

# **The Climate of IP; and the IP of Climate: an overview of the policy issues**

Technology transfer, the IP system and climate  
change: challenges and options:  
Side Event, UNCCC COP 14  
Poznan, December 2008

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WORLD  
INTELLECTUAL  
PROPERTY  
ORGANIZATION

# WIPO MAGAZINE

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Special Edition  
World Intellectual Property Day



4



## PATENT POOLS

Sharing Technology

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## CLIMATE CHANGE

The Challenge

*DRAFT 5.0 14.XI.08*

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**WORLD INTELLECTUAL PROPERTY ORGANIZATION**

GENEVA

**CLIMATE CHANGE AND THE INTELLECTUAL PROPERTY SYSTEM:  
WHAT CHALLENGES, WHAT OPTIONS, WHAT SOLUTIONS?**

**AN OUTLINE OF THE ISSUES:**

*INFORMAL CONSULTATION DRAFT ONLY*

# The climate of IP, and the IP of climate

- Climate change and IP - what is the debate all about?
- Who is involved?
- What aspects of IP?
- What information is available;  
how can it be used by policymakers?
- Will a global deal on climate change,  
post-Kyoto, have to address IP?
  - If so, how? What are the options?

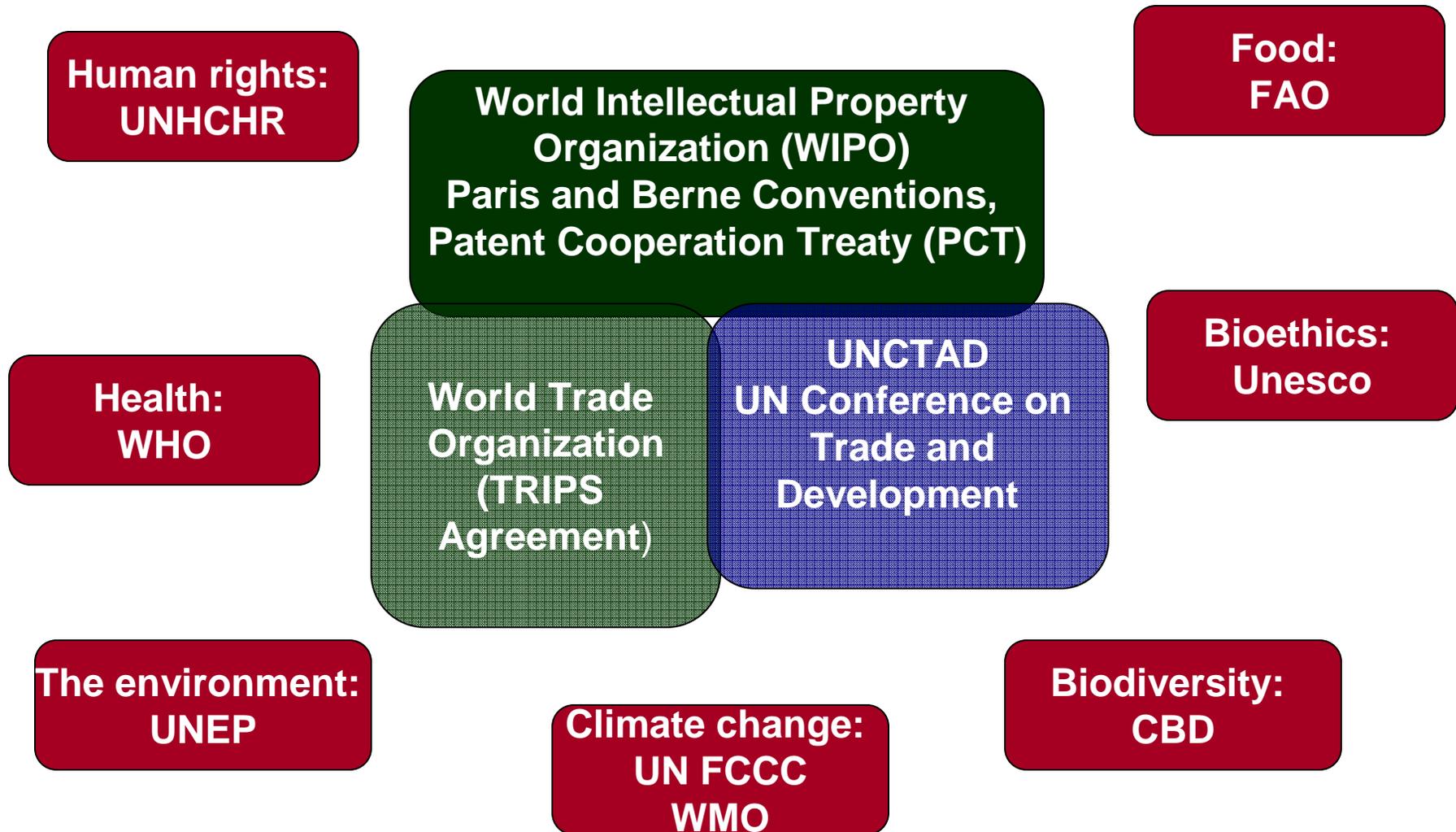
# The climate of IP

- From ‘talking about the weather’ of IP ...
- ... to a climatology of IP

IP law & policy engaging with:

- Public policy issues, bioethics, development
- Public international law - human rights, multilateral environmental agreements, biodiversity
- Competition policy
- Empirical analysis of the economics of innovation and the utilitarian rationale for IP

# International institutions and IP



# IP in the public policy debate

- upon Misinformacions and untrue pretences of publique good, many such Graunts[Monapyles] have bene undulie obteyned and unlawfullie putt in execucion, to the greate Greevance and Inconvenience of your Majesties Subjects, contrary to the Lawes of this your Realme, and contrary to your Majesties royall and blessed Intencion soe published as aforesaid: For avoyding whereof and preventing of the like in tyme to come.

