

Chapter 3

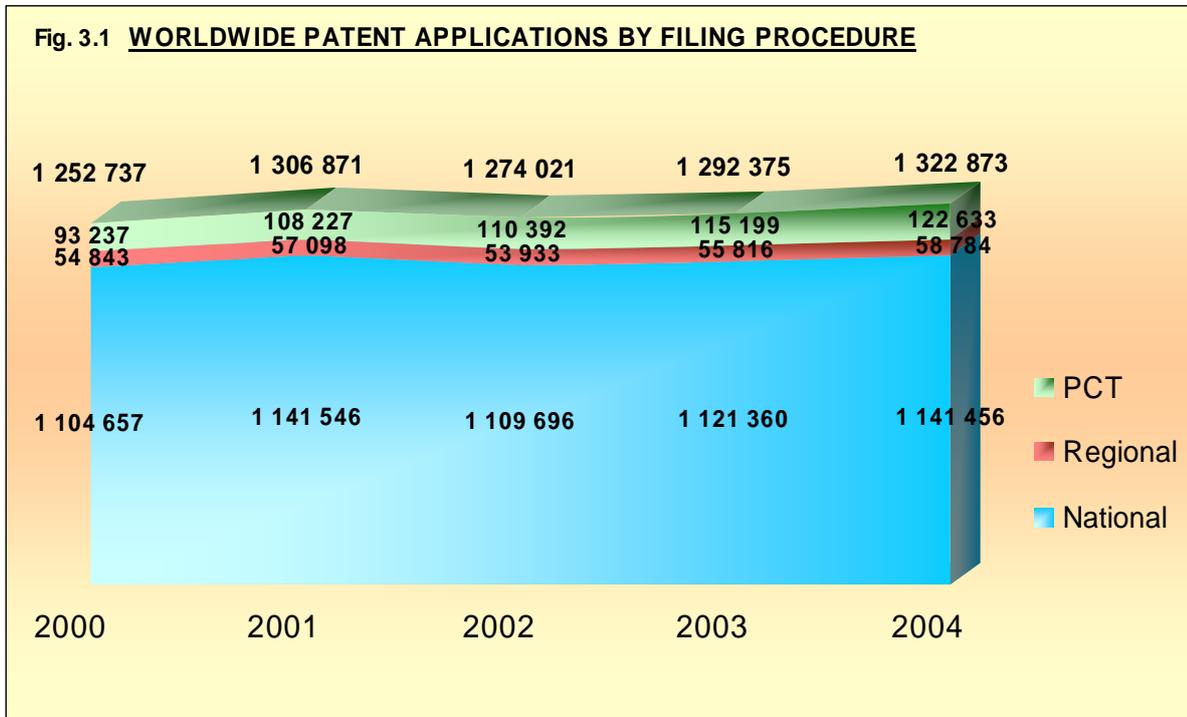
WORLDWIDE PATENTING ACTIVITY

Although the Trilateral Offices represent a significant proportion of total patents worldwide, the global picture is not complete without including the other offices from around the world. This chapter examines worldwide patent activities in terms of patent applications and grants. The statistics mostly cover a five-year period from 2000 to 2004. More current and detailed data from the Trilateral Offices are presented in Chapter 4. Comparable statistics on the usage of the PCT system appear in Chapter 5.

Applications reported hereafter are counted by the calendar year of filing and grants by the calendar year of granting.

PATENT APPLICATIONS FILED

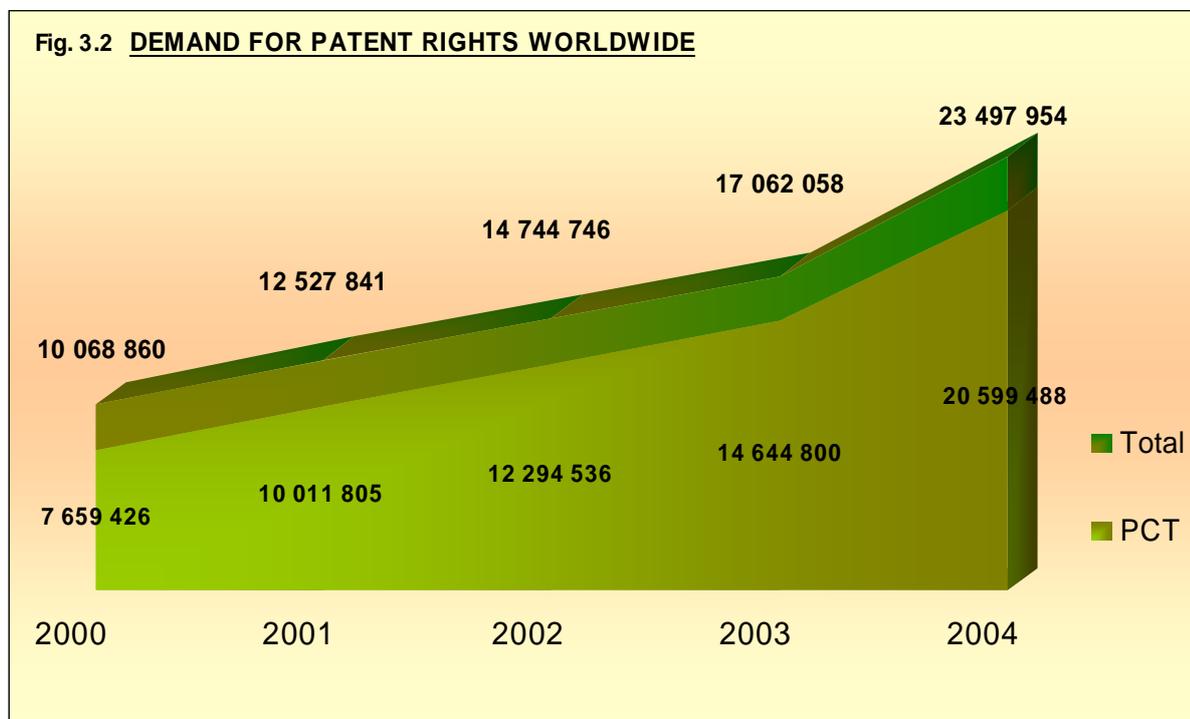
The data in Fig. 3.1 below show the numbers of applications filed all over the world.



