

High military spending: making a case for the alternatives

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SGR's focus

- Science and technology is central to modern military
- Only area of science/ technology where the intention of the product can be to kill
- Other professional science/ engineering organisations shy away from this major ethical issue

We will discuss...

- Global military spending and top spenders
 - Case study 1: the UK
- Consequences and concerns
 - Case study 2: Libya
- Alternative options
 - Case study 3: Costa Rica
 - Case study 1 revisited
- Action/ Campaigning

Global military spending

- 2010 total: **\$1,630,000,000,000**
- 50% increase since 2001
- *2011 update being published....*

Country	Military spending in 2010 (billion US\$)	% of global total	Increase since 2001
1. USA	698	42.8%	81%
2. China	119	7.3%	189%
3. UK	60	3.7%	22%
4. France	59	3.6%	3%
5. Russia	59	3.6%	82%

Stockholm International Peace Research Institute (2011)

Key points

- US remains dominant with massive spending increases since 9/11 attacks
- China and Russia have used their growing economies to try to close the gap
- UK and France have had more modest increases but are now falling back
- Regional arms races are developing – especially in Asia – as effects of US spending increase ripples out

2011 figures – released on the day of this presentation – show that:

- global military spending rose with inflation, i.e. in real terms, it roughly levelled off
- Russian spending overtook UK and France

Reference: SIPRI (2012)

Case study 1: the UK

UK is major military power

- UK military spending is in top 5 in world
- UK is one of 5 'official' nuclear weapons states
- UK forces active in recent major conflicts
 - e.g. Afghanistan, Iraq, Libya
- Large arms industry
 - Including world's 2nd largest arms company
- UK is 5th largest arms exporter

- UK military budget was £38.6 bn (\$59.6 bn) in 2010 – world's 3rd largest behind USA and China
- UK military spending per person: more than 2 times that of Russia; more than 10 times that of China
- UK spending per person/ per unit GDP is much larger than EU average
- UK is 5th largest arms exporter behind USA, Russia, Germany and France

Main reference: Stockholm International Peace Research Institute (2011)

Approach to national security

- Government military/ defence strategy based on:
 - High technology, especially 'networked' technologies
 - Prominent role for military force/ weapons
- Major role of arms industry
- Involvement of scientists/ engineers essential
 - Large budgets for Research and Development

Current strategy in USA, UK and elsewhere is based on concept known as Revolution in Military Affairs (RMA)

Top UK arms companies

UK ranking	Company	Global military sales (2010)	Global ranking	% military sales
1.	BAE Systems	\$33.1 bn	2	96%
2.	Rolls-Royce	\$4.5 bn	18	27%
3.	Babcock International Group	\$2.1 bn	41	71%
4.	Cobham	\$2.0 bn	42	68%
5.	QinetiQ Group	\$1.9bn	43	73%

Source: Defense News (2011)

- **BAE Systems**
 - military aircraft, warships and submarines; guided weapons; radar; space systems; surveillance equipment...
- **Rolls-Royce**
 - engines for military ships/ aircraft

Large arms companies – like all large companies – are international in their structure, so:

- UK-based companies have many factories and offices (and therefore employment) overseas, e.g. BAE Systems now employs more people in the USA than in the UK
- Foreign-based companies have a significant presence in the UK – e.g. Lockheed Martin and General Dynamics – to enable them to sell equipment more easily to the UK military

Criticisms of UK arms companies

- Often monopoly suppliers
 - Major policy and financial influence
- Large public subsidies
 - e.g. exports underwriting, R&D funding
- Exports to oppressive regimes
 - Recent recipients include Algeria, Bahrain, Libya, Saudi Arabia, Tunisia, Yemen
- UK nuclear weapons system
 - Top companies (BAE Systems, Rolls-Royce, Babcock) all have key role

- Subsidies: estimates of £9,000+ per arms export job: CAAT (2009)
- Arms exports: Committees on Arms Export Controls (2011)
- UK nuclear weapons roles (more info from company websites)
 - BAE Systems designs and builds nuclear submarines which carry UK nuclear weapons
 - Rolls-Royce designs and builds the nuclear power plant which propels these nuclear submarines
 - Babcock runs Devonport dockyards which refuels these nuclear submarines