- Upon misinformations and untrue pretences of public good
- many ... grants have been unduly obtained and unlawfully put in execution,
- to the great grievance and inconvenience of your majesty's subjects, contrary to the laws of this your realm,
- and contrary to your majesty's royal and blessed intention:
- 'for avoiding whereof and preventing of the like in time to come



## **Statute of Monopolies 1623**

### **1623 c.3 21\_Ja\_1**

**An instrument of competition policy which is at once the statutory origin of Anglo-American patent law and a codification of illegitimate monopolies**

**Remains the legal fulcrum of patent law in several countries today, establishing the concept of a legitimate “invention” in the common law tradition**

Ministère

de l'Intérieur

2<sup>e</sup> Division

Bureau des brevets

Manufacture

N<sup>o</sup> 394



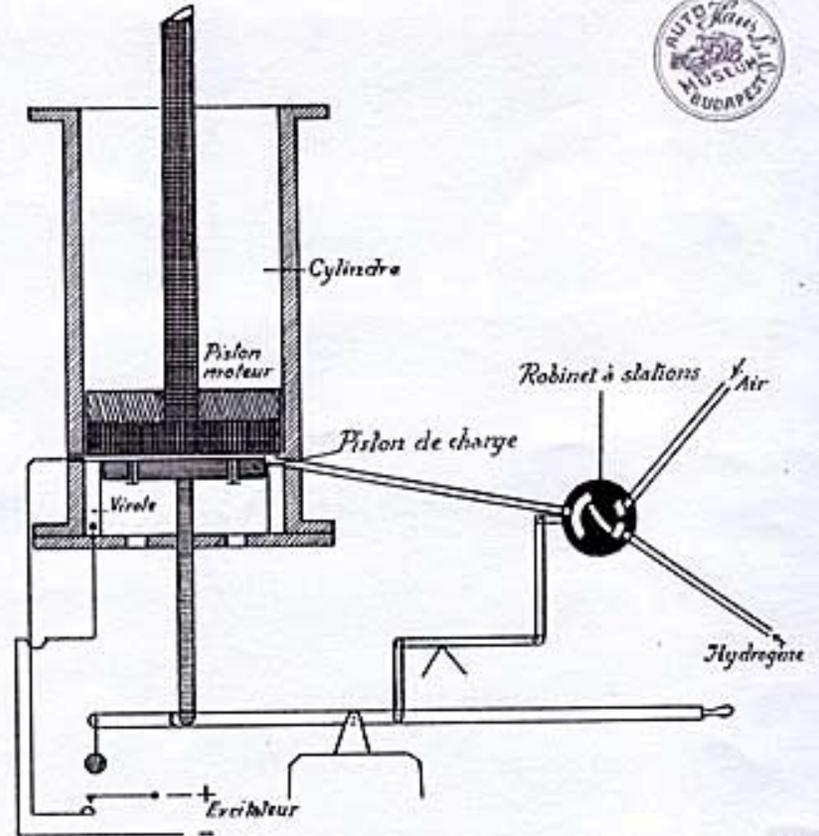
# Brevet d'Invention

établi par la Loi du 7 Janvier 1791.

Certificat de demande d'un Brevet, pour  
15 Années, délivré, en vertu de l'Article des Conventions  
de 5 Vendémiaire an 9, au Sr. Claude D. Remy,  
Amisable à elle, République des Français.

Le Ministre de l'Intérieur,

Vu le pétition présentée par le Sr. Claude D. Remy,  
dép. à elle, République des Français, par laquelle il expose qu'il a inventé  
de faire des piles à vapeur par le feu ou l'eau de décomposition tant  
pour l'éclairage, et pour l'usage de l'industrie, que le feu de qu'il a inventé  
pour l'usage de l'industrie par le moyen d'un tel et de la distillation,  
de gaz inflammable, à l'effet d'y joindre le mouvement à vapeur, et  
comme dans il a obtenu des brevets, ainsi qu'il résulte des Extraits



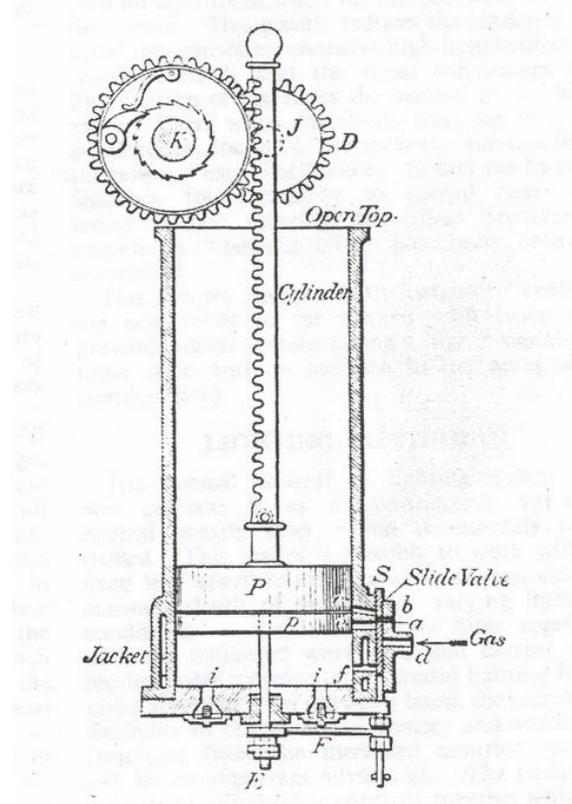
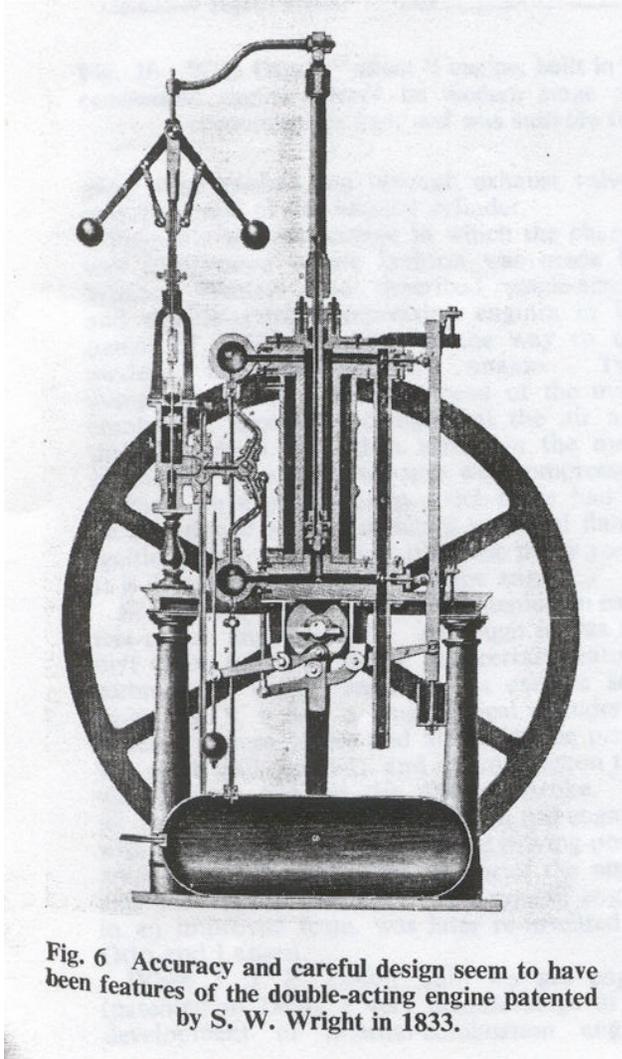


Fig. 8 E. Barsanti and F. Matteucci are said to have built the first free-piston engine in 1857. The piston was free on its upward stroke.