About 1.3 million applications were filed in 2004. This represented the number of actions taken in 2004 to protect inventions around the world. This is slightly higher than during the previous years. Although most of these applications were filed according to national procedures (86% in 2004), the growth in filings is also led by the ever-increasing use of supranational systems and in particular the PCT system.

Considering that not all the offices report filing statistics on a regular basis, one should be careful in interpreting this data. It can at least be concluded that they show a continuing tendency to use the patent systems in the world and that this does not seem to decline over time.

Fig. 3.2 below shows the development of the worldwide demand for patent rights including cumulated supranational designations. This gives an indication of the number of individual patent applications that would be required if there were no supranational patent systems to obtain the same geographical coverage for inventions.



This figure contains the numbers of designations at filing in regional and international applications, as well as national filings. In January, 2004, the PCT rules were revised to introduce a "deemed all designation system", or automatic designation of all participating countries from one international application. It should be reemphasised that Fig. 3.2 represents multiple applications for sovereign rights within the distinct application events. This factor probably explains the large increase in the number of PCT designations in 2004 compared to 2003. It can also be mentioned that, even before 2004, the fee scheme for filing international applications led to many or all participating countries usually being designated.

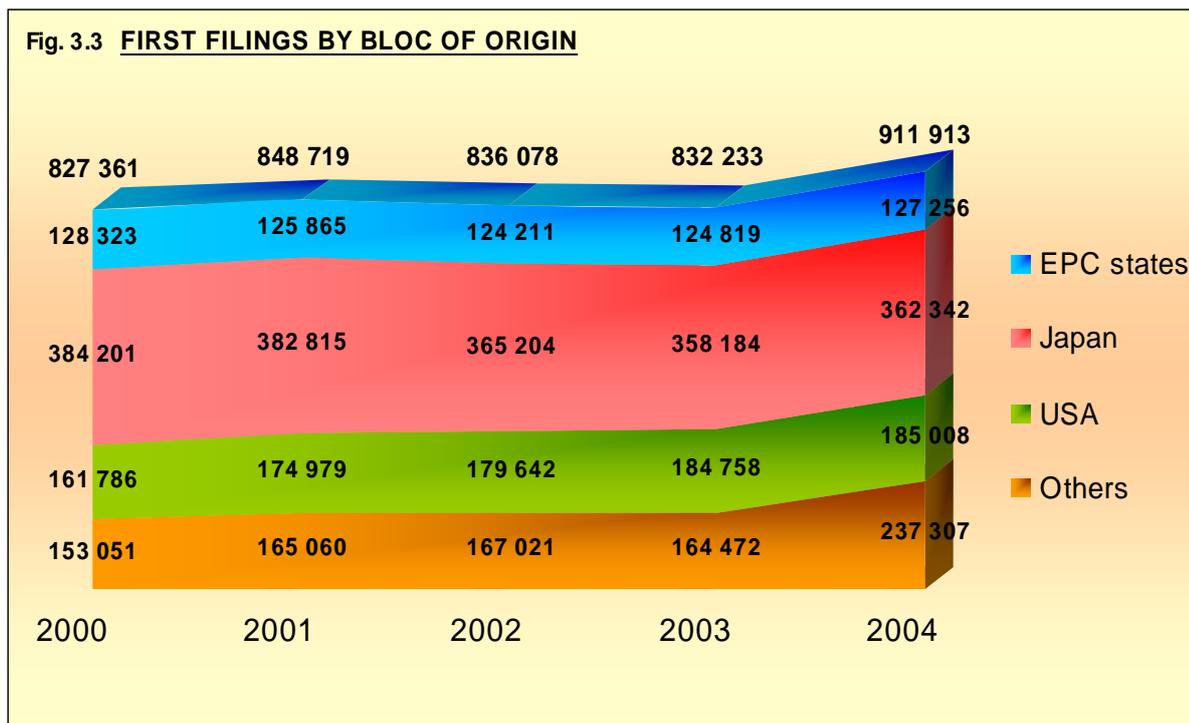
Demands for patent rights have been increasing at an average compound rate of 24% per year since 2000 (19% per year for 2000 to 2003, 38% from 2003 to 2004). In 2004 the total demand reached nearly 23 498 000, of which 88% was made from multiple designations via the PCT route.

Although most of the applications were filed according to national procedures, in fact a large part of the demand arises from multiple designations under the PCT system. On average in 2004, 17.8 designations were made for each application. In 2000 the comparable figure was only 8.0 designations for each application, and in 2003 it was 13.2 designations for each application.

PATENT ACTIVITY BY BLOCS

FIRST FILINGS

The process of patent protection starts with first filing, an initial patent application made to protect an invention or an innovation prior to any subsequent filing to extend the protection to other countries. The development of first filings in the major filing blocs is shown in Fig. 3.3.



