Patent Cooperation Treaty

Procedural Aspects & Recent Trends

PG Diploma in Patents

NALSAR University of Law, Hyderabad

Contact Classes

August - September, 2012.

The Patent Cooperation Treaty is an agreement for international cooperation in the field of patents.

It is a treaty for rationalization and cooperation with regard to the filing, searching and examination of patent applications and the dissemination of the technical information contained therein.

The PCT does not provide for the grant of "international patents": the task of and responsibility for granting patents remains exclusively in the hands of the patent Offices of, or acting for, the countries where protection is sought (the "designated Offices").

The Patent Cooperation Treaty or "PCT" entered into force on 24 January 1978, and became operational on 01 June 1978, with an initial 18 Contracting States.

Presently 146 Contracting States had adhered to the PCT.

Came into force for India on 07 December, 1998.

Filing and not granting.

PCT Contracting States (146)

EA Eurasian Patent

AM	Armenia
AZ	Azerbaijan
BY	Belarus
KG	Kyrgyzstan
KZ	Kazakhstan
MD	Republic of Moldova
RU	Russian Federation
TJ	Tajikistan
TM	Turkmenistan

EP European Patent

	AL	Albania (from 01.05.2010)[1]
	AT	Austria
*	BE	Belgium
	BG	Bulgaria
	CH	Switzerland
*	CY	Cyprus
	CZ	Czech Republic
	DE	Germany
	DK	Denmark
	EE	Estonia
	ES	Spain
	FI	Finland
*	FR	France
	GB	United Kingdom
*	GR	Greece
	HR	Croatia[1]
	HU	Hungary
*	IE	Ireland
	IS	Iceland
*	IT	Italy
	LI	Liechtenstein
	LT	Lithuania
	LU	Luxembourg
*	LV	Latvia
*	MC	Monaco
	MK	The former Yugoslav Republic of Macedonia[1]
*	MT	Malta
*	NL	Netherlands
	NO	Norway
	PL	Poland
	PT	Portugal
	RO	Romania
	SE	Sweden
*	SI	Slovenia
	SK	Slovakia
	SM	San Marino (from 01.07.2009)
	TR	Turkey

* Regional patent only

1 Extension agreement continues to apply to applications filed before 1 January 2008 (for HR), 1 January 2009 (for MK) or 1 May 2010 (for AL)

PCT Contracting States (146)

AP ARIPO Patent

	BW	Botswana
	GH	Ghana
	GM	Gambia
	KE	Kenya
*	LR	Liberia
	LS	Lesotho
	MW	Malawi
	MZ	Mozambique
	NA	Namibia
	SD	Sudan
	SL	Sierra Leone
*	SZ	Swaziland
	TZ	United Republic of Tanzania
	UG	Uganda
	ZM	Zambia
	ZW	Zimbabwe

OA OAPI Patent

*	BF	Burkina Faso
*	BJ	Benin
*	CF	Central African Republic
*	CG	Congo
*	CI	Côte d'Ivoire
*	CM	Cameroon
*	GA	Gabon
*	GN	Guinea
*	GQ	Equatorial Guinea
*	GW	Guinea-Bissau
*	ML	Mali
*	MR	Mauritania
*	NE	Niger
*	SN	Senegal
*	TD	Chad
*	TG	Togo

* Regional patent only

PCT Contracting States (146)

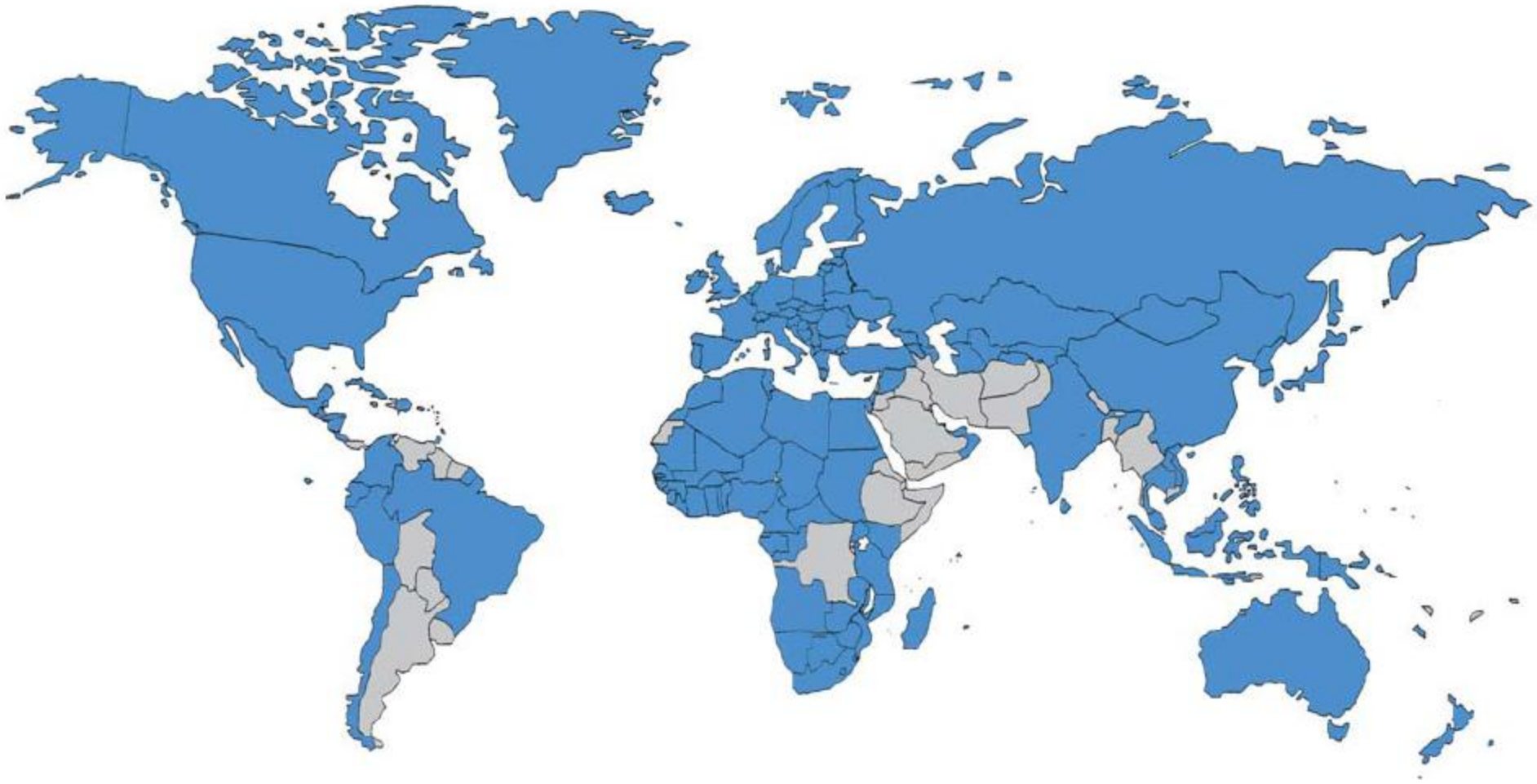
	AE United Arab Emirates	
	AG Antigua and Barbuda	
**	AL Albania[1]	
	AO Angola	
	AU Australia	
**	BA Bosnia and Herzegovina	
	BB Barbados	
	BH Bahrain	
	BR Brazil	
	BZ Belize	
	CA Canada	
	CL Chile	
	CN China	
	CO Colombia	
	CR Costa Rica	
	CU Cuba	
	DM Dominica	
	DO Dominican Republic	
	DZ Algeria	
	EC Ecuador	
	EG Egypt	
	GD Grenada	
	GE Georgia	
	GT Guatemala	
	HN Honduras	
	ID Indonesia	
	IL Israel	
	IN India	
	JP Japan	
	KM Union of the Comoros	
	KN Saint Kitts and Nevis	
	KP Democratic People's Republic of Korea	
	KR Republic of Korea	
	LA Lao People's Democratic Republic	
	LC Saint Lucia	
	LK Sri Lanka	
	LY Libyan Arab Jamahiriya	
	MA Morocco	
**	ME Montenegro[2]	
	MG Madagascar	
	MN Mongolia	
	MX Mexico	
	MY Malaysia	
	NG Nigeria	
	NI Nicaragua	
	NZ New Zealand	
	OM Oman	
	PE Peru	
	PG Papua New Guinea	
	PH Philippines	
**	RS Serbia	
	SC Seychelles	
	SG Singapore	
	ST Sao Tome and Principe	
	SV El Salvador	
	SY Syrian Arab Republic	
	TH Thailand	
	TN Tunisia	
	TT Trinidad and Tobago	
	UA Ukraine	
	US United States of America	
	UZ Uzbekistan	
	VC Saint Vincent and the Grenadines	
	VN Viet Nam	
	ZA South Africa	