# Patents, technology and the climate...

- Technology the essential source of anthropogenic climate change
  - But technology is equally part of the solution
  - The lesson: it's not (just) what you've got, it's how you use it
- The patent system intrinsically associated with the generation, dissemination and publication of new technologies
  - How best to deploy it in structuring technological responses for mitigation and adaptation?

# The IP of Climate

- **Two themes:**
  - **Back to basics:**
    - unearthing and reviewing the essential principles of IP law and policy
      - What is the system for?
      - How to make it work to achieve those goals?
  - **Better information:**
    - Who is patenting what, where?
    - What does it suggest for technology diffusion?
    - What broader information needs does the climate policy community define?

# by the way, IP ≠ patents

Climate change mitigation and adaptation initiatives will make use of a wide range of intellectual property tools:

- protection of undisclosed information or trade secrets
- certification and collective marks, geographical indications and other distinctive signs;
- undisclosed information and regulatory data;
- protection of traditional knowledge through conventional or sui generis mechanisms;
- plant variety protection/farmers rights (adaptation)
- suppression of unfair competition, including such acts as greenwashing and misleading claims about carbon offsets.

working with  
the Carbon Trust



UK trademark 2449540, registered by The Carbon Label Company Limited in respect of “certifying as to energy consumption, energy savings, energy efficiency, carbon emissions and reduction of carbon emissions”

working with  
the Carbon Trust



Certification mark 2488986, recently applied for by the Carbon Label Company Limited in the United Kingdom, for possible use in certifying the carbon footprint of a wide range of goods and services, potentially ranging from industrial chemicals to sporting services. The certifier stipulates that “to qualify for a label, products will have to go through [a] rigorous, agreed methodology and be independently verified. They will also have to sign up to a 'reduce or lose' clause whereby if they fail to reduce the carbon footprint of the labelled product over a two year period the label will be withdrawn by the Carbon Trust.”



The EU Ecolabel aims to stimulate both supply and demand of products with reduced environmental impact. Criteria for its use are set by the EU Ecolabeling Board.



The Thai Green Label Scheme was launched in 1994 by the Ministries of Environment and Industry. The symbol signifies hope and environmental harmony.

# Patents and climate change ...

- A long-running debate over technology transfer and the patent system
  - Access to medicines debate
  - Implementation of TRIPS 66.2 - tech transfer to least developed countries
  - Convention on Biological Diversity
  - Technology transfer commitments under other MEAs
  - IP in the trade and environment debate
  - UNCTAD Code of Conduct
  - Technology transfer in the New International Economic Order and the Havana Charter
- Is this 'just another' IP & technology transfer debate?
- Or do climate change mitigation and adaptation present **distinctive challenges** for IP law, policy and administration?
- How to define and thus to meet such challenges?

# What's distinctive about technology transfer addressing climate change?

- Specific legal obligations between States
- Emerging ethical/human rights context
  - Adaptation technologies linked to right to health, shelter, food...
- National self-interest in wide diffusion elsewhere of clean technology
- Technologies highly diverse in character: unlike essential medicines
  - Adaptation or mitigation technologies?
  - Emphasis on diffusion, assimilation, adaptation?

# patent issues in context

Analysis of patent issues & options to be guided & shaped by climate change policy debate:  
What technology clusters count? How to prioritize? What innovation and diffusion take place now?  
What gaps are there? For developing countries, diffusion, indigenous innovation, or adaptation?

what's going on  
out there?

what does it  
amount to?

and what  
to do about it?

what can be patented,  
what is patented,  
where and where not,  
and who is patenting it?

patentability issues;  
transparency;  
analysis of  
patenting trends

what is the impact on  
technology diffusion *now*  
- in developing world

- what is the impact for  
future innovation &  
dissemination  
- emerging or  
unproven technologies

what options for

- practical IP  
management

- regulatory intervention

to deliver the  
required benefits  
in the required way

# the fundamental policy questions

...