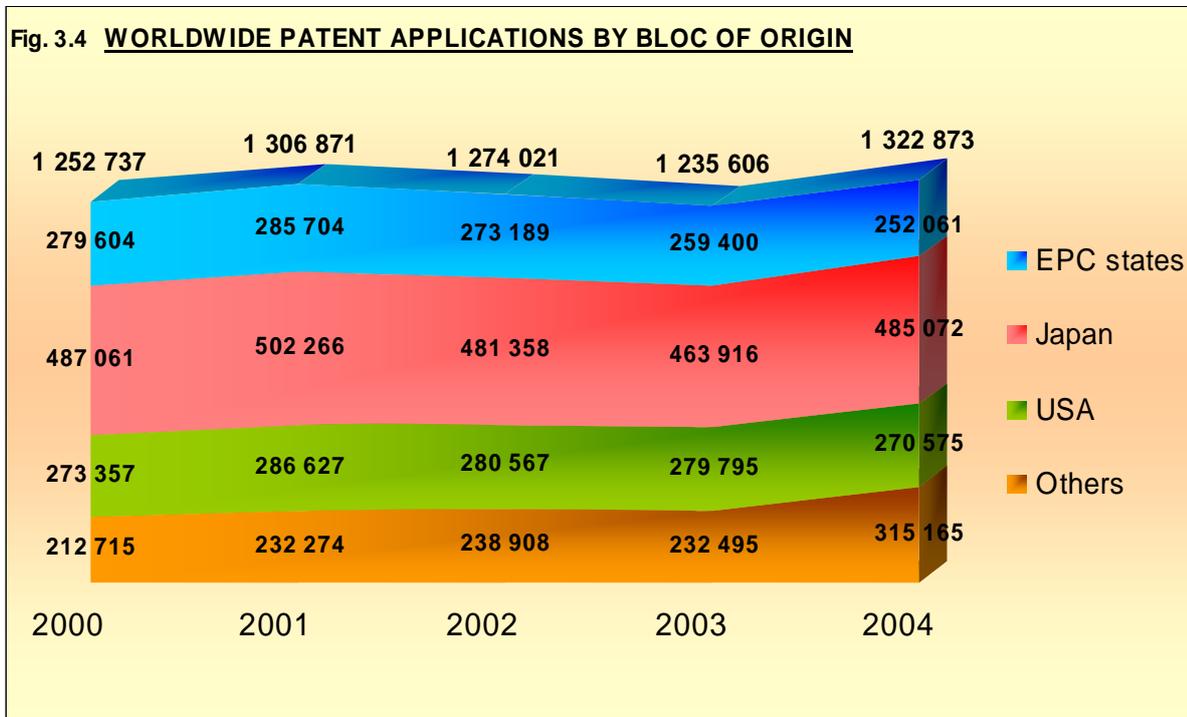
The number of first filings increased by 9.6% to 912 000 from 2003 to 2004. This compares to an effective lack of growth from 2000 to 2003. There were increases recorded in all blocs except for USA.

Japan recorded 362 342 first filings (about 40% of the whole) as the highest number in 2004, but shows a tendency to decrease compared with 384 201 (about 46% of the whole) in 2000. The EPC contracting states recorded 127 256 in 2004. USA recorded 185 008 in 2004 (only 0.1% increase over 2003), but did previously show a tendency to increase from 2000 to 2003.

The total number of first filings in 2003 was 832 233. From these first filings, one year later, in 2004, 410 960 subsequent filings were filed. Thus on average one invention, for which one first filing was made, led to 0.49 subsequent filings. The use of the international and regional patent systems allows for the filing of fewer applications for a broader geographical coverage of the protected inventions. So it does not follow that a first filing is extended on average to less than 1 other country, but that at that stage the centralized procedures allow a reduction of the number of subsequent applications while nevertheless expanding the provisional protection to a large number of countries. The selection of the countries where protection is to be obtained can then be reviewed at any time in the subsequent granting procedures.

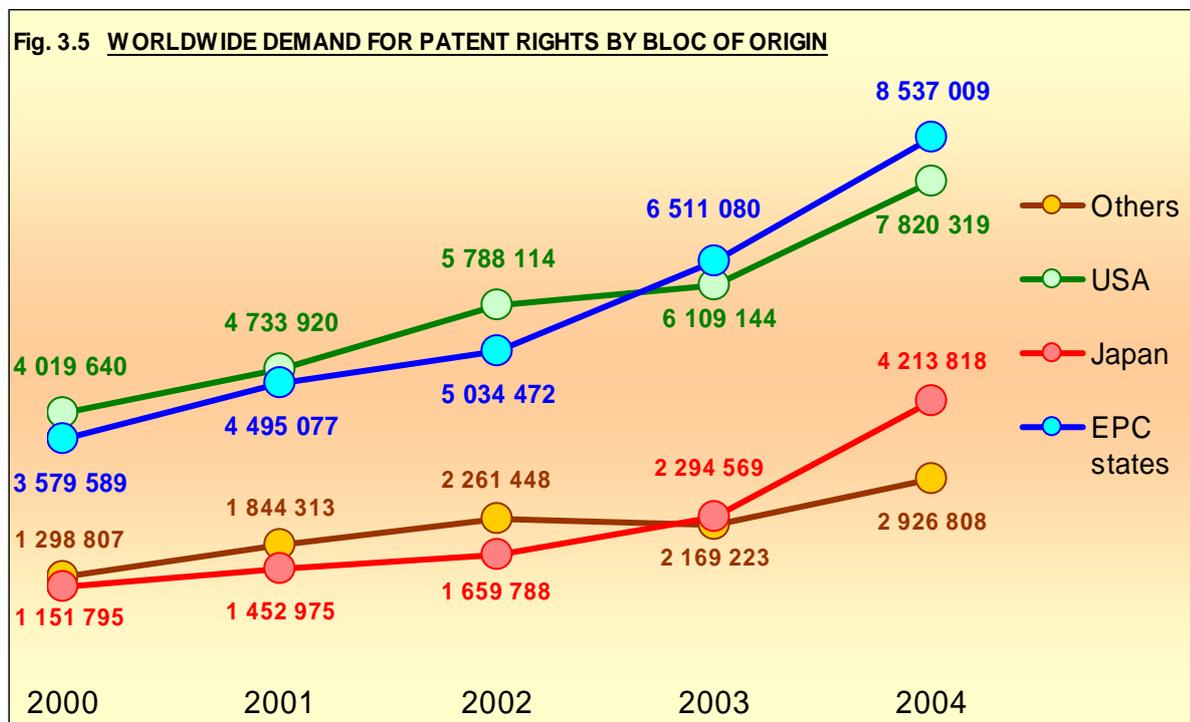
ORIGIN OF THE APPLICATIONS

Fig. 3.4 shows the worldwide numbers of applications, categorized by the blocs of origin of the applicants.



