economies could create 1.3 million new jobs over five years. This is due to the investment simulated being lower as the economies are smaller.

Job creation per million dollars of investment

Table Seven Country Rankings Job per million \$ investment

	Country Ranking	Jobs per Mn \$ invested
Nepal	1	580
Indonesia	2	245.6
Ghana	3	207.3
Brazil	4	126.3
Dominican Republic	5	116.9
Tunisia	6	105
Bulgaria	7	92.5
South Africa	8	82.6
Spain	9	25.0
Germany	10	24.2
USA	11	18.3
Australia	12	16.8

Key Findings

- Labour intensive economies can benefit from investment in the green economy with high levels of job creation.

Table Eight Breakdown of job creation per million \$ investment in industries for countries studied

Jobs/Mn \$	Energy	Construction	Transport	Manufacturing	Agriculture	Forestry	Water
Australia	4 - 6	15 - 21	26-35	7 - 9			
Brazil	9 - 12	134 - 182	185 - 250		42 - 56		
Bulgaria	10 - 13	78 - 106	153 - 207	56 - 76			
Dominican Republic	9 - 12	88 - 119	181 - 245		128 - 173		
Germany	5 - 6	23 - 31	40 - 54	8 - 11			
Ghana	31 - 42	332 - 449			215 - 291		65 - 88
Indonesia	12 - 17	160 - 217	478 - 646			13 - 18	
Nepal	12 - 17	739 - 999			1,173 - 1,588		142 - 192
South Africa	11 - 16	122 - 165	93 - 126				12 - 16
Spain	5 - 6	17 - 24	48 - 65	11 - 15			
Tunisia	31 - 42	145 - 197			115 - 156		8 - 11
USA	4 - 6	20 - 27	26 - 35	6 - 7			

Key Findings

- Job creation per million USD shows the true employment generation potential regardless of the investments simulated, providing a guide for countries not analysed in this study.
- A job creation benchmark for governments, business and the international community can be developed based on the economic analysis to guide investments to maximize green and decent job creation.

Job creation with green investments amounting to 2% of GDP by industry

Table Nine Job creation by industry over five years (high)

Job Creation (Top Range)	Energy	Construction	Transport	Manufacturing	Agriculture	Forestry	Water
Australia	94,035	343,395	342,931	102,610			
Brazil	311,900	3,098,690	6,398,820		958,910		
Bulgaria	7720	60,985	79,370	29,255			
Dominican Republic	182,200	111,310	274,230		32,325		
Germany	377,430	1,870,345	2,147,845	443,340		46,015	
Ghana	10,340	73,495			71,430		14,320
Indonesia	170,990	1,122,565	5,012,380			46,015	
Nepal	3810	153,645			244,080		44,280
South Africa	84,685	902,270	458,905				570,070
Spain	134,715	505,725	927,945	216,955			
Tunisia	36,990	172,560			91,365		6275
USA	1,948,475	9,090,160	7,999,325	1,697,880			
TOTAL	3,363,390	17,505,145	23,651,256	2,490,040	1,398,110	92,030	634,945

Key Findings

- Over 23 million jobs could be created in the transport industry if nine countries put money into transport investments.
- Over 17 million jobs could be created in the construction sector with investment from twelve countries, in part due to the high labour intensity of the industry.
- Nearly 2.5 million could be created in manufacturing from investment in five countries.

Case Studies, Green Jobs in the Construction and Energy Industries

Brazil

The Brazilian social housing programme 'My Home My Life' was launched in March 2009. It provides housing for low-income families, integrating solar water heating where appropriate. Poor households around the world spend a disproportionately high share of their income on energy. As of 2011, up to 500,000 houses are expected to be equipped. It is estimated that this will generate 30,000 green jobs over the next four years not including the employment created through the construction work itself.

Source ILO Office Brazil

Germany

Germany's large scale Building Rehabilitation Program is part of the government's Energy Concept 2050, which includes the goal of achieving a "climate neutral" building stock by 2050. Established in 2001, in response to an economic crisis in the building sector, the programme provides favourable loans for the retrofitting of buildings to improve energy efficiency. Data shows that every Euro of public funds invested 'crowds in' four Euros of private investment. One billion invested in building stock safeguards or creates around 25,000 jobs.

Source: German Federal Ministry of Transport, Building and Urban Development 2010

South Africa

South Africa's New Economic Growth Plan was released by Minister Ebrahim Patel in 2010. It is an ambitious programme to create five million jobs in the next ten years, through a series of partnerships between the state and the private sector working across the green economy, in agriculture, mining and manufacturing sectors.