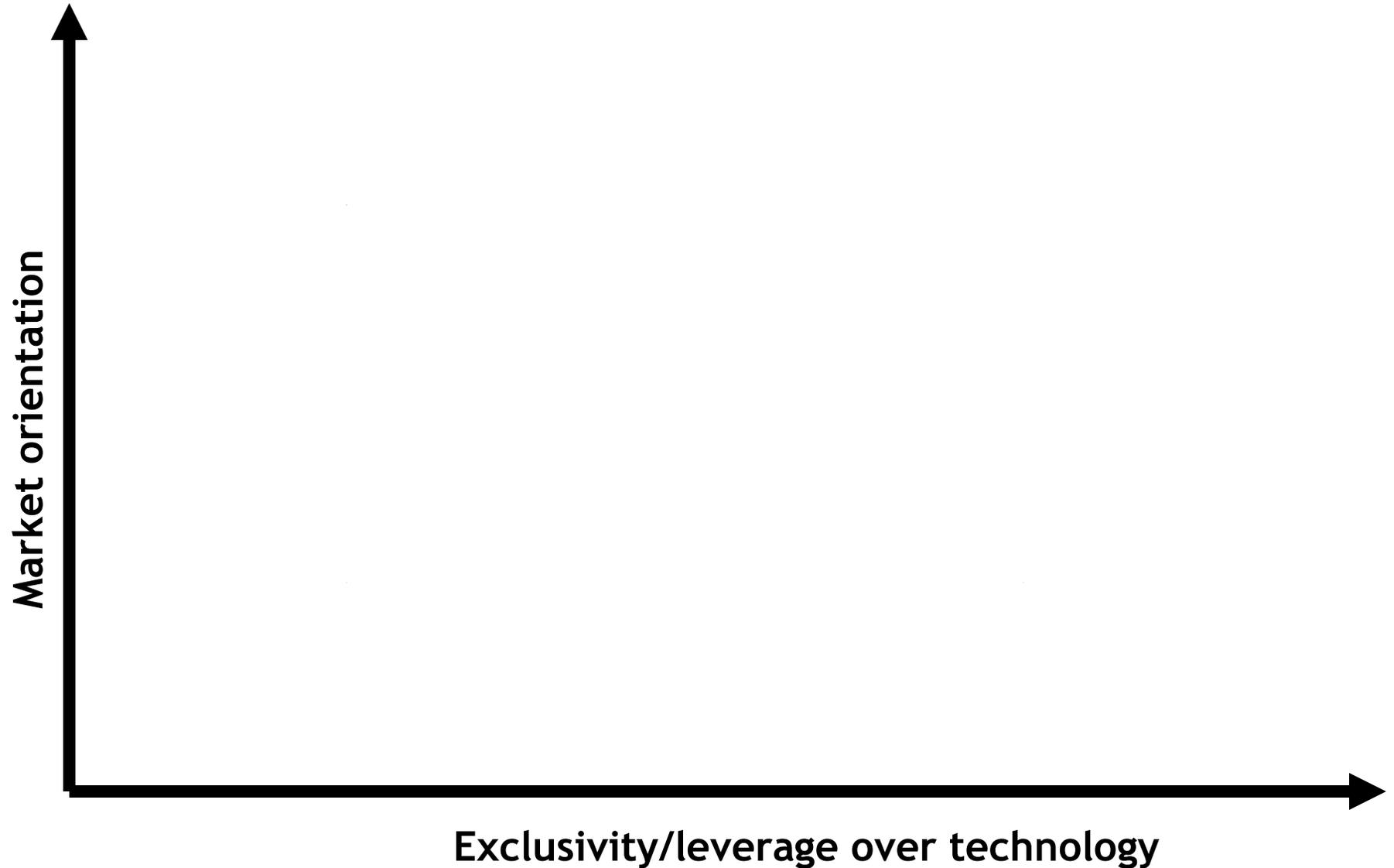
- ... what is the desired approach to
  - Directing resources to essential innovations?
  - Dissemination/distribution of finished technologies?
- ... if the goal is equitably to address climate change mitigation and adaptation within a framework of sustainable development, does this entail:
  - Widespread distribution of finished technologies?
  - Access to clean technologies for all producers?
  - A technology consumption or production perspective?

# the paradox of patents as a policy tool

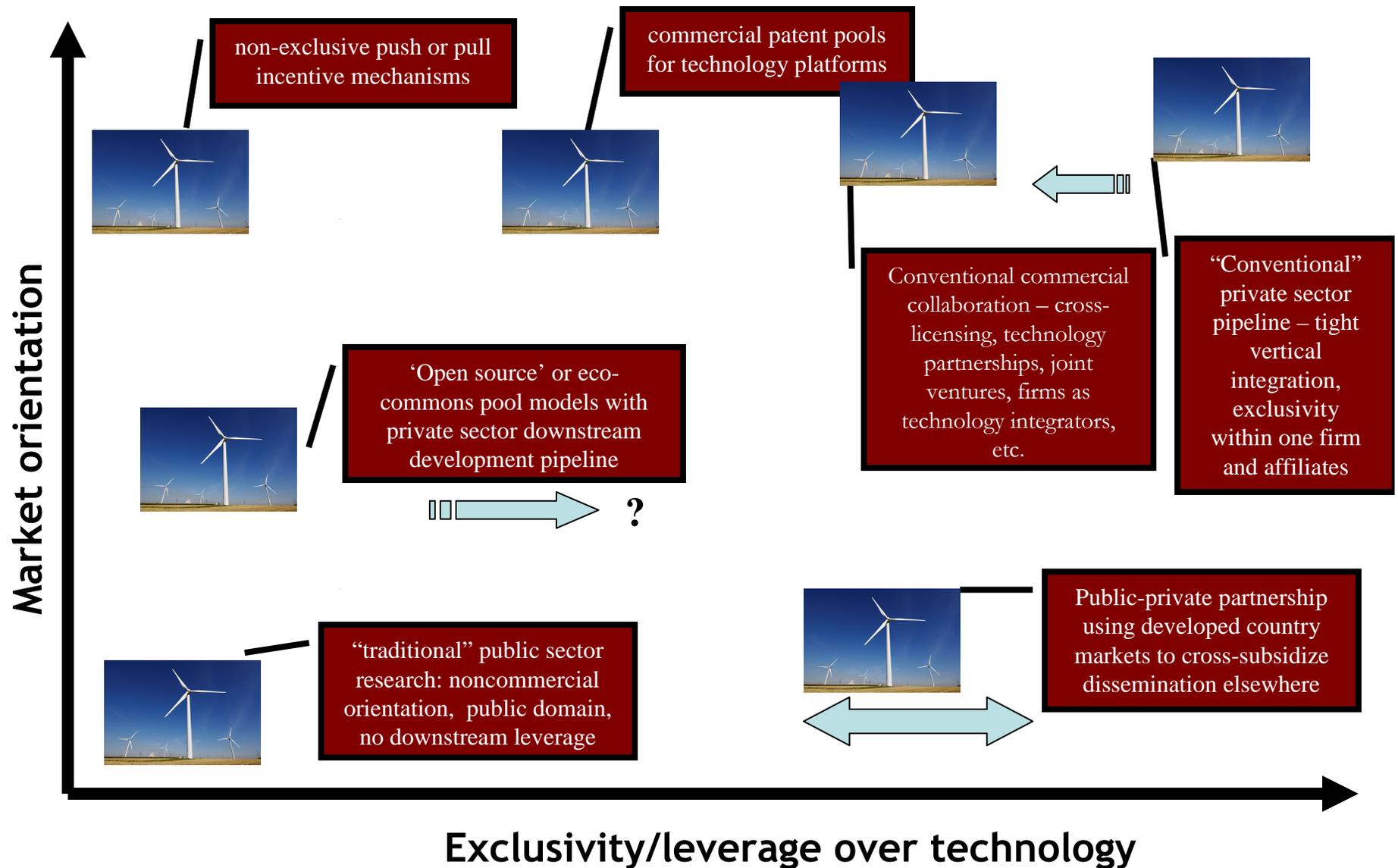
- A deliberate use of exclusive rights
  - legally-defined policy-driven exclusions from the public domain
- to promote the production of public goods
- ...harnessing private interest for the public benefit...