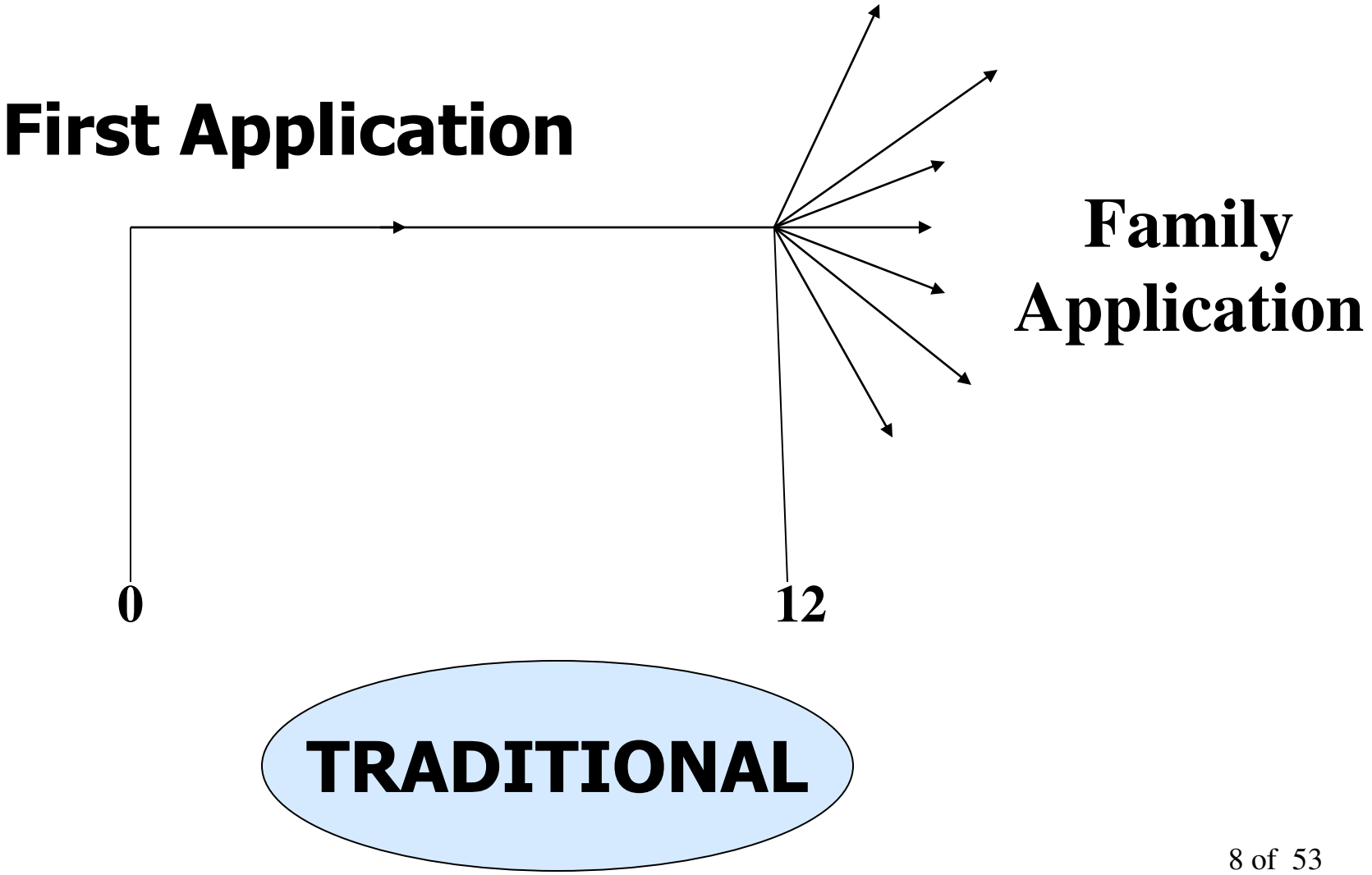
** Extension of European patent possible

1 Extension of European patent possible for International applications filed before 1 May 2010

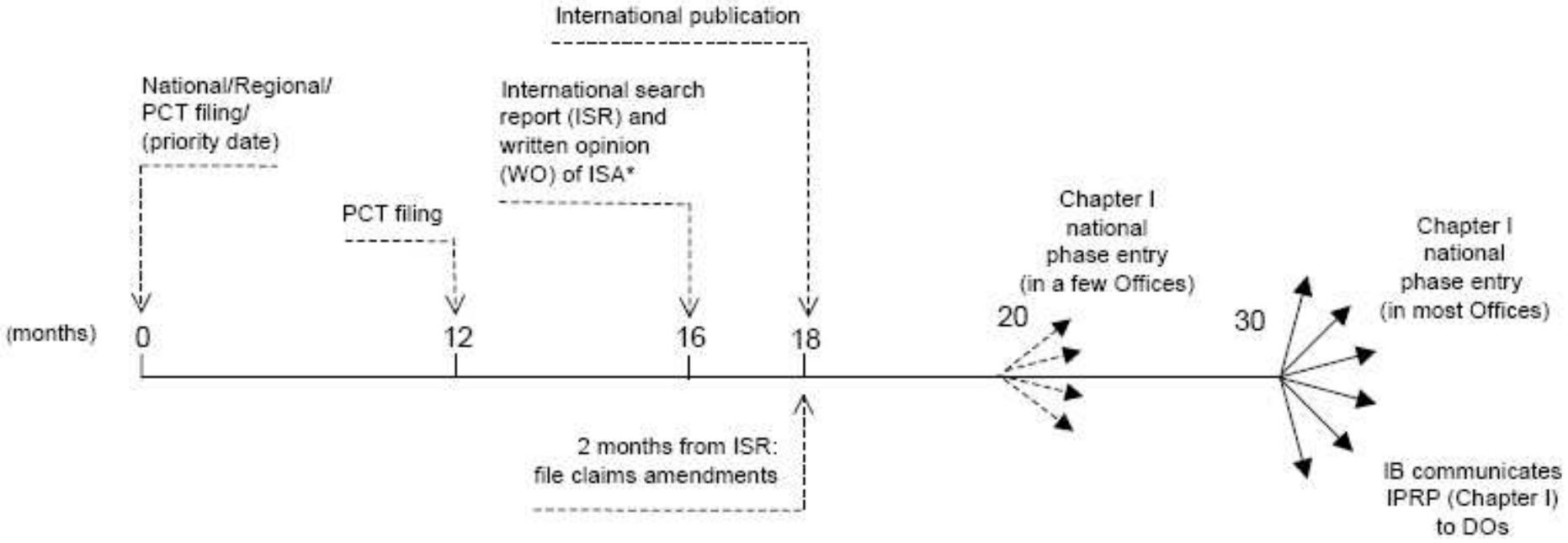
2 Extension of European patent possible for International applications filed as from 1 March 2010