Strategic Defence and Security Review 2010

- UK military spending will fall by 8% between 2010 and 2014
- Existing, huge procurement overspend will lead to further equipment cuts
- Greater 'security co-operation' with allies, especially USA, France

Reference: Cameron (2010); Ministry of Defence (2010)

Military equipment – major cuts

Equipment	2005 level	2010 level	2020 level
Aircraft carriers	3	2	1 (+ 1 in reserve?)
Destroyers and frigates	28	23	19
Submarines - conventionally armed	11	7	7
Battle tanks	~360	~330	~200
Heavy artillery	~140	~120	~80
Fast jets (fighters)	~250	~200	??
Maritime reconnaissance aircraft - Nimrod	14	0	0
Air support - VC10/ TriStar/ A330	24	18	Up to 14

Sources: MoD (2010); DASA (2010)

- Scale of changes 2005-2020 comparable with those at end of Cold War
- Aircraft carriers: 2 'super' carriers to be built (Queen Elizabeth class) – one to be held in reserve or sold off; helicopters only (no fast jets capability) from 2011 to 2020; carry Joint Strike Fighters from ~2020
- Destroyers: 6 x Type-45 replacing Type-42 by 2020
- Frigates: reduce to 13 x Type-23 by 2020 (phaseout of Type-22)
- Submarines (conventional): 7 x Astute class to replace Trafalgar & Swiftsure by 2020
- Submarines (nuclear) – currently planned to remain at 4, but number of warheads reduced (see next slide)
- Battle tanks: Challenger 1 & 2
- Heavy artillery: AS90 armoured artillery vehicles
- Fast jets: Harriers retired in 2011; Tornados phased out; by 2020 – only Typhoon and Joint Strike Fighter
- Nimrod: existing Nimrods grounded due to safety concerns; new Nimrods cancelled
- Air support: phased replacement of VC-10 and TriStars with A330 (adapted Airbus)
- Commensurate reductions in other smaller equipment holdings

References: Ministry of Defence (2010); Defence Analytical Services and Advice (2010)

Nuclear weapons

- Cut in UK warhead numbers, but still plans to replace current Trident system
 - total lifetime cost of about £100 billion
- Ethical concerns
 - Weapons of Mass Destruction
 - 1 UK warhead is 7x power of Hiroshima bomb
 - Threat or use is generally 'unlawful'
 - International treaty requires strategy for complete disarmament
 - Lack of progress undermines efforts to prevent proliferation

- UK nuclear arsenal is being reduced to 180 warheads (Ministry of Defence, 2010): still equivalent to over 1000 Hiroshimas
- Estimate of total cost of Trident replacement system (Greenpeace UK, 2009)
- In 1996, International Court of Justice gave an 'advisory opinion' stating that the threat or use of nuclear weapons would generally be against the principles of international humanitarian law.
- Commitment to developing a strategy for complete disarmament first stated in Nuclear Non-Proliferation Treaty (NPT) agreed in 1968, and restated in review conferences since.

Reference (except where stated): WMD Awareness Project (2010)

Robotic aircraft ('drones')

- UK is rapidly expanding deployment of armed drones
- Ethical issues
 - Expansion of 'battlespace'
 - 'Illegal' CIA use in civilian areas (e.g. Pakistan)
 - Pilots not in combat zone so temptation to deploy more frequently
 - High risk of civilian casualties
 - Global development and use increasing fast
 - Industry is developing the potential for them to act autonomously



UK situation

- Drones initially deployed for reconnaissance, but from 2007 the UK began deploying (US-made) armed 'Predator' drones in Afghanistan. By the end of 2011, the RAF had carried out over 200 drone strikes.
- UK collaboration with Israeli military and arms industry to deploy and develop drones
- BAE Systems developing two armed drones: Mantis and Taranis
- 10 UK universities involved in R&D on drones (FLAVIIR programme)

Ethical issues

- Shifting of risk from 'our' soldiers to others: Increased risk of civilian casualties
- Serious arms proliferation risk – small drones, especially, are also a potential terrorist weapon

Main references: Drone Wars UK (2012); Langley et al (2008)

Photo: BAE Mantis

Implication

- UK military is shrinking in size and overall capability, but:
 - it is still large
 - many weapons capabilities are being expanded through technological development

What are the threats to the UK?