Japan remained the bloc from which the largest share of applications were originating. Whilst the number of applications filed by residents of Europe and the USA tended to decline, the number of applications by residents of the rest of the world increased substantially in 2004. This might reflect different ways of using the patent systems among the different regions. Compared to Fig. 3.1, applications for which the country of origin could not be determined were not taken into account in Fig. 3.4.

Fig. 3.5 shows the origin of the demand for patent rights including cumulated designations. Although the demand from residents in the USA and EPC contracting states was increasing (28% and 31% respectively) in 2004, the demand from residents in Japan was increasing at an especially high rate (84%).

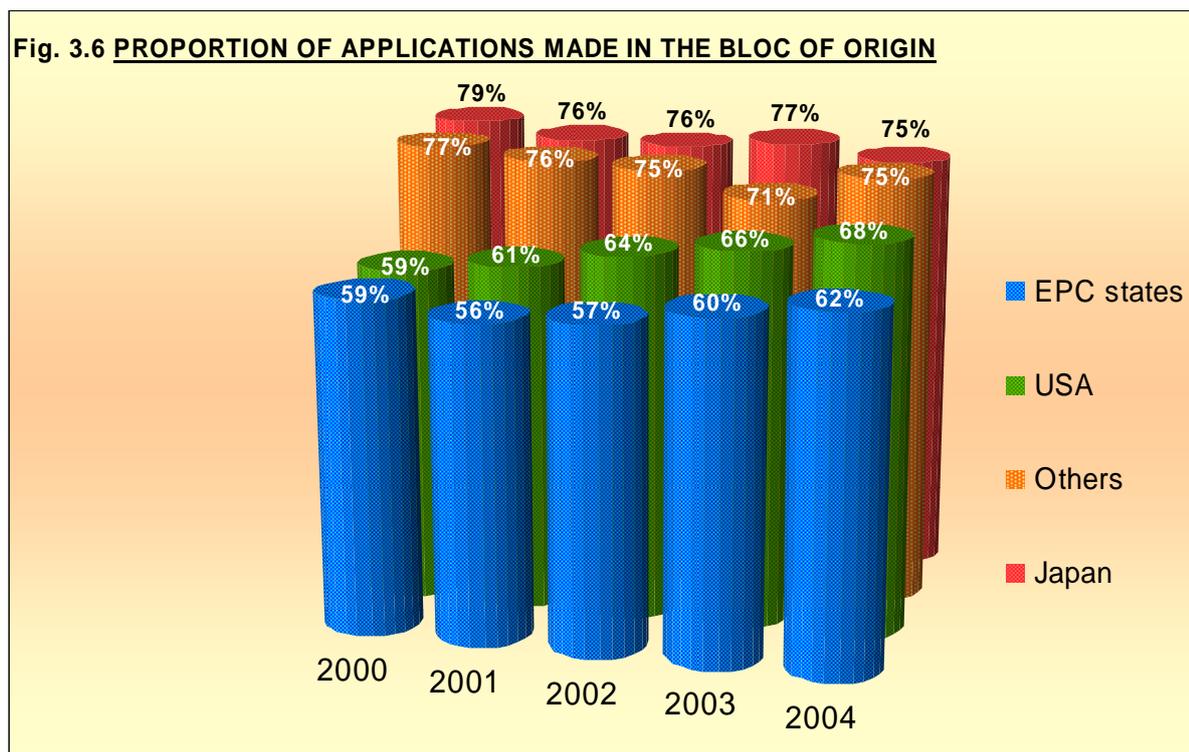


Reasons for the large increase in demand for patent rights since 2004 are discussed under Fig. 3.2. Fig 3.5 shows that these increases have been taken up fairly strongly by Japan and USA based applicants, while the relative increase for EPC based applicants is not so great because they were already previously using the PCT system to a great extent.

TARGETS OF THE APPLICATIONS

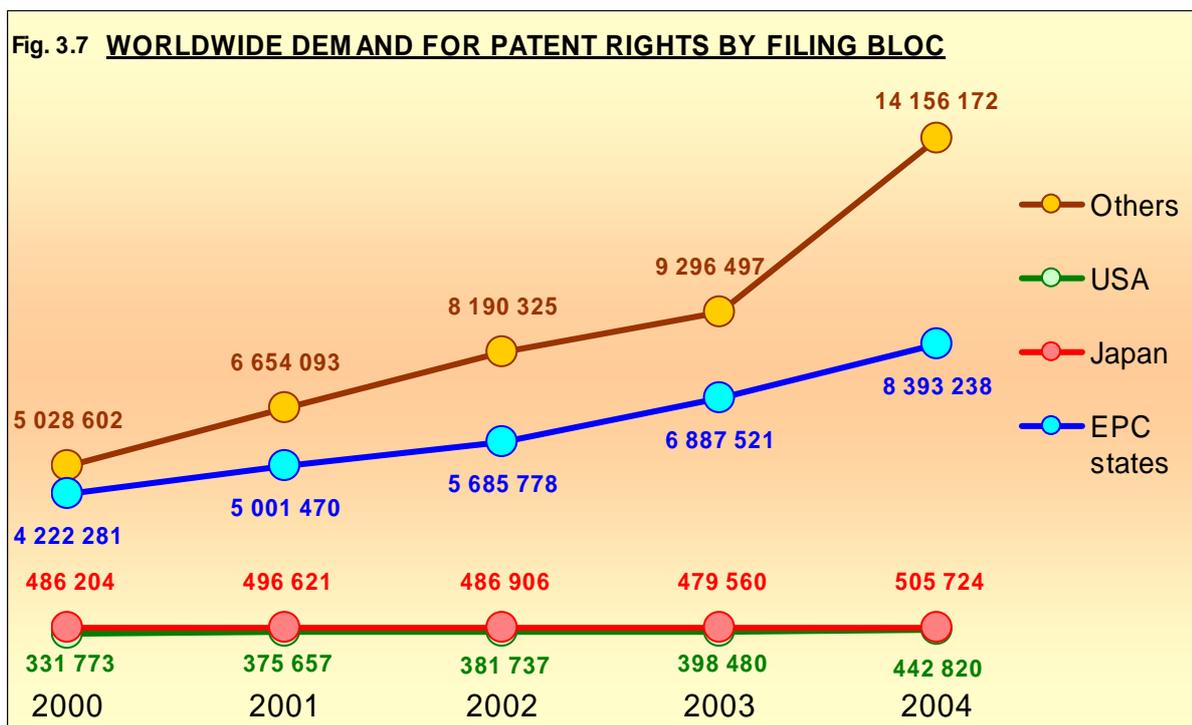
Fig. 3.6 shows, for applications filed throughout the world by the residents of each bloc, the proportions of those applications that were made in bloc of origin. In most cases, the first filing is made in the country of residence and subsequent applications are made to protect the invention abroad.