PCT Contracting States




First Application
Family Application
0
12
TRADITIONAL

PCT TIMELINE - Chapter I only
(for international applications filed on or after 1 January 2004)



* If PCT is a first filing, the ISA is to establish the ISR and WO of the ISA before the expiration of 9 months from the priority date (Rule 42.1)

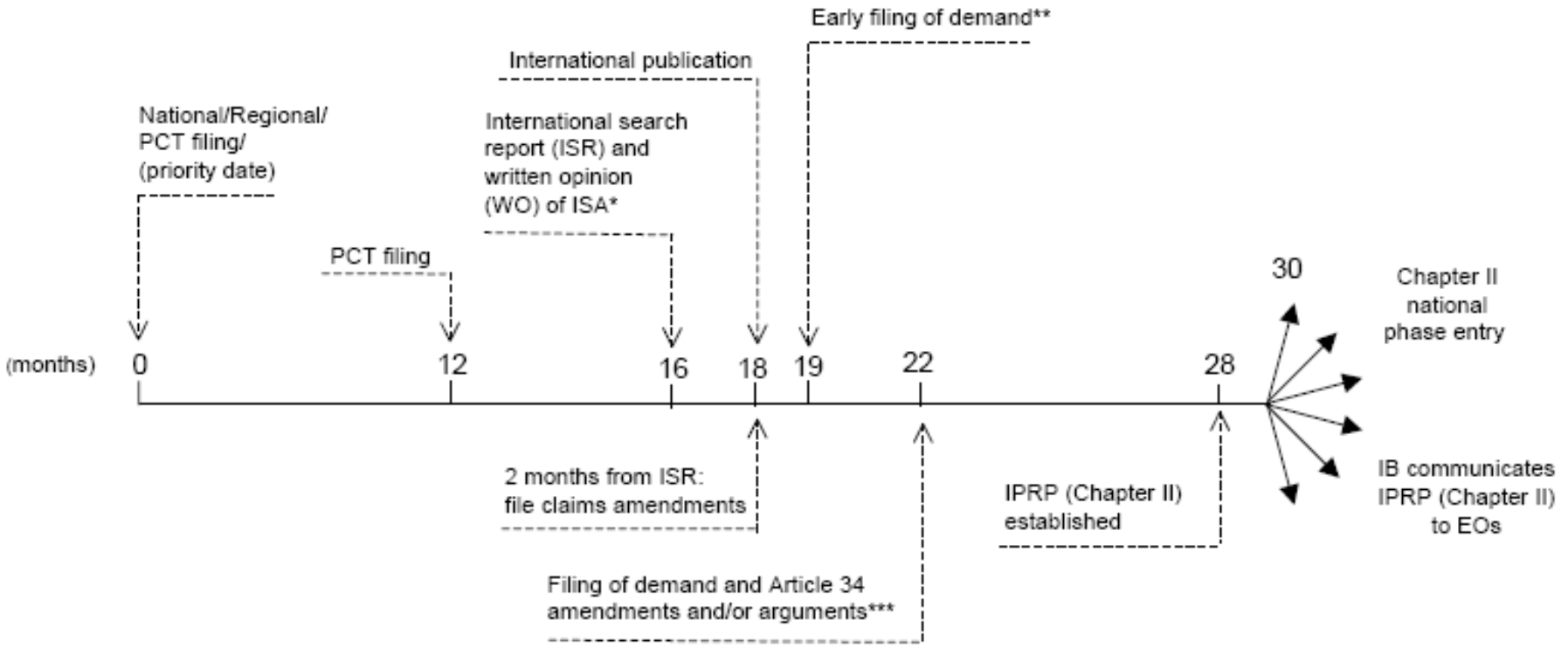
Non-applicability of time limit of 30 months under Article 22(1)

- The Offices of the following States have notified the International Bureau that they will not apply the 30 month time limit under Chapter I, as of 1 April 2002, for as long as modified Article 22(1) is not compatible with their national law:

LU	Luxembourg
TZ	United Republic of Tanzania
UG	Uganda

- Where one of these States has been designated for the purposes of a regional patent, the applicable time limit is 31 months
- If no demand for international preliminary examination is filed before the expiration of 19 months in respect of above States, the national phase will have to be entered before the expiration of 20 or 21 months from the priority date

PCT TIMELINE - Chapter II
(for international applications filed on or after 1 January 2004)

