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WIPO WORKING GROUP ON INFORMATION TECHNOLOGIES FOR INTELLECTUAL PROPERTY

First Session
Geneva, July 14 to 18, 1997

CURRENT INFORMATION TECHNOLOGY ACTIVITIES OF THE INTERNATIONAL BUREAU OF WIPO

Memorandum prepared by the International Bureau

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I. Background

1. At the March 20 and 21, 1997, session of the WIPO General Assembly, a proposal from the United States of America concerning the establishment of an *ad hoc* Information Technologies Committee and proposed decisions concerning scheduling of meetings of this and related committees was discussed.

2. Following that discussion, WIPO General Assembly made the following decision (see paragraph 