The proportion of applications made in the bloc of origin is highest in Japan and "Others" (both 75%), followed in order by USA (increasing to 68%) and EPC contracting states (increasing to 62%). EPC contracting states have shown a tendency to increase since 2001 and USA also shows an upward trend. Japan seems to have no clear trend, while "Others" showed a dip in 2003.



On the whole, the proportions are increasing. This is because the increasing use of regional and international procedures leads to rather less use of national procedures to apply abroad. Therefore patent users filed somewhat fewer applications abroad, even though they may continue to apply more and more to protect their inventions by a first filing. As a consequence, out of the total number of applications filed, the share of applications filed abroad diminished, leading to an apparent increase of the proportion of filings made in the bloc of origin.

Fig. 3.7 shows information on demand for patent rights including cumulated designations categorized by the target blocs in which patent rights are sought.

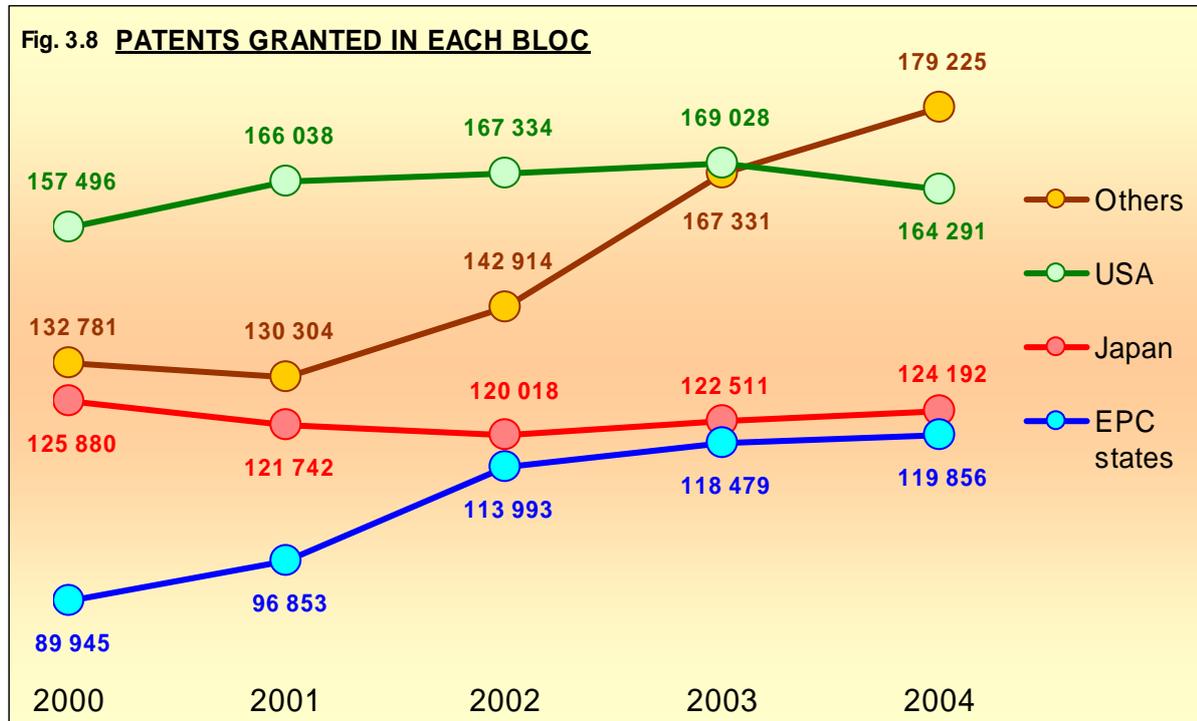


Following the behaviour described under Fig. 3.5, it can be seen here that the rule change in the PCT system has led to a large increase in demand for patent rights in "Others".

Demand in "Others" is the highest followed by the EPC contracting states. The demand increased in all blocs over the period 2000-2004. Within the Trilateral blocs, the relative change was the highest in the EPC contracting states (99% increase overall, 18% compound increase per year for 2000 to 2003, 22% increase from 2003 to 2004), followed by the USPTO (33% increase overall), and Japan (4% increase overall).

GRANTS

The development of the use of patent systems is shown in Fig. 3.8 in terms of the cumulative numbers of patents granted by the various offices in each bloc.