- National Security Strategy:
“we do not currently face... a conventional threat of attack on our territory by a hostile power”
- Current ‘Tier 1’ threats:
 - a. International terrorism
 - b. Cyber-attacks
 - c. Major accident or natural hazard
 - d. International military crisis “drawing in the UK”

- ‘a-c’ are not conventional military threats, while ‘d’ is effectively a ‘war of choice’

Reference: HM Government (2010)

Why such large military spending?

- Government belief in UK 'policing' role as part of military alliances (esp. NATO)
 - Despite failures of 9/11 wars and high civilian casualties
- But what about the military-industrial complex?
 - President Eisenhower (1961):
"we must guard against the acquisition of unwarranted influence... by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist."

Ministry of Defence (2010); Eisenhower (1961)

High military spending: concerns and consequences

Two main concerns

1. Fuels the cycle of violence
2. Out-competes civilian spending

1. Fuelling the cycle of violence

- Reinforces government's willingness to use military force rather than alternatives
- Arms exports fuel international arms races and increase risk of war
- Arms exports strengthen oppressive regimes and lead to human rights abuses
- Civilian casualties are high
 - e.g. Iraq war: 80% of casualties are civilian

- For examples, see slide 6 and Libyan case study later: including the UK example where 50 arms export licenses for Bahrain and Libya were revoked in February 2011 (BBC News online, 2011)
- Estimate of civilian casualties calculated from: Iraq Body Count (2010)
- Related concern of a shift from 'threat-driven' defence to 'capability-based' defence, as military corporations increasingly influence agenda for defence policy based on what technologies can be developed rather a broader assessment of security threats

2. Out-competes civilian spending

- Global comparison (2010)

Global military spending	\$1,630 bn
Total spending required to meet eight Millennium Development Goals	\$330 bn
- Eradicate extreme hunger and poverty (no. 1)	\$100 bn
- Combat HIV/AIDS, malaria and other diseases (6)	\$15 bn
- Ensure environmental sustainability (7)	\$155 bn

- Reducing military spending, e.g.
 - 20% cut in US military budget: \$140 bn
 - 20% cut in Chinese military budget: \$25 bn

- 8 UN MDGs agreed in 2000: target year is 2015
- Cost estimates for meeting MDGs are based on calculations by UN and World Bank
- Ample scope for cutting military budgets to fund meeting these targets
- Sources: GDAMS (2011); Stockholm International Peace Research Institute (2011)

Case study 2: Libya

Libyan oil

- Proven crude oil reserves: 46 billion barrels
 - 8th largest in world
- Oil exports earnings in 2009: \$31 bn
 - 95% of total export earnings
 - 75% exported to Europe
 - Some oil exploration contracts with UK companies
- Rated one of world's most corrupt countries

Figures from: OPEC (2010)

Libya was ranked 168 out of 183 in international corruption index: Transparency International (2011)

Libyan human rights

- Amnesty International's 2010 assessment:
 - Political freedoms 'severely curtailed'
 - Internal Security Agency continues to operate 'with impunity'
 - Hundreds of past disappearances remain unresolved
 - Death penalty in use
 - But some progress on reform

Amnesty International (2011).