- But: ‘exclusive rights’ are rarely exercised in isolation as a product moves to the marketplace
- Rarely a one-to-one correspondence between a patent and a finished product
- Diverse potential uses of exclusive patent rights:
  - To structure technology partnerships and to define broader technology transfer arrangements
  - To leverage access to background technologies and knowhow
  - To safeguard public interest in public-funded research
  - To manage risk in garnering resources for R&D

# public/private, exclusivity/openness in innovation structures



# public/private, exclusivity/openness in innovation structures



# Suggesting a key distinction...

- pre-grant questions
  - what inventions should patent offices grant patents for,
  - what claimed inventions should be refused patent protection
- post-grant questions
  - what steps to monitor and to regulate, as necessary, the actual use of patent rights in the marketplace
  - what forms of intervention are required, if any
  - How can and should the exclusive rights under a patent be exercised
    - by different actors (e.g. public vs private)?
    - in different jurisdictions (e.g. LDCs)

# Patents and the environment

- To what extent do the issues concern
  - pre-grant questions
  - post-grant questions
- And are the post-grant questions
  - A matter for government regulation and potential intervention?
  - A matter of more effective use of the patent system (and other IP and technology transfer vehicles), guided by public policy and broader incentive measures (market-based or otherwise)?

# Environmental factors in pre-grant assessment of patentability

- The WTO TRIPS Agreement (art 27.2) provides an optional exception from patentability for inventions the prevention ... of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment ...

- But what if an invention is beneficial - even essential - to protect the environment?
  - And when do we find this out?
- Would it be a perverse incentive to refuse patents on the grounds of environmental benefit?
  - Incentive implications?
  - Resort to confidentiality?

# Post-grant questions

- (i) Strategies and mechanisms for voluntary licensing and management of technologies relevant to mitigation and adaptation\
- What licensing structures and IP management strategies are appropriate to promote the uptake and dissemination of technologies required to address climate change?
  - cross-licensing,
  - humanitarian licensing,
  - pooling of patents,
  - other structures for collaboration and blending of intangible assets in innovation processes;
- How should these structures and strategies be developed and applied differently for:
  - Public institutions and government agencies
  - Entities, including educational and research institutes, that are substantially publicly funded
  - Institutes and enterprises in countries at different stages of development
- What forms of cooperation and practical capacity building are required to enable different actors to assess these options and make judicious choices?

# Post-grant questions

- ii) The exercise of exceptions to patent law to provide for public interest safeguards; in particular, what exceptions should exist and how should they be implemented to allow for:
- Pre-commercial or non-commercial research (for example, independently testing the utility of a patented fuel-cell technology )
  - Steps necessary to undertake regulatory approval procedures (for example, to seek approval for the use of a patented trait in field trials of food crops engineered to thrive in relatively saline soils)

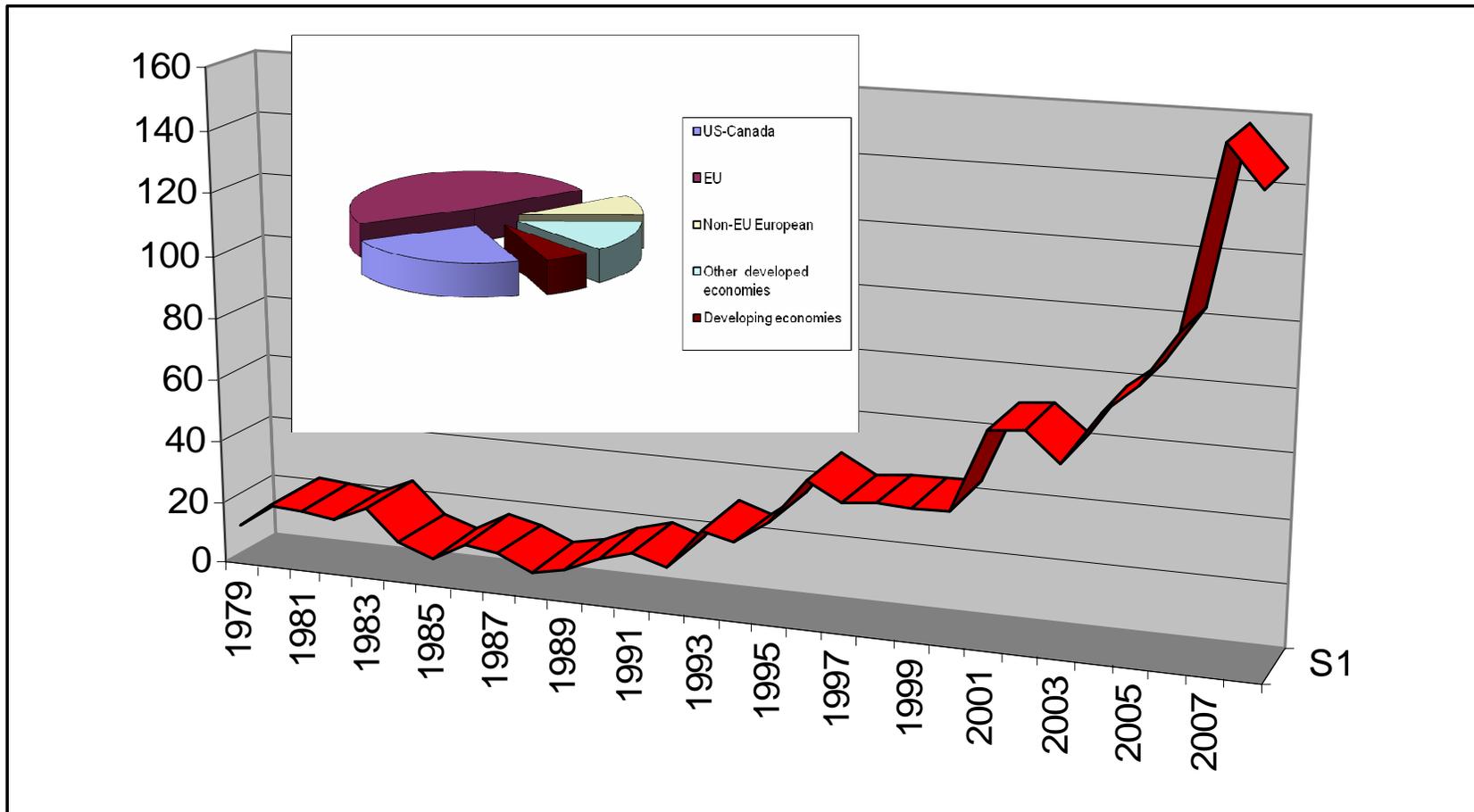
- (iii) Regulatory interventions that limit the exclusive effect of patent rights, such as
- The issuance of compulsory licenses to safeguard the competitive environment and
  - Government use authorizations and other compulsory licenses as safeguards of the public interest more generally.