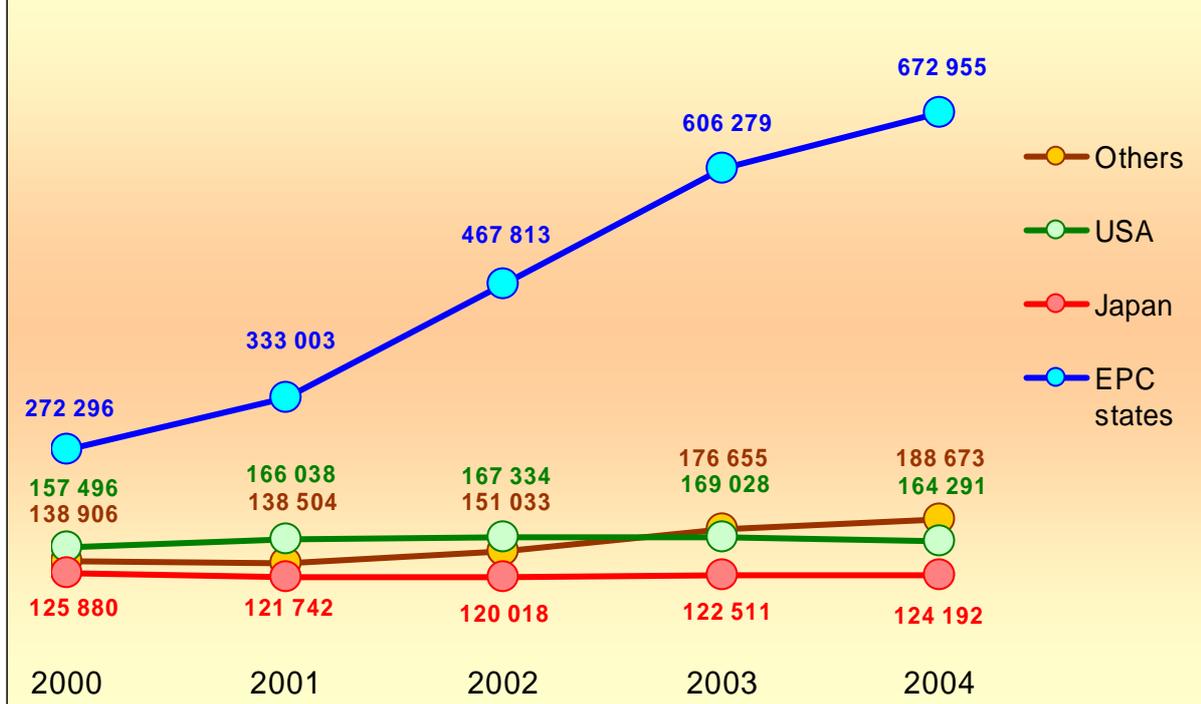


Though there is an overall increase of the number of patents granted throughout the world, the changes are not simultaneous and of the same amplitude in the various regions. After a marked decline during the late 1990's, the number of granted patents increased slightly in Japan since 2002. In the USA, the number declined in 2004 and it is below the 2001 level, while in the EPC grants have continued to increase, though at a lower pace than in 2001 and 2002.

In the other countries, the rise is partly due to more reported figures as well as to a genuine marked increase in the numbers of granted patents in some countries, especially China (+33%), Republic of Korea (+11%), Canada (+13%), Singapore (+38%) and Hong Kong (+38%).

Regional granting procedures lead to multiple patent rights in the various designated states within the region concerned. Fig. 3.9 shows the development of grants as reflected in these rights, and differs from Fig. 3.8 only for those blocs where regional procedures exist in addition to national ones (EPC contracting states and "Others").

Fig. 3.9 PATENT RIGHTS GRANTED IN EACH BLOC



The number of patent rights worldwide has a tendency to increase since 2000. In 2004, the number recorded was about 1 150 000, or a 10 % increase from 2003 to 2004. In Japan and the USA, the changes are relatively small after 2000.

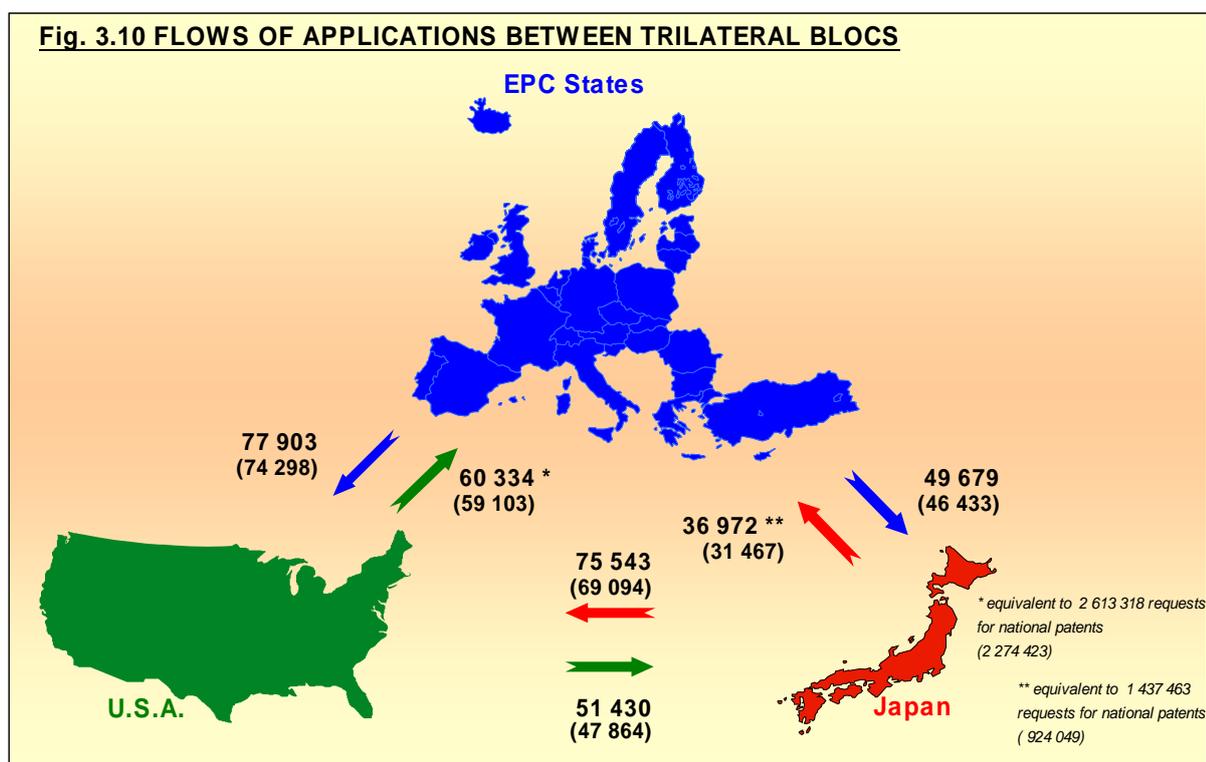
In the EPC states, a growing number of patents were granted via the regional procedure, after entry to the EPO either directly or via the PCT system. This explains the large numbers of patent rights granted there (for EPC there was a growth of 11% from 2003 to 2004, while Fig. 3.8 shows that this was from an increase of only 4.3% in actual grant actions).