Arms exports to Libya

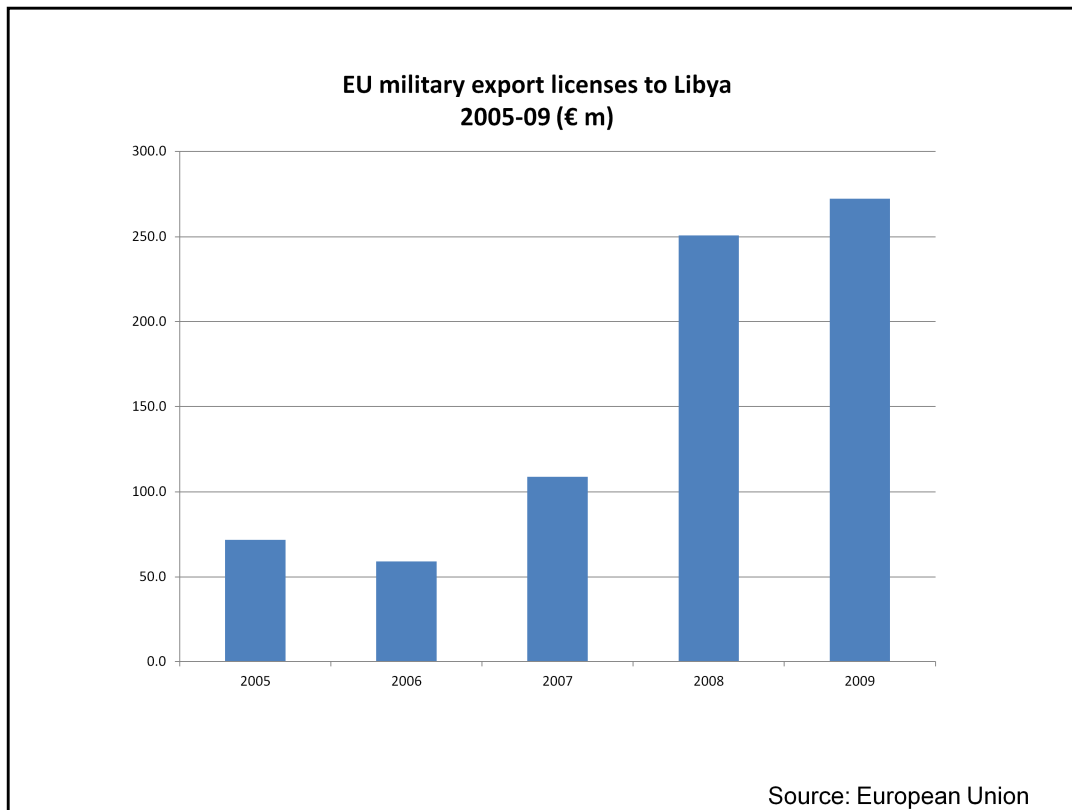
- EU military exports to Libya
 - Licenses granted for €763m from 2005-09
 - Included €278m for military aircraft
- UK military exports to Libya
 - Licenses granted for €119m from 2005-09
 - Exports included armoured vehicles, tear gas and missiles
 - UK-made weapons used by all 3 sides in Libyan war
 - Gaddafi: armoured vehicles; MBDA Milan missiles
 - Rebels: MBDA Milan Missiles
 - UK/ NATO: multiple (including MBDA missiles)

- MBDA is joint venture between BAE Systems, EADS, and Finmeccanica

Sources:

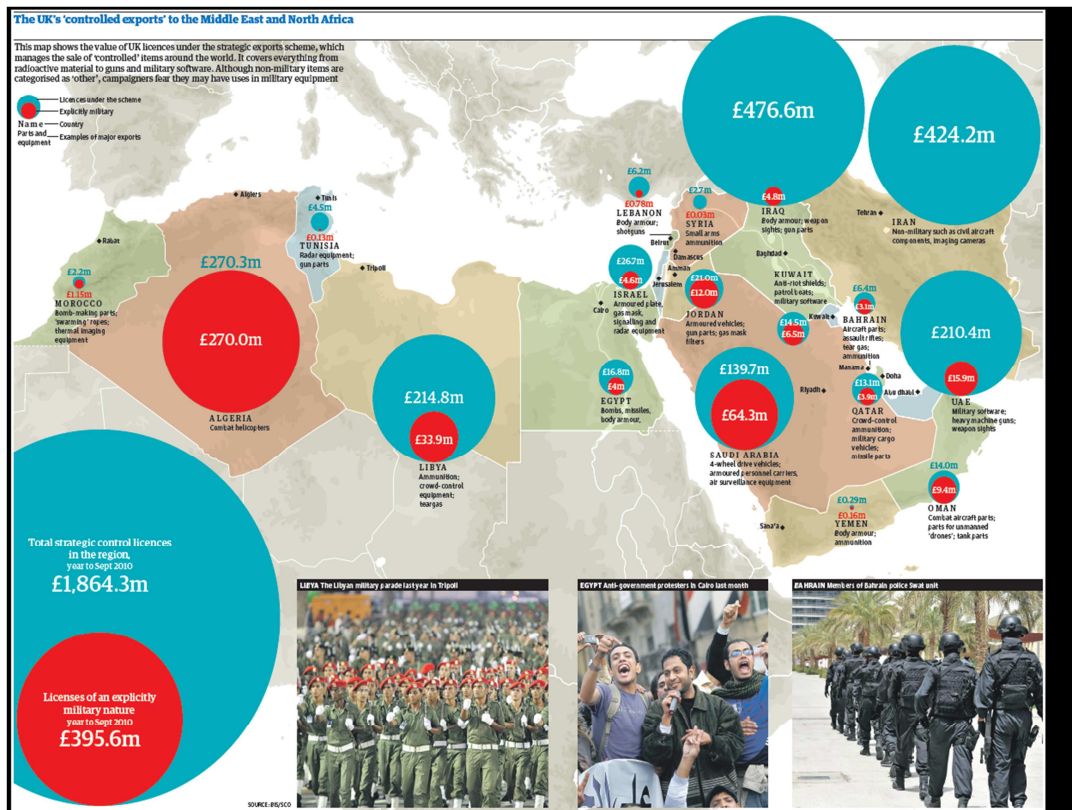
UK arms exports (descriptions): The Guardian (2011a); Feinstein (2011)

Financial figures from the Official Journal of the European Union summarised in The Guardian (2011c)



EU arms embargo to Libya ended in October 2004.

Source: Figures from the Official Journal of the European Union summarised in The Guardian (2011c)



UK military and 'controlled' export licenses granted in the year to Sept 2010. Data from the Department of Business, Innovation and Skills. Summarised and presented in The Guardian (2011b).

The Libyan war: a success?

- Gaddafi regime overthrown by military alliance between Libyan rebels and NATO
 - *“one of the most successful in NATO history”*
- But:
 - Casualty estimates: 30,000 dead; 50,000 injured
 - Nation’s infrastructure devastated
 - 1,000s of Gaddafi’s missiles unaccounted for
 - NATO allies spent billions
 - Dozens of private militias still operating
 - Poor human rights situation persists
 - Attention diverted from East African famine

References and further details:

- NATO quote: Daily Telegraph (2011)
- Casualty figures from Libyan Health Ministry: Associated Press (2011)
- New risk of proliferation of arms through unprotected stockpiles. For example, Gaddafi bought 20,000 surface to air missiles – easy to smuggle, easy to use – only 5,000 have been found after the collapse of the regime. Any one missile could destroy a civil airliner. Rumours that Al Qaeda have tried to acquire them. Shapiro (2012)
- Estimate of costs for UK role in NATO action is ~£1bn (The Guardian, 2011d); including costs borne by NATO allies will multiply this figure
- Example of Libya’s post-conflict situation: Boston Globe (2012)

A cycle of violence...

- Large reserves of valuable natural resources...
 - ...sold to fund imports of major military hardware from industrialised nations...
 - ...allowing powerful oppressive regimes to remain in power...
 - ...becoming a wider threat...
 - ...with military action then being used to tackle this threat, with huge casualties...
- We need to break this cycle

Alternative security approaches

Non-Offensive/ Defensive Defence

- Focus military forces on narrowly-defined defence
- Cut the 'offensive' arsenal, especially:
 - Nuclear weapons
 - Long-range bombers, missiles etc
 - Long-range military ships and submarines
- Minimise arms exports
- Shrink the military industry
- Peace-keeping activities retained

- Under a 'Non-offensive' or 'Defensive' defence policy, the armed forces retain the capability to defend national territory (and contribute to peacekeeping), but not to invade or mount a major attack
- The case for Non-offensive defence (although known under a variety of titles) has been made since at least 1982.