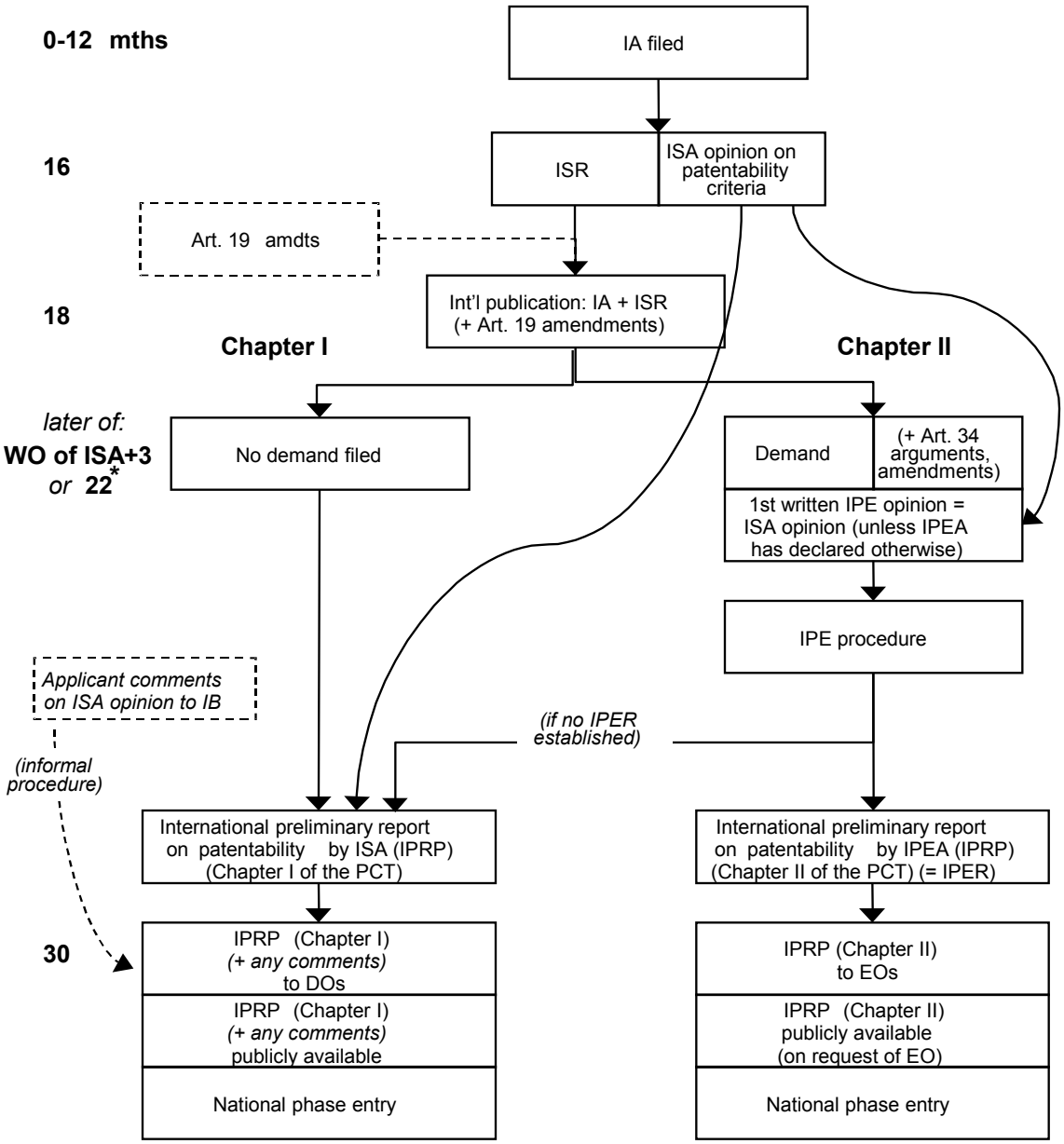


* If PCT is a first filing, the ISA will establish the ISR and WO of the ISA before the expiration of 9 months from the priority date (Rule 42.1)

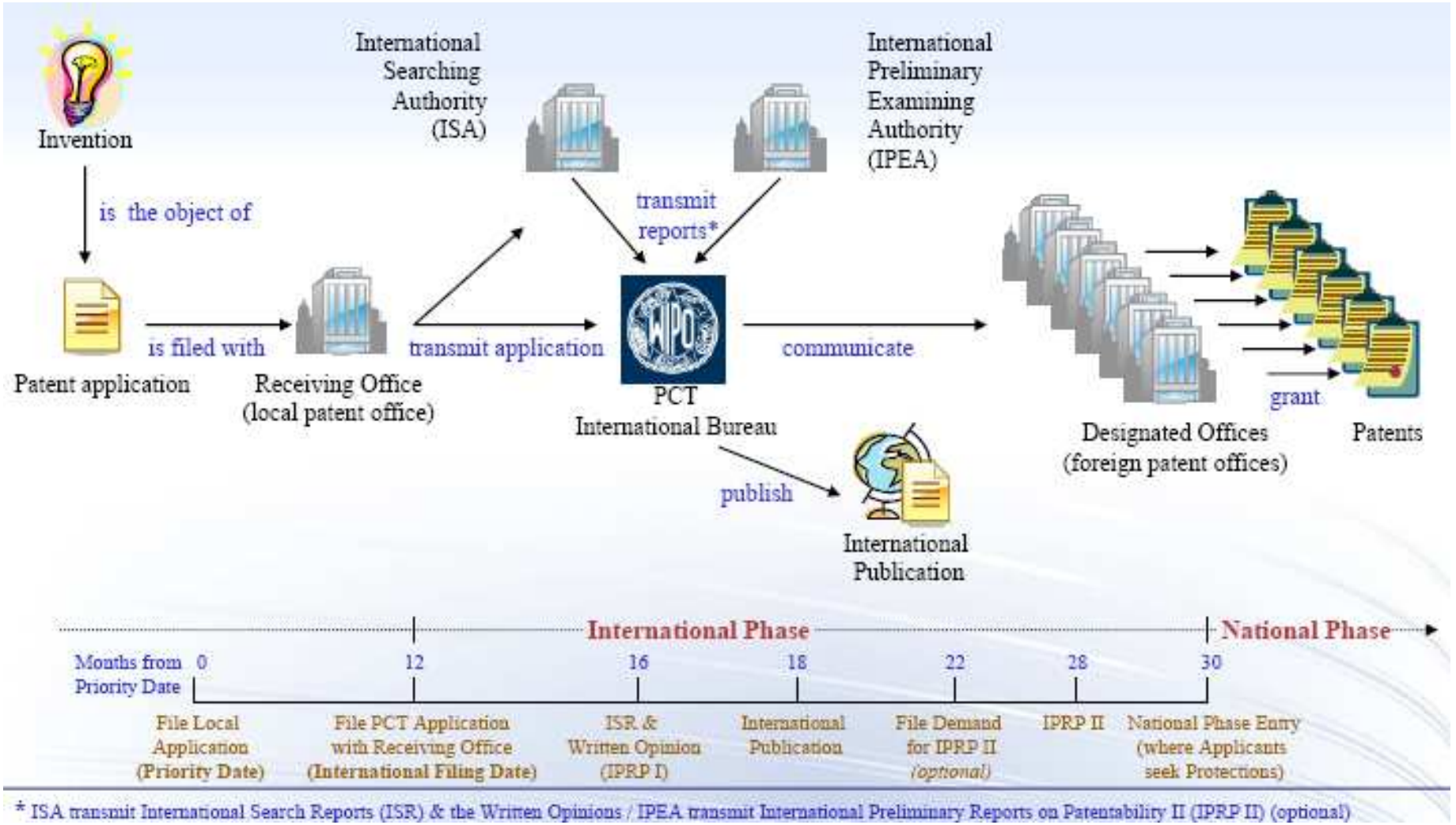
** In respect of a few States, the time limit of 30 months to enter national phase will, however, only apply if those States have been elected in a demand filed before the expiration of 19 months from the priority date (for an updated list of States concerned, see the PCT's Internet site)

*** A demand for international preliminary examination may be filed at any time prior to the expiration of 3 months from the date of transmittal of the ISR and WO of the ISA, or 22 months from the priority date, whichever time limit expires later (Rule 54*bis*.1(a)).

PCT System



** must in practice file demand by 19 months for Article 22 transitional reservation countries*



* ISA transmit International Search Reports (ISR) & the Written Opinions / IPEA transmit International Preliminary Reports on Patentability II (IPRP II) (optional)

ISA / IPEA (14)

– the Australian Patent Office,
– the Austrian Patent Office,
- The Brazilian Patent Office
– the Canadian Patent Office,
– the China Intellectual Property Office,
– the European Patent Office,
– the Japan Patent Office,
- the Korean Intellectual Property Office,
– the National Board of Patents & Registration (Finland),
– the Nordic Patent Institute,
– the Russian Patent Office,
– the Spanish Patent and Trademark Office,
– the Swedish Patent Office and
– the United States Patent and Trademark Office.