INTERBLOC ACTIVITY

FLOWS OF APPLICATIONS

The flows of patent applications and requests for patent rights between the three major filing blocs are described next. Fig. 3.10 shows details of the specific flows of applications between the trilateral blocs in 2004. The 2003 figures are given in brackets.

As in 2004, Japanese applicants file many more applications in the USA than in the EPC area. US applicants tend to apply more in the EPC area than in Japan. Residents of EPC contracting states file many more applications in the USA than they do in Japan.



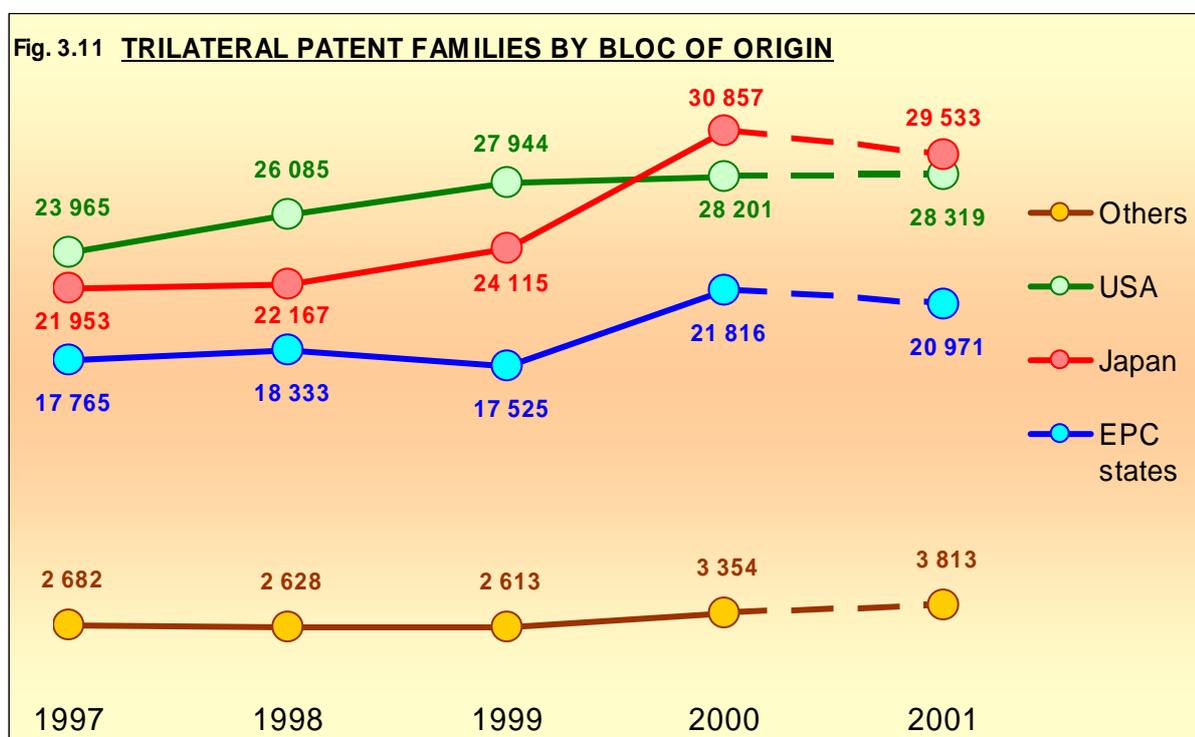
The notes (*) and (**) in the graph allow a comparison of the flows of applications to EPC contracting states with the equivalent flows expressed in terms of rights including cumulative designations¹⁸. Applicants from the USA filed 60 334 applications in the EPC contracting states, equivalent to 2 613 318 national patent applications (43.3 per application; 38.5 in 2003). Japanese applicants filed 36 972 applications in the EPC contracting states, equivalent to 1 437 463 national patent applications (38.9 per application; 29.4 in 2003). If there had been no supranational systems, applicants from the USA and Japan would not have filed so many applications in Europe. The supranational procedures allow them to seek patent protection in more European countries by filing far fewer applications.

¹⁸ See the remarks after Fig. 3.2 for explanations on the figures for requests for national patents in footnotes * and ** of Fig. 3.10.

PATENT FAMILIES

The information in this section was obtained indirectly from the DOCDB database of worldwide patent publications. The statistics are based on references to priorities given in published applications and differ slightly from the statistics earlier in this chapter, which are based on counts of patent applications provided by individual patent offices. Detailed tables that show the flows of patent families between blocs can be seen in the web based annex to this report.