- These questions, while controversial when applied to climate change technologies - unsurprisingly so, as they have been controversial for many years in other fields, can be resolved down to two broad clusters:
- Legal and formal: what are the legal options under international law, and what legal tests and safeguards are appropriate under national law?
- Practical and prudential: when is it systemically desirable and in the public interest for such measures to be taken; what thresholds can be discerned, what assessments may need to be considered when such interventions are considered.

# A stronger empirical base

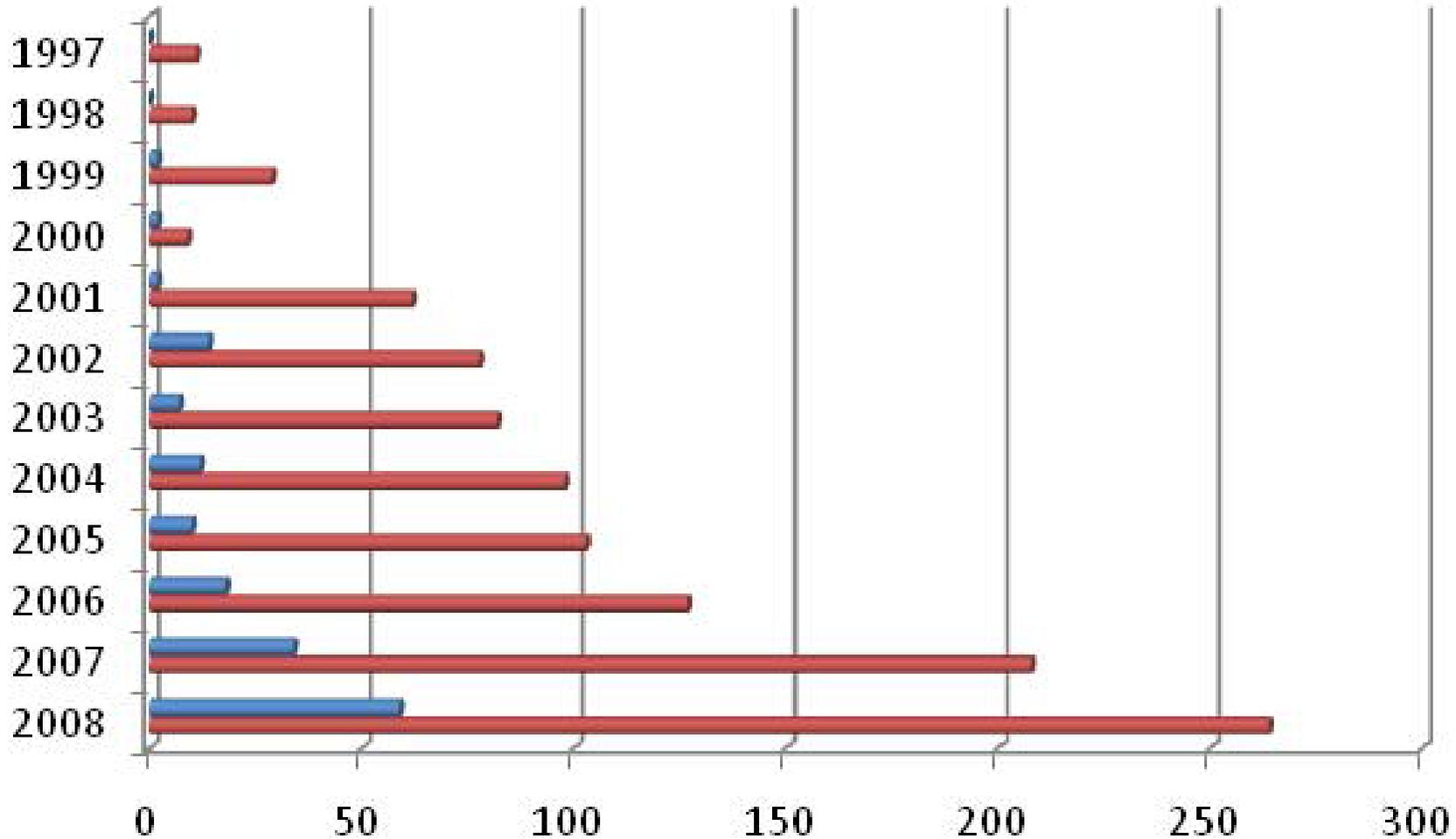
- A vast spread of technologies relevant to climate change mitigation and adaptation,
- difficult to resolve such post-grant issues - legal, policy-related, practical, needs assessment -
- without stronger information of the state of play, scope of patenting of relevant technologies, and current and emergent trends.