Duties of the ISA

1. Checks unity of invention (Rule 40)
2. Checks title (Rule 37); checks abstract (Rule 38)
3. Searches claimed invention (Article 15(3), Rule 33.3)
4. Authorizes rectification of obvious errors if the error is:
   – in any part of the international application other than the request or
   – in any paper submitted to that Authority (Rule 91.1(e))
5. Establishes international search report (ISR) (Rules 42 and 43) and written opinion (WO) (Rule 43*bis*) and /or declaration that no international search report will be established (Article 17(2))

International Search Report (ISR)
(Rules 42 and 43)

It contains:

– IPC (International Patent Classification) symbols
– indications of the technical areas searched
– indications relating to any finding of lack of unity
– a list of the relevant prior art documents
– indications relating to any finding that a meaningful search could not be carried out in respect of certain (but not all) claims

Prior Art

- made available to public
- anywhere in the world
- by written disclosure
- assisting in determining the claimed invention is new and involves an inventive step
- prior to international filing date

Written Opinion of the ISA (Rules 43*bis*)

Non binding opinion on:

- **Novelty**
- **Inventive Step**
- **Industrial Applicability**

Sent to the applicant with the ISR

Not published with the application

No provision of formal response

Demand not filed - IPRP established on the basis of WO of ISA

Demand Filed - WO of ISA treated as the first WO of the IPEA.

International Preliminary Examination

1. The purpose of the international preliminary examination is to provide a preliminary non-binding opinion on
   – novelty (not anticipated) (Article 33(2) and Rule 64)
   – inventive step (not obvious) (Article 33(3) and Rule 65)
   – industrial applicability (Article 33(4))
2. Relevant prior art: absolute novelty (Rule 64, see also Rule 33)
3. Only claims relating to the invention(s) searched by the ISA will be examined by the IPEA (Rule 66.1(e) and 66.2(a)(vi)
4. Finding of lack of unity of invention (Rule 68)
   – same criteria as for international search (Rule 13 and Annex B of the Administrative Instructions)
   – invitation by the IPEA to restrict the claims or to pay additional fees (which can be paid under protest)
   – applicant can select invention as "main invention" and those inventions for which additional fees are paid

The International Preliminary Examination Report (IPER)

IPRP

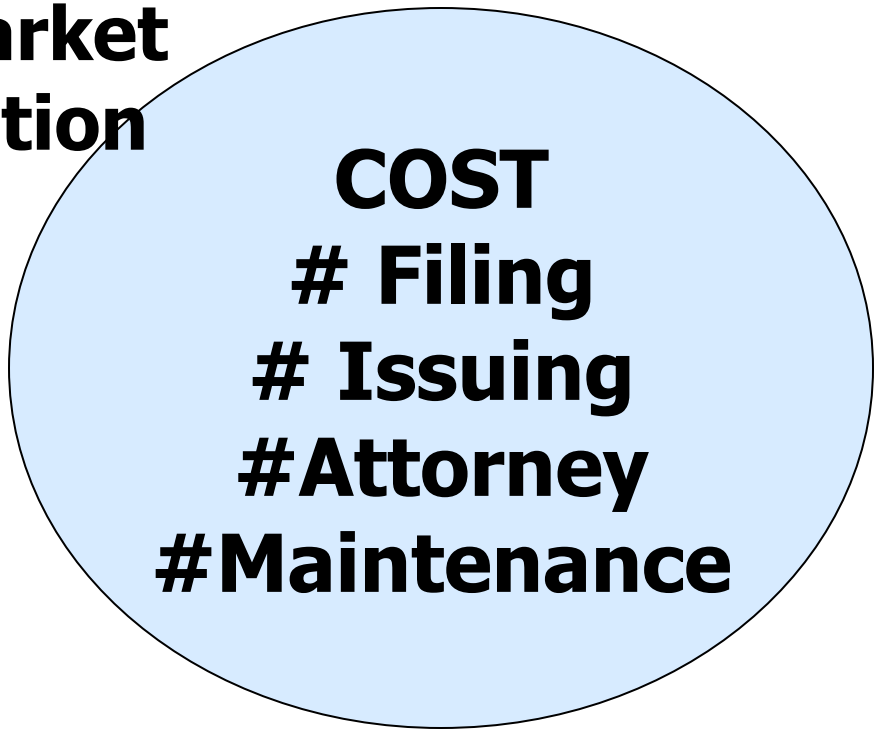
1. Must be established by the IPEA within:
   - 28 months from the priority date
   - 6 months from date of payment of fees
   - 6 months from date of receipt by IPEA of translation under Rule 55.2, whichever expires last (Rule 69.2)
2. May contain “annexes” which comprise all sheets containing amendments or rectifications (that is, rectifications of obvious errors authorized under Rule 91 by the IPEA) which have been used as a basis for the report (Rule 70.16)
3. Correspondence (such as letters) or copies of amendments superseded by later amendments are not annexed to the report (Rule 70.16)

The International Preliminary Examination Report (IPER)
IPRP

4. No provisions for appeal or further proceedings during the international phase before the International Authorities
5. Sent to the applicant and the IB (Rule 71.1)
6. IB forwards copies of the report, and any required translation of the report into English (prepared by the IB), to the elected Offices (Article 36(3)(a) and Rule 72.1)
7. The annexes are not translated by the IB (Article 36(3)(b))

PCT - The Extra Edge.

- Control Cost - Delay filing decision
- Growing geographical interests
- Finalize/develop the market
- Study probable competition



Cost of Obtaining & Maintaining Patents in 40+ major countries is > US$ 500,000

Benefits of PCT

- Single filing procedure for all countries
- Sufficient time for translations
- Drafted in accordance to PCT is valid everywhere
- Flexibility of payment of fees
- Advantage of maximum designation fee
- Transmittal of Priority needn't be monitored
- Provision for withdrawals
- Quality ISR and IPRP
- Provision of amendments
- Last minute foreign filings

Challenges of PCT

- The prosecution needs to be known
- Fully time line depended
- Often calls for clarifications and reminders

Docketing should be an habit

Reference to deposited microorganisms or other biological material (Rule 13*bis*)

1. Required in a PCT application only when the national law of a designated State provides for it. Usually needed for full disclosure of the invention.
2. Annex L of Volume I of the *PCT Applicant's Guide* contains the list of the designated States whose national law provides for a reference to deposited microorganisms or other biological material and indicates when and how such reference should be made.
3. The reference must indicate:
   — the name and address of the depositary institution
   — the date of deposit of the microorganism/biological material with that institution
   — the accession number given to the deposit by that institution
   — any additional indication, if applicable (see Annex L)

Reference to deposited microorganisms or other biological material (Rule 13*bis*)

4. The indications may be made in the description or on form PCT/RO/134.
5. Certain designated Offices require that such indications be part of the description. In such a case, if form PCT/RO/134 is used, it should be numbered as a sheet of the description.
6. In respect of certain designated Offices, the applicant is entitled to request that a sample be issued only to an expert nominated by the requester (a space is provided in form PCT/RO/134 to make such indication).