The development over time of trilateral patent families is shown in Fig. 3.11. Due to the delay in publication (from the moment of filing), the figures can only be reported with any degree of accuracy after several years of delay. The figures for references to priorities and flows between trilateral blocs are fairly accurate up to the year 2001, but the figures for trilateral patent families may not be accurate after the year 2000 because for them there needs to be time to gather the evidence of activity in all three blocs.

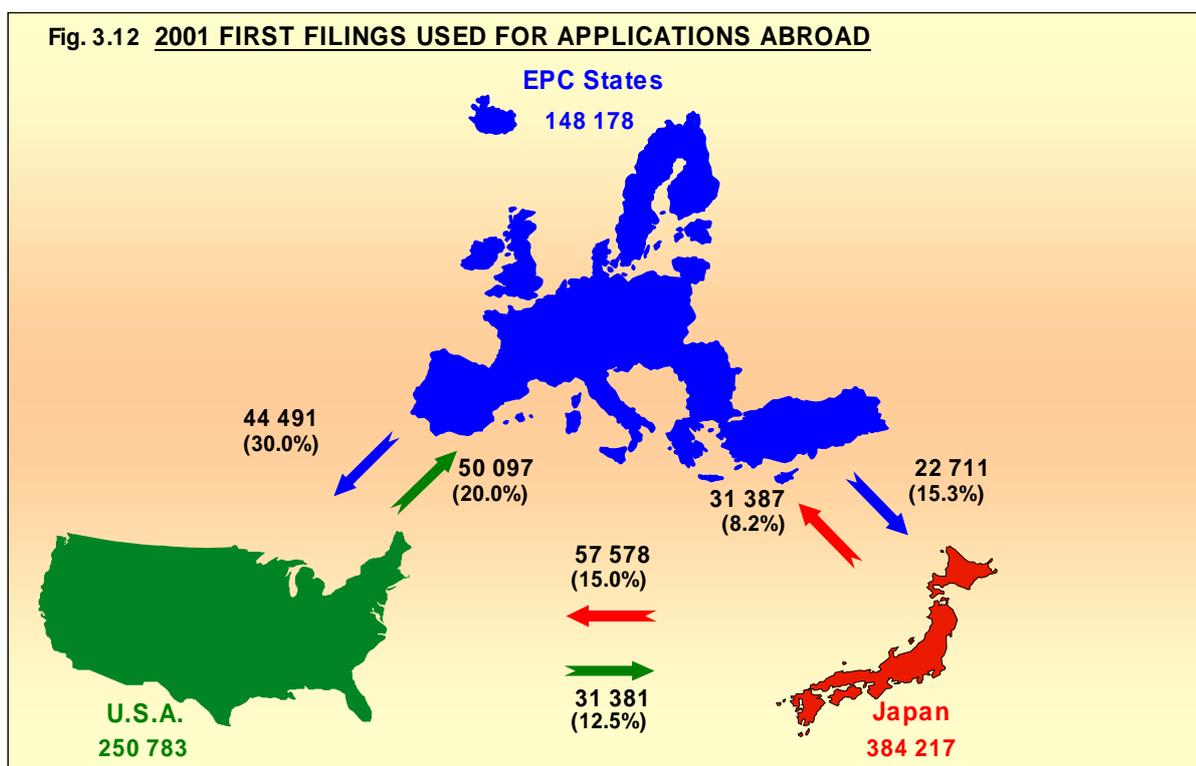


The trilateral patent families' data turned upwards for Japan and EPC states in 2000, while the data for USA was fairly stable over the period to 2000. The total number of trilateral patent families in 2000 was 84 228, of which 25.9% originated from EPC contracting states, 36.6% from Japan, 33.5% from the USA and 4.0% from other states. The corresponding figures for 1999 were a total of 72 197 trilateral patent families, of which 24.3% originated from EPC contracting states, 33.4% from Japan, 38.7% from the USA and 3.6% from other states.

Out of all priority forming filings in the trilateral area in 2000, 10.8% formed trilateral patent families. The proportions differed considerably according to the bloc of origin of the priority forming filings. For EPC contracting states, 14.2% of priority forming filings formed trilateral patent families (was 14.3% in 1999); for USA 11.3% (was 13.1%); for Japan 7.7% (was 8.1%), and for other countries 1.6% (was 1.5%).

A striking feature of Fig. 3.11 is that the numbers of trilateral patent families for EPC contracting states and Japan increased by around 25% in one step between 1999 and 2000. This is probably to be explained by the fact that USPTO started publishing applications for priority filings in 2000 and so the numbers of trilateral families coming from abroad will be more accurately reflected from 2000 onwards. Prior to 2000, there was a censoring effect against the other blocs since a patent application that terminated before grant in USPTO could not be counted as part of a trilateral patent family.

The flows of patent families between trilateral blocs are shown in Fig. 3.12. The number given for each bloc is the total number of distinct references to priority filings in 2001. This can be taken as an indicator of the number of first filings in the bloc. The flow figures between blocs of origin and target blocs indicate the numbers of secondary filings in the target bloc that referenced priority filings from the bloc of origin in 2001.



From information tabulated in the web-based annex of this report, out of all first filings in the trilateral area in 2001, only 20.3% formed patent families including at least one other trilateral bloc. When considered by bloc of the priority applications, this proportion was much smaller for Japan than for the other blocs (31.2% for EPC contracting states, 15.5% for Japan, and 21.2% for USA). However the absolute number of such filings for Japan (59 432) was larger than the filings from the other blocs (EPC contracting states 46 231, USA 53 159) due to the large number of first filings in Japan. When the trilateral blocs receiving subsequent applications from the trilateral area are considered, a larger proportion of filings were received by USA than by the other blocs (12.8% by EPC contracting states, 13.6% by Japan, and 19.2% by USA). From all the priority forming first filings throughout the world in 2001, 17.5% formed patent families including at least one trilateral bloc.