Reference: Civilisation 3000 (2010)

Sustainable Security

- More substantial shift
- Focus on tackling the root causes of major security threats:
 - Competition over resources
 - Global militarisation
 - Marginalisation of the majority world
 - Climate change

- Proposed by Oxford Research Group
- Competition over resources: armed conflict over especially oil and other natural resources; key solution: energy conservation & renewable energy
- Global militarisation: as discussed in this talk
- Marginalisation of majority world: poverty and global inequality leading to resentment and conflict, especially as low-income people see wealthy lifestyle of others via internet; key solution: reform of global economic system
- Climate change: reduces availability of water, food, land which can lead to conflict; key solution: reducing greenhouse gas emissions (including efficient, renewable energy)

Reference: Abbott et al (2006)

Disarmament for Development

- Increase international aid budgets through industrialised countries diverting funding from their military budgets
- Increase education, health and environmental budgets in developing countries through national decrease in military budgets

Promoted by International Peace Bureau, <http://ipb.org/>

National examples

- Some industrialised countries have defence policies similar to Defensive Defensive
 - e.g. Japan, New Zealand, Switzerland
- Either stated in constitution or national policy
- Military spending approx. 1% GDP
- However, US influence is eroding such policies

Civilisation 3000 (2009)

Case study 3: Costa Rica

Costa Rica at peace

- No military
 - Abolished in 1948 after brief civil war
 - Incorporated into constitution in 1949
- Post-WWII, other Central American countries suffered from military dictatorships and civil wars
- Costa Rican president drew up peace plan
 - involved 5 countries; signed in 1987
 - ended all wars in the region

Nobel Prize (1987).

Costa Rica: social/env leader

- High public spending on education and health
- Ranks high on international measures of human development
- Ranks high on international measures of environmental sustainability
 - Over 90% of energy from renewable sources
 - Comprehensive system of national parks

Ranks high on:

- World Bank's Human Development Index
- New Economics Foundation's Happy Planet Index (no. 1)
- Yale University's (and others) Environmental Performance Index

Source: Wikipedia (2012) and references therein

Case study 1 (the UK) revisited

Some UK policies are changing...

- Strategic Defence and Security Review
 - Largest cuts to military since end of Cold War
- National Security Strategy
 - Acknowledgement that security problems need a broader approach
 - Drivers of insecurity, e.g. climate change
 - Threats from environmental problems, disease, accidents
- International aid budget protected from cuts despite heavy opposition
- ...and public support for military action falling?

See details of SDSR and NSS earlier

Ministry of Defence (2010); HM Government (2010)

Rise of 'green collar' sector

- Low carbon and environmental goods and services (LCEGS) sector:
 - a. Environmental
 - b. Renewable energy
 - c. Emerging low carbon
- Activities:
 - Maintain clean water, air and land
 - Tackle climate change
 - Improve energy security
 - Protect ecology

➤ Human society needs healthy environment

- *Environmental sector* - including environmental consultancy, air pollution control, environmental monitoring, marine pollution control, waste management, recovery and recycling; as well as the service industries that support environmental management.
- *Renewable energy sector* - including wind, wave and tidal, biomass, geothermal, hydro and photovoltaic energy generation and the services that support them, including renewables consultancy.
- *Emerging low carbon sector* - including alternative fuels such as nuclear, and alternative fuels for vehicles, carbon capture and storage, building technologies, energy management and carbon finance (includes some controversial areas, especially nuclear power).
- Many security benefits of tackling action to curb climate change and protect environment

'Green collar' security benefits

- Specific security benefits:
 - Reduced oil and gas imports from oppressive regimes
 - Increased energy security
 - Reduced support for governments which threaten security of own people and other countries
 - Reduced fossil fuel use
 - Reduced contribution to climate change
 - Reduced vulnerability to 'peak oil' shocks

But nuclear power – promoted by the government – raises security problems of its own...