IDA Status

AU (NMI)
BE (BCCM)
BG (NBIMCC)
CA (NMLHC)
CN (CCTCC; CGMCC)
CZ (CCM)
DE (DSMZ)
ES (BNA; CECT)
FR (CNCM)
IN (MTCC)

HU (NCAIM)
IT (ABC; DBVPG)
JP (IPOD; AIST)
KR (KCLRF; KCTC; KCCM)
LV (MSCL)
NL (CBS)
PL (IAFB; PCM)
RU (NRCA; VKM; VKPM)
SK (CCY)
UK (CCAP;ECACC; IMI; NIBSC;NCTC;NCYC; NCIMB)
US (NRRL; ATCC)

37 Authorities

PCT Sequence Listing Standard

(Section 208 and Annex C of the AI)

1. Where the sequence listing is filed together with the international application, it:
   - must be presented as a separate "Sequence Listing Part" of the description
   - must be placed at the end of the application
   - must begin on a new page
   - should preferably have independent page numbering
2. The Standard provides further details as to:
   - the symbols and the format which must be used for the presentation of nucleotide and/or amino acid sequences
   - with regard to other available information to be included in the sequence listing, the mandatory items which must, and the optional item which may, be included, and the order in which those items must appear
   - the presentation of features of sequences
   - the presentation of "free text"

PCT Sequence Listing Standard: Presentation of free text

1. The Standard defines "free text" as a wording describing characteristics of the sequence which does not use "language neutral vocabulary", that is, controlled vocabulary used in the sequence listing that represents scientific terms as prescribed by sequence database providers (including scientific names, qualifiers and their controlled vocabulary values, the symbols and the feature keys appearing in the Appendices to the Standard).

2. Where the sequence listing part of the international application contains free text, that free text:

– may, and preferably should, be in English (irrespective of the language of the main part of the description) (Rule 12.1(d))

– must be repeated in the main part of the description ("Sequence Listing Free Text") in the language thereof (ISA invites to furnish correction if not contained in main part of description as filed) (Rules 5.2(b) and 13*ter*.1(d))

PCT Sequence Listing Standard: Presentation of free text

3. For the purposes of the national phase (Rule 49.5(a-*bis*)), no designated Office is entitled to require the applicant to furnish to it a translation of any text matter contained in the sequence listing part of the description if such text matter:

– is presented in accordance with the Standard

– is repeated in the main part of the description (and hence in any translation thereof)

PatentIn Software

1. Windows-based version (available free of charge from the JPO,the USPTO and the EPO) designed to expedite the process of preparing sequence listings in a standardized computer readable format complying with the PCT Sequence Listing Standard
2. Helps in creating a database of patent-disclosed sequences
3. Supports the exchange of published sequence data between the European Patent Office, the Japan Patent Office and the United States Patent and Trademark Office in a Trilateral Sequence Exchange Project

PCT-SAFE
(Secure Applications Filed Electronically)

- Allows for preparation and submission of entire PCT international application in electronic format
- Provides safety, confidence, convenience, efficiency, wide accessibility and simplicity to PCT E-filing
- Based on agreed standards, interoperable with other user software, means for preparing an international application once and the ability to file it anywhere
- Facilitates communications and data exchange between Offices (long term)

PCT-SAFE: two options

Fully electronic filing of application:

- entire application in electronic form (image or character-coded), electronically signed
- transmitted via secure internet connection or on physical media

Preparing request in "PCT-EASY mode"

- entire application in paper form (legal copy) including the PCT-EASY request form printout
- plus physical medium with electronic request form and abstract data

PCT-SAFE: fee reductions

- "PCT-EASY" type of filing (on paper + request and abstract on physical medium)
  CHF 100 (EUR 66 or equivalent amount)
- Fully electronic type of filing with application body in image format (for example PDF, TIFF attachments) and only the request in character coded format (XML)
  CHF 200 (EUR 132 or equivalent amount)
- Fully electronic type of filing with application body and request in character coded format (XML)
  CHF 300 (EUR 198 or equivalent amount)

ROs accepting electronic filing (1)

- RO/EP: as of 1 November 2002 (PCT-SAFE and epoline®) (PCT Gazette No. 47/2002, page 23832)
- RO/FR: as of 29 April 2003 (epoline®) (PCT Gazette No. 18/2003, page 9656)
- RO/FI: as of 1 January 2004 (PCT-SAFE and epoline®) (PCT Gazette No. 51/2003, page 29014)
- RO/KR: as of 1 January 2004 (PCT-SAFE and KEAPS) (PCT Gazette No. 51/2003, page 29020, No. 24/2004, page 13496 and No. 06/2005, page 3766)
- RO/ES: as of 15 January 2004 (PCT-SAFE and epoline®) (PCT Gazette No. 03/2004, page 1732)
- RO/IB: as of 12 February 2004 (PCT-SAFE and epoline®) (PCT Gazette No. 34/2003, page 19248 and No. 07/2004, page 3796)
- RO/JP: as of 28 April 2004 (JPO PAS); as of 4 January 2007 (also PCT-SAFE) (PCT Gazette No. 17/2004, page 9452); (PCT Gazette No. 50/2006, page 19184)
- RO/GB: as of 9 August 2004 (PCT-SAFE and epoline®) (PCT Gazette No. 32/2004, page 18092)

ROs accepting electronic filing (2)

- RO/NL: as of 24 March 2005 (PCT-SAFE and epoline®) (PCT Gazette No. 11/2005, page 7068)
- RO/DK: as of 1 September 2005 (PCT-SAFE and epoline®) (PCT Gazette No. 35/2005, page 22816
- RO/AU: as of 15 December 2005 (PCT-SAFE and epoline®) (PCT Gazette No. 50/2005, page 33496)
- RO/SK: as of 1 January 2006 (PCT-SAFE and epoline®) (PCT Gazette No. 46/2005, page 30684
- RO/SE: as of 1 February 2006 (PCT-SAFE and epoline®) (PCT Gazette No. 47/2005, page 31398
- RO/PL: as of 1 March 2006 (PCT-SAFE and epoline®) (PCT Gazette No. 05/2006, page 3180
- RO/RO: as of 2 May 2006 (PCT-SAFE and epoline®) (PCT Gazette No. 17/2006, page 12218
- RO/PH: as of 17 July 2006 (PCT-SAFE) (PCT Gazette No. 30/2006, page 19028)

ROs accepting electronic filing (3)

- RO/DE: as of 4 October 2006 (PCT-SAFE, epoline® and PaTrAS) (PCT Gazette No. 40/2006, page 19076)
- RO/US: as of 14 October 2006 (EFS-Web) (www.uspto.gov/ebc/efs_help.html)
- RO/MY: as of 17 November 2006 (PCT-SAFE) (PCT Gazette No. 44/2006, page 19118)
- RO/CN: as of 1 May 2007 (PCT-SAFE) (Official Notices (PCT Gazette) – 19 April 2007, page 67)
- RO/CA: as of 29 September 2008 (PCT-SAFE) (Official Notices (PCT Gazette) – 4 September 2008, page 115)
- RO/IS: as of 1 March 2010 (PCT-SAFE) (Official Notices (PCT Gazette) – 11 February 2010, page 46)

List of the PCT fees and to whom they must be paid

(Fees indicated in italics are payable only in certain circumstances)

To the RO:

- transmittal fee
- international filing fee**
- search fee*
- supplement per sheet in excess of 30**
- *fee for priority document*
- *late payment fee*
- *late furnishing fee (translation of international application)*
- *fee for copies of documents*

To the IB:

- *special fee for publication of request for rectification of obvious error*
- *special fee for publication of information concerning priority claim considered not to have been made*
- *fee for early publication (before issuance of ISR)*
- *fee for copies of documents*

To the ISA:

- *additional search fee*
- *protest fee (only ISA/CN, ISA/EP and ISA/KR)*
- *fee for copies of documents*
- *late furnishing fee (furnishing of a sequence listing)*

To the IPEA:

- preliminary examination fee
- handling fee***
- *late payment fee*
- *additional examination fee*
- *protest fee (only IPEA/CN, IPEA/EP and IPEA/KR)*
- *fee for copies of documents*
- *late furnishing fee (furnishing of a sequence listing)*

---

* collected by RO for ISA

** collected by RO for IB

*** collected by IPEA for IB

Cost Considerations

EXAMPLE OF PCT FEES TO BE PAID
BY CORPORATE APPLICANTS FROM INDIA

– Transmittal fee:	US$	109 (RO/IB)	INR 8000 (RO/IN)
– International Filing fee:	US$	1453	
– Less PCT-SAFE (Max.):	US $	(109)	
– Less 75% redn.	US$	0	
– Search fee:	US$.	2080	(ISA=US)
– Examination fee:	US$	600	(IPEA=US)
– Handling fee:	US$	219	
TOTAL PCT FEE (Ch.I):	US$	3533	INR 8000 (RO/IN)
TOTAL PCT FEE (Ch.II):	US$	4352	

** Not exceeding 30 pages + US$ 16/page*

Benefits from using the PCT: A unique procedure

1. One application, in one language, filed with one Office, replaces multiple foreign filings until entry into the national phase
2. Permits last minute foreign filing (before expiration of priority year)
3. International filing date has the effect of national filing date in all designated Offices
4. Uniform formal requirements accepted by all designated Offices
5. Greater home control of the prosecution
6. Decision on foreign filings can be postponed up to 30 months from the priority date at minimal cost
7. Enables assessment of economic value of the invention and the chances of obtaining a patent before entering national phase

Benefits from using the PCT: greater flexibility

1. Keep options open by making multiple designations
2. Various possibilities for withdrawal
3. International publication can be prevented or postponed until as late as 15 days before the actual publication date – conditional withdrawal possible
4. Further expenses can be avoided simply by no longer prosecuting the application or not entering the national phase
5. Amendments made during the international phase have effect in all designated/elected States
6. More time for better quality translation for the national phase
7. Better planning of the expenditures for the national phase

Benefits from using the PCT: further features

1. Postponing national filings costs earns interest on capital
2. Fee reductions in national phase in certain national Offices
3. More straightforward and rapid national patent granting
4. Less restrictive unity of invention requirements permit a reduced number of applications in the US
5. Provisional protection after publication at 18 months from the priority date (in countries which afford such protection)
6. 75% reduction in PCT fees for applicants from certain Contracting States

Evolution of the practice

- Carefully comply with all formal requirements
- Select ISA and IPEA for maximum benefits
- Reserve all market options - designate all
- Docket & track all events
- File early Demands
- Respond to Written Opinions
- Integrate PCT into Portfolio Management Program
- Make final decisions using all information
- Allow your agents sufficient time

Decisions -

1) Is filing a PCT application right?
2) Where is the market of the invention?
3) Who are the customers?
4) Who is the competition?
5) How easy (or difficult) would it be to design around the claims?
6) Is there an incentive to copy in unprotected countries?
7) What is the marketing strategy?
8) What is important - exclusivity, freedom to practice or both?
9) What is your budget?

Top PCT Appling Countries: 2007 - 2011

Country of Origin	Year of Filing					2011 Share (%)	Change compared to 2010 (%)
	2007	2008	2009	2010	2011		
United States of America	54,042	51,642	45,627	45,008	48,596	26.7	8.0
Japan	27,743	28,760	29,802	32,150	38,888	21.4	21.0
Germany	17,821	18,855	16,797	17,568	18,568	10.2	5.7
China	5,455	6,120	7,900	12,296	16,406	9.0	33.4
Republic of Korea	7,064	7,899	8,035	9,669	10,447	5.7	8.0
France	6,560	7,072	7,237	7,245	7,664	4.2	5.8
United Kingdom	5,542	5,467	5,044	4,891	4,844	2.7	-1.0
Switzerland	3,833	3,799	3,672	3,728	3,999	2.2	7.3
Netherlands	4,433	4,363	4,462	4,063	3,494	1.9	-14.0
Sweden	3,655	4,136	3,568	3,314	3,466	1.9	4.6
Canada	2,879	2,976	2,527	2,698	2,923	1.6	8.3
Italy	2,946	2,883	2,652	2,658	2,671	1.5	0.5
Finland	2,009	2,214	2,123	2,138	2,080	1.1	-2.7
Australia	2,052	1,938	1,740	1,772	1,740	1.0	-1.8
Spain	1,297	1,390	1,564	1,772	1,725	0.9	-2.7
All others	12,595	13,726	12,656	13,346	14,389	7.9	7.8
Total	**159,926**	**163,240**	**155,406**	**164,316**	**181,900**	**100**	**10.7**

Source: WIPO Statistics Database

Top 25 PCT Applicants (Corporates) - 2011

Rank	Applicant's Name	Origin	PCT applications			Change compared to 2010
			2009	2010	2011	
1	ZTE CORPORATION	China	517	1,868	2,826	958
2	PANASONIC CORPORATION	Japan	1,891	2,153	2,463	310
3	HUAWEI TECHNOLOGIES CO., LTD.	China	1,847	1,527	1,831	304
4	SHARP KABUSHIKI KAISHA	Japan	997	1,286	1,755	469
5	ROBERT BOSCH CORPORATION	Germany	1,588	1,301	1,518	217
6	QUALCOMM INCORPORATED	United States of America	1,280	1,675	1,494	-181
7	TOYOTA JIDOSHA KABUSHIKI KAISHA	Japan	1,068	1,095	1,417	322
8	LG ELECTRONICS INC.	Republic of Korea	1,090	1,297	1,336	39
9	KONINKLIJKE PHILIPS ELECTRONICS N.V.	Netherlands	1,295	1,433	1,148	-285
10	TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)	Sweden	1,241	1,147	1,116	-31
11	NEC CORPORATION	Japan	1,069	1,106	1,056	-50
12	SIEMENS AKTIENGESELLSCHAFT	Germany	932	830	1,039	209
13	MITSUBISHI ELECTRIC CORPORATION	Japan	569	726	834	108
14	BASF SE	Germany	739	817	773	-44
15	SAMSUNG ELECTRONICS CO., LTD.	Republic of Korea	596	574	757	183
16	NOKIA CORPORATION	Finland	663	632	698	66
17	INTERNATIONAL BUSINESS MACHINES CORPORATION	United States of America	401	416	661	245
18	HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P.	United States of America	554	564	591	27
19	3M INNOVATIVE PROPERTIES COMPANY	United States of America	688	586	563	-23
20	HITACHI, LTD.	Japan	190	372	547	175
21	KABUSHIKI KAISHA TOSHIBA	Japan	327	319	517	198
22	CANON KABUSHIKI KAISHA	Japan	401	379	499	120
23	FUJITSU LIMITED	Japan	817	475	494	19
24	PROCTER & GAMBLE COMPANY	United States of America	341	359	488	129
25	MITSUBISHI HEAVY INDUSTRIES, LTD.	Japan	373	391	480	89