Expansion in construction and the production of technologies for solar, wind and biofuels is supported by the draft plan for electricity, which proposes that green energy sources contribute 30% of new energy generation in the next 20 years. Clean manufacturing and environmental services are projected to create 300 000 jobs over the next decade.

Source: South African Government Information November 2010

Conclusions

Investing in the green economy should be an economic priority for all governments and business leaders.

Using this new benchmark data, governments and the international community can identify targets on green and decent jobs to be reached in the next 5-10 years.

Creating the green economy is a transformation which our economies must go through. Some countries have embraced investment in new technologies and sustainable production processes. Too many have not.

All countries need to generate investments of 2% GDP each year to green their economies. The economic analysis shows that we can be optimistic about job creation. However, transformation will mean economic and employment adjustments.

All governments must commit to a 'Just Transition', which requires accompanying workers and communities on the pathway towards a more prosperous and sustainable society.

A Just Transition strategy

Investments in alternative, green jobs as well as on 'greening' all jobs;

Undertake research on the employment and income impacts of environmental policies;

Develop training, re-training and skills development policies for workers to match the needs of a greener economy;

Support active labour market policies, ensure workers' rights are respected and broaden social protection schemes;

Develop social dialogue and consultation on the transition towards sustainability between workers; governments and employers;

Support local economic diversification programs.

The Just Transition is acknowledged by the United Nations climate framework the UNFCCC.

The Green Economy Principles

Delivers equity between and within countries.

Ensures inclusion and participation of youth, women, poor and low-skilled workers.

Transforms traditional jobs and creates new green and decent jobs.

Respects the rights of workers and trade unions.

Fulfils social objectives and satisfaction of human needs in the long term, including universal access to water, food, housing, energy, land, health, education, transport and culture.

Promotes the efficient use of natural resources, prioritises renewable sources, internalises social and environmental costs, life-cycle analysis and aims at being zero carbon and zero waste.

Promotes productivity of materials rather than on cutting labour costs.


Ensures a Just Transition for workers and communities that might be affected by change, including with social protection schemes and developing social dialogue on green economy policies.


Is based on the real economy and reduces speculation.


Promotes democracy.

Green and Decent Jobs – Worldwide Snapshot


Africa

 South Africa Jobs per million \$ invested 82.6					
New Jobs	Energy	Construction	Transport	Water	
1,502,930	84,685	902,270	458,905	57070	


 Ghana Jobs per million \$ invested 207.3					
New Jobs	Energy	Construction	Agriculture	Water	
169,570	10,340	73,485	71,430	14,320	

 Tunisia Jobs per million \$ invested 105					
New Jobs	Energy	Construction	Agriculture	Water	
307,190	36,990	172,560	91,365	6275	


Americas


 Dominican Republic Jobs per million \$ invested 116.9					
New Jobs	Energy	Construction	Transport	Agriculture	
436,065	18,200	111,310	274,230	32,325	


 Brazil Jobs per million \$ invested 136.3					
New Jobs	Energy	Construction	Transport	Agriculture	
10,767,600	311,900	3,098,690	6,398,820	958,190	

 USA Jobs per million \$ invested 18.3					
New Jobs	Energy	Construction	Transport	Manufacturing	
20,735,840	1,948,475	9,090,160	7,999,325	1,697,880	


Asia-Pacific


 Nepal Jobs per million \$ invested 580				
New Jobs	Energy	Construction	Agriculture	Water
445,825	3810	153,645	244,080	44,280


 Indonesia Jobs per million \$ invested 245.6				
New Jobs	Energy	Construction	Transport	Forestry
6,351,950	170,975	1,122,565	5,012,380	46,015

 Australia Jobs per million \$ invested 16.8				
New Jobs	Energy	Construction	Transport	Manufacturing
919,106	94,035	343,395	342,931	102,610

Europe

 Germany Jobs per million \$ invested 24.2				
New Jobs	Energy	Construction	Transport	Manufacturing
4,839,960	377,430	1,870,345	2,147,845	444,340

 Bulgaria Jobs per million \$ invested 92.5				
New Jobs	Energy	Construction	Transport	Manufacturing
177,330	7720	60,985	79,370	29,255

 Spain Jobs per million \$ invested 25				
New Jobs	Energy	Construction	Transport	Manufacturing
1,785,340	134,715	505,725	927,945	216,955

*New jobs created over five years based on high results, with 2% investment of GDP

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