But what about jobs?

Employment: military industrial v green collar

Military industrial	UK employees: 2007/8 (including supply chain)
Ministry of Defence equipment spending	150,000
Arms exports	65,000
Total	215,000

Source: MoD (2009)

Green collar	UK employees: 2007/8 (including supply chain)
Environmental	192,000
Renewable energy	257,000
Emerging low carbon	432,000
Total	881,000

Source: Innovas (2009)

Military industrial sector

- Only approx. 0.7% of total UK employment; 7% of manufacturing sector
- Sector is contracting
- Most jobs in regions of high employment (e.g. South East England)

Data from: Defence Analytical Services and Advice (2009), Table 1.10; Office of National Statistics (2009)

Green collar sector

- Sector is expanding
- Figures are estimated by a government commissioned study. As the sector is new and not well-defined, estimates are less certain. Some argue that these estimates are too high – although the sector is still much higher than military industrial.
- UK LCEGS sector is estimated to be worth over £100 billion
- Global market for LCEGS estimated at over £3,000,000,000,000 and growing fast

Reference: Innovas (2009)

Comparison of job creation potential

Overall Employment Effects of Spending \$1 Billion for Alternative Spending Targets in U.S. Economy, 2009

Sector	Number of jobs created	Number of jobs relative to defence/ military spending
Defence/ Military	11,200	-
Clean energy	16,800	+50%
Health care	17,200	+54%
Education	26,700	+138%

Source: University of Massachusetts (2011)

Military industry

- Capital-intensive, i.e. low job creation for investment; highly specialised jobs

Civilian sectors

- Generally more labour-intensive, including many 'green' sectors
- 'Clean energy' includes energy efficiency (e.g. building insulation) and renewable energy

Reference: Pollin and Garrett-Peltier (2011)

Historical shifts from military to civilian industry in UK

- Post-conflict demobilisation
 - e.g. After World Wars
- Closure of (US) military bases
- As Cold War drew to a close
 - 215,000 jobs in military industrial sector lost in 10y from 1985/86
- Broader shifts in economy successful
- Similar shift is in progress
- Could be much larger
 - with decommissioning (e.g. Trident) providing some jobs during the transition period

- Jobs in military/defence sector fell from 625,000 in 1985/86 to 410,000 in 1995/96
- Employment figures include MoD non-equipment spending

Employment figures from: Defence Analytical Services and Advice (1998)

"The defense market worldwide is worth a trillion dollars annually. The energy and environmental market is worth at least eight times this amount. The former is set to contract as governments address the economic realities of the coming decade; the latter is set to expand exponentially, especially in the renewables arena."

Jane's Defense & Security Intelligence & Analysis (2011)

Jane's (2011)

Supporting a peaceful transition

Key obstacles

- NATO spending and policies
 - US huge spending
 - Nuclear doctrine and emphasis on military security
 - Members' target: 2% GDP on military
- China, Russia, India using recent economic growth to rapidly increase military spending
- Unsustainable/ unjust economic system

Signs of hope

- Disarmament treaties
 - Nuclear weapons
 - NWFZs; New START; proposed nuclear abolition treaty
 - Conventional weapons treaties
 - e.g. landmines; cluster bombs; negotiations on arms trade
- ‘Costa Rica Consensus’
 - Proposal for international development aid to be tied to low military spending
- Massive growth of green economy

- Nuclear weapons: 7 NWFZs (Nuclear Weapons-Free Zones) include approx 60% of nations; New START – 2010 nuclear weapons treaty between USA and Russia to further reduce arsenals (Nuclear Threat Initiative, 2012)
- Costa Rica Consensus (Arias, 2012)

Campaigning



- Public
 - Global Day of Action on Military Spending (GDAMS)
 - Supported by CND, CAAT, SGR...
 - Join/ support campaign groups on nuclear weapons, arms exports, armed drones etc
 - Support expansion of 'green' sectors
- Arms industry workers
 - Work with union representatives to raise ethical issues with management
 - Look for civilian alternatives in-/outside company

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