Source: WIPO Statistics Database

Top 25 PCT Applicants (Universities) - 2011

Rank	Applicant's Name	Origin	PCT applications			Change compared to 2010
			2009	2010	2011	
1	UNIVERSITY OF CALIFORNIA	United States of America	321	304	277	-27
2	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	United States of America	145	146	179	33
3	UNIVERSITY OF TEXAS SYSTEM	United States of America	126	129	127	-2
4	JOHNS HOPKINS UNIVERSITY	United States of America	87	89	111	22
5	KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY	Republic of Korea	43	51	103	52
6	SEOUL NATIONAL UNIVERSITY	Republic of Korea	76	97	99	2
7	UNIVERSITY OF TOKYO	Japan	94	105	98	-7
8	UNIVERSITY OF MICHIGAN	United States of America	61	79	96	17
9	CORNELL UNIVERSITY	United States of America	70	81	88	7
9	HARVARD UNIVERSITY	United States of America	109	91	88	-3
11	UNIVERSITY OF FLORIDA	United States of America	111	107	84	-23
12	COLUMBIA UNIVERSITY	United States of America	110	91	82	-9
13	LELAND STANFORD JUNIOR UNIVERSITY	United States of America	67	54	79	25
14	KYOTO UNIVERSITY	Japan	44	47	70	23
15	UNIVERSITY OF PENNSYLVANIA	United States of America	80	76	64	-12
16	ISIS INNOVATION LIMITED	United Kingdom	45	46	62	16
17	KOREA UNIVERSITY	Republic of Korea	17	27	60	33
19	CALIFORNIA INSTITUTE OF TECHNOLOGY	United States of America	52	50	59	9
19	OSAKA UNIVERSITY	Japan	38	60	59	-1
20	ARIZONA STATE UNIVERSITY	United States of America	40	64	55	-9
21	GWANGJU INSTITUTE OF SCIENCE AND TECHNOLOGY	Republic of Korea	19	21	52	31
22	TOHOKU UNIVERSITY	Japan	39	41	51	10
22	HEBREW UNIVERSITY OF JERUSALEM	Israel	33	43	51	8
22	DUKE UNIVERSITY	United States of America	38	48	51	3
25	NATIONAL UNIVERSITY OF SINGAPORE	Singapore	32	24	50	26
25	HANYANG UNIVERSITY	Republic of Korea	27	46	50	4
25	UNIVERSITY OF UTAH	United States of America	66	59	50	-9

Source: WIPO Statistics Database

Top 25 PCT Applicants (Govt. / Research Institutes) - 2011

Rank	Applicant's Name	Origin	PCT applications			change compared to 2010
			2009	2010	2011	
1	COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	France	238	308	371	63
2	FRAUNHOFER-GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	Germany	265	297	294	-3
3	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)	France	149	207	196	-11
4	AGENCY OF SCIENCE, TECHNOLOGY AND RESEARCH	Singapore	148	154	180	26
5	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS (CSIC)	Spain	86	126	120	-6
6	CHINA ACADEMY OF TELECOMMUNICATIONS TECHNOLOGY	China			119	119
7	MIMOS BERHAD	Malaysia	90	67	108	41
8	ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE OF KOREA	Republic of Korea	452	174	104	-70
9	NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY	Japan	109	91	100	9
10	UNITED STATES OF AMERICA, REPRESENTED BY THE SECRETARY, DEPARTMENT OF HEALTH AND HUMAN SERVICES	United States of America	107	113	98	-15
11	INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM)	France	68	83	90	7
12	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST- NATUURWETENSCHAPPELIJK ONDERZOEK TNO	Netherlands	134	116	82	-34
13	INSTITUTE OF MICROELECTRONICS OF CHINESE ACADEMY OF SCIENCES	China			74	74
13	BATTELLE MEMORIAL INSTITUTE	United States of America	49	50	54	4
15	COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH	India	63	56	53	-3
16	MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN E.V.	Germany	50	57	49	-8
16	MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH	United States of America	54	60	49	-11
18	COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION	Australia	56	61	48	-13
19	KOREA RESEARCH INSTITUTE OF BIOSCIENCE AND BIOTECHNOLOGY	Republic of Korea	71	44	45	1
20	JAPAN SCIENCE AND TECHNOLOGY AGENCY	Japan	48	51	43	-8
21	KOREA INSTITUTE OF MACHINERY & MATERIALS	Republic of Korea	13	15	36	21
22	KOREA RESEARCH INSTITUTE OF CHEMICAL TECHNOLOGY	Republic of Korea	30	26	35	9
22	NATIONAL RESEARCH COUNCIL OF CANADA	Canada	21	45	35	-10
24	NATIONAL INSTITUTE FOR MATERIALS SCIENCE	Japan	22	35	34	-1
25	KOREA INSTITUTE OF SCIENCE AND TECHNOLOGY	Republic of Korea	33	37	33	-4

LOW TEMPERATURE SYNTHESIS OF VITREOUS BODIES AND THEIR INTERMEDIATES

FIELD OF THE INVENTION

This invention relates to a novel method for making a vitreous body and its intermediates. More particularly, the method relates to a low temperature production of a vitreous body via synthesis of a self-supporting body by solution deposition.

DESCRIPTION OF THE PRIOR ART

In recent years, the most commonly employed commercial process for the manufacture of glass is the direct melting process. This process is somewhat tedious and has not been very successful in the melting of easily devitrifiable and high refractory glass. Many of the latest technological advances demand glass to be in a state of high purity which is seldom met in a

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
D01D 5/42, F16J 15/22, D01F 6/12

A1

(11) International Publication Number: **WO 99/60191**

(43) International Publication Date: 25 November 1999 (25.11.99)

(21) International Application Number: PCT/IN98/00001

(22) International Filing Date: 29 December 1998 (29.12.98)

(30) Priority Data:
318/Bom/98 20 May 1998 (20.05.98) IN

(71)(72) Applicant and Inventor: PANDEY, Raj, Kumar [IN/IN]; Plot No. A/465, Road No. 28, Wagle Industrial Estate, Thane 400 604, Mumbai, Maharashtra (IN).

(74) Agent: BHATNAGAR, Mahendra, Prasad; Lall Lahiri & Salhotra, N–128, Panchsheel Park, New Delhi 110 017 (IN).

(81) Designated States: US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.
With amended claims and statement.

(54) Title: EXPANDED SINGLE MOLECULAR ALIGNED TEMPERATURE TREATED YARN

Why Use PCT?

- Ease of filing
- Gain additional time to make final filing decisions
- To get information, licensees, capital, partners
- Preserve the right to continue prosecution in any PCT member country
- Get global publicity for your invention via PCT publication
- Delay costs
- Receive a single search report and written opinion

When to Use PCT?

- I know I need foreign patent protection
- I think I may need foreign patent protection
- I have no idea whether or not I need foreign patent protection
- I think I may be on to something big, but….
- I want an active filing strategy but need to spread my costs

When Not to Use PCT?

- I have no interest in obtaining foreign patent rights
- I know I only want protection in *X* countries, and
- Those countries allow me to file in English or
- I am prepared to produce the necessary translations by 12 months
- I am prepared to pay national filing fees right away
- I have received sufficient information to give me confidence to proceed
- I have designated foreign counsel who are able to prosecute the application
- I need protection in a non-PCT country

?

Anindya Sircar
Visiting Faculty
NALSAR University of Law, Hyderabad
anindya@nalsarpro.org