# Patent data as a policy tool



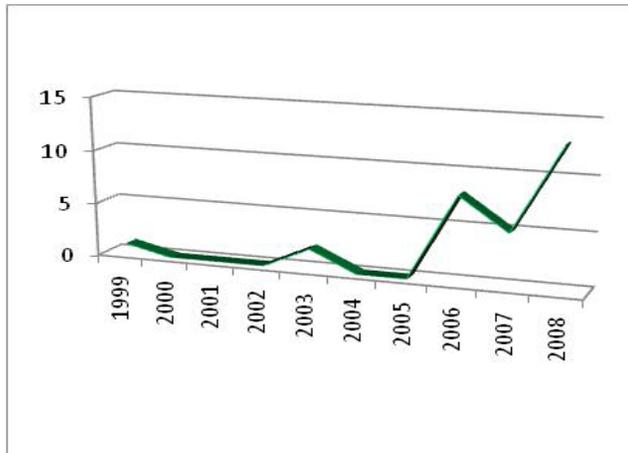
Selected solar energy collection technologies – international publications (by year of publication)

**Responding to the policy challenge: international patent applications referring to the Kyoto Protocol, or to climate change/greenhouse gases**

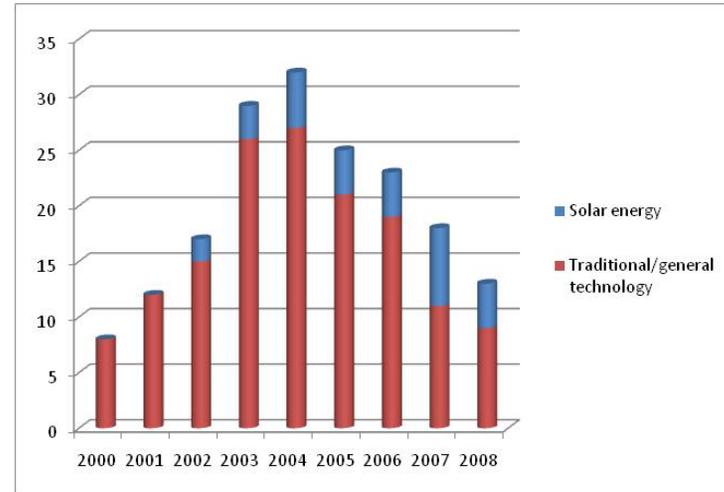


PCT APPLICATIONS REFERRING TO THE KYOTO PROTOCOL (SERIES 1) OR IN MORE GENERAL TERMS TO THE PROTOCOL, TO CLIMATE CHANGE OR TO GREENHOUSE CASES (BY YEAR OF PUBLICATION)

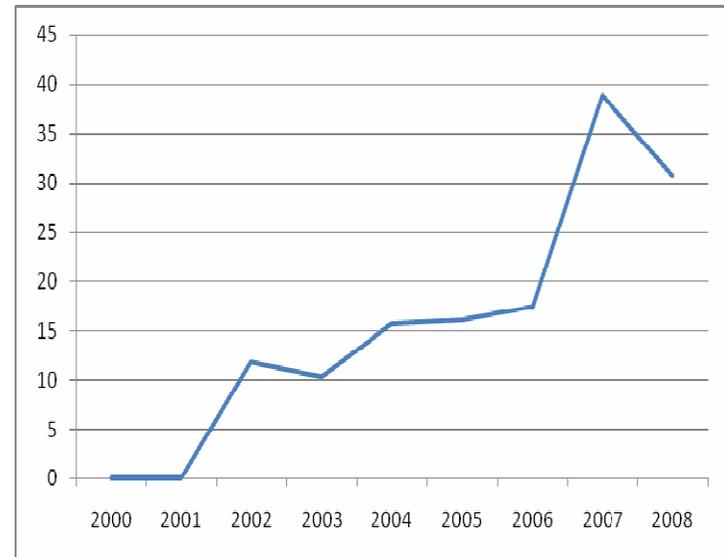
*(2008 TO END SEPTEMBER ONLY)*

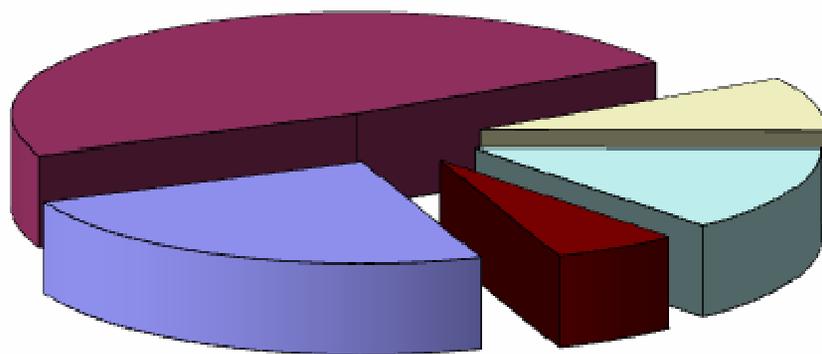


**Shell group: international patent filings on solar technology (by year of publication)**



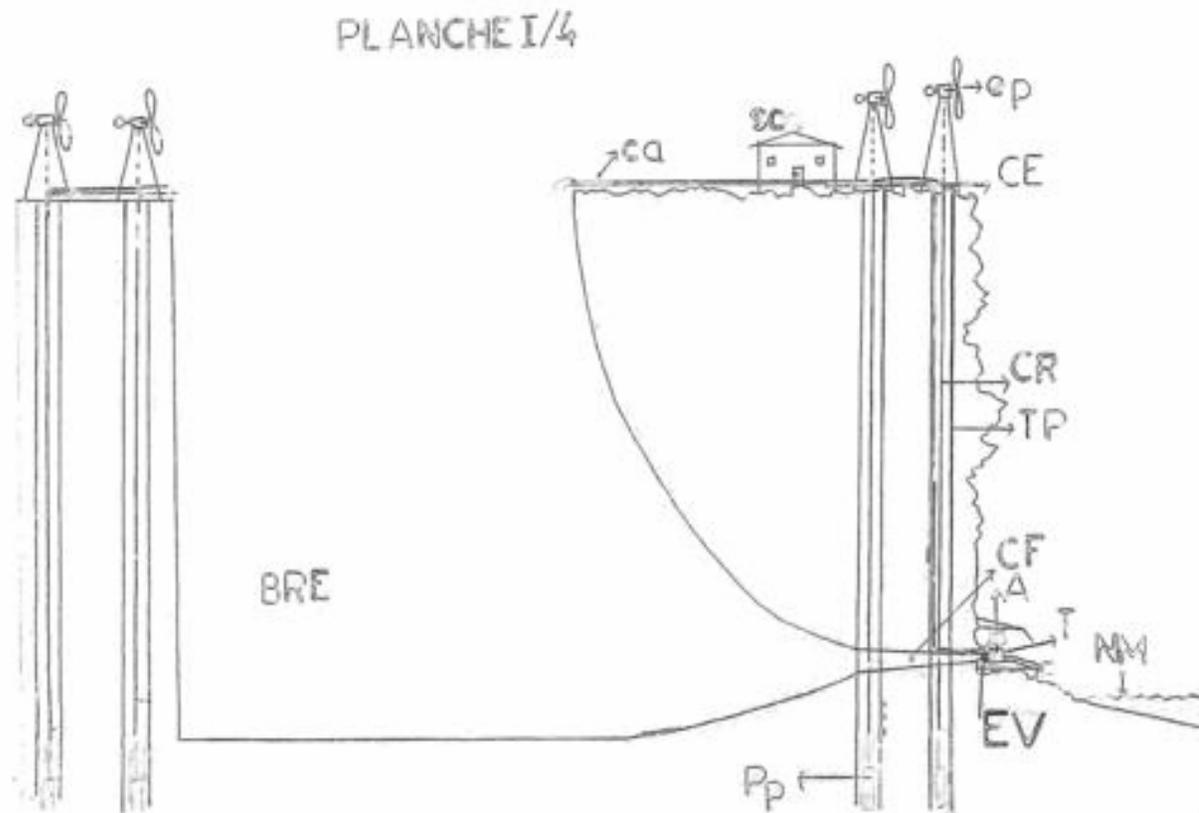
**PCT applications (year of publication): BP Corporation of North America; total published by subject matter and percentage of solar energy related**



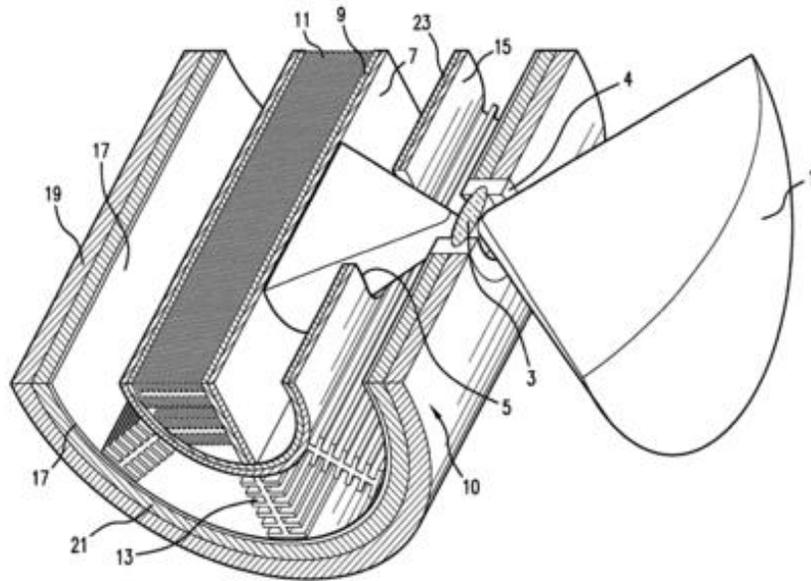


- US-Canada
- EU
- Non-EU European
- Other developed economies
- Developing economies

Selected solar power technologies:  
geographic distribution of patent publications by country of origin



Extract from international publication  
 WO/2008/114072 (Mohammed Abid, Morocco):  
 Network of hydroelectric plants supplied with sea water  
 by renewable energies for storing same



Details from a recent publication, WO/2008/081209,  
Solar Chimney - Pitaya Yangpichit, Thailand

# Patent data as a policy tool

- Historic, current and emerging trends
  - Public/private
  - Developing country innovation
  - Established players vs new actors
  - Changing research profile of energy giants
  - Responses to policy signals
- What markets are actively pursued?
- Early warning system for new potentially disruptive technologies...

## ... is the recent rise in patent activity...

- An indication of the investment of resources on a pressing public need?
  - Evidence of a welcome response to policy-driven market signals?
- A potential obstacle to an effective global diffusion of technologies - complexity and difficulty of analysis, and real or perceived barriers to diffusion?
- or both?
- how to promote the former as against the latter?

# Concluding remarks on technology transfer

- The simple existence of a patent on a particular technology is not a barrier in itself to the transfer of that technology,
  - the patent is in principle in place in order to facilitate dissemination and use of the technology, not to block it;
  - equally, however, the existence of a patent alone does not guarantee that the technology will be fully exploited in all possibly beneficial ways. Much depends on how the exclusive rights that come with a patent are deployed; where they are in force and where they are not; and how they can be used as components in constructing suitable vehicles for technology transfer.
- Equally, the absence of an enforceable patent right in a certain country does not in itself provide any guarantee of technology transfer.
  - In any event, most inventions are protected in a small minority of countries worldwide, without concomitant transfer of that technology in practice to those countries
  - At best, it leaves open the prospect of using the technology disclosed in the patent document, but often without the partnership or involvement of the technology originator, and the transfer of valuable knowhow and other background technology that may be useful for the effective exploitation of the technology.

# Concluding remarks on technology transfer

- The transparency of the patent system, if effectively exploited, can in itself serve as a major boost to technology transfer. In principle, it can help
  - Track significant technological developments and trends, including monitoring new players, geographical shifts and the relative participation of public and private sector actors, established firms and new entrants
  - Avoid duplicative research and development, and enable technological leapfrogging and other forms of cumulative development, such that innovations disclosed and published through the patent system fuel further innovation
  - Organize and structure technology transfer arrangements, as well as providing an effective incentive not only to enter into such arrangements but also to include within them improvements, knowhow and other related technologies

# Concluding remarks on technology transfer

- Taking out a patent is not a stand-alone technology transfer mechanism, any more than foregoing the option of a patent is a single form of knowledge management. Rather, patents are used in a host of different ways to transfer technology, depending on whether effective transfer of the technology concerned requires
  - a market-based incentive for a core new technology to be developed and disseminated,
  - a means of leveraging access to other related technologies to form a package of technologies from different sources
  - public institutions to maintain an interest and a degree of leverage over technology developed through public investment
  - the creation of new enterprises as tailor-made vehicles for development of a new technology
  - a broad-based open licensing structure to promote dissemination of a platform or enabling technology
  - cross-licensing structures or pool arrangements that allow diverse technology players to build on the benefits of each others' technologies
  - packaging the patented technology with other non-patented material, such as manufacturing knowhow, other commercial information, or regulatory approval dossiers.

# what IP law/patent information needs for climate change policymakers?

- Patents 101? Accessible information on pre-grant and post-grant law and principles?
- Practical efforts for patent quality?
- Empirical surveys and analysis of patenting activity?
  - Which technologies are key?
- Insights for the policymaker on the role of patent system in innovation and technology transfer and diffusion?
- International legal flexibilities for developing countries?
- All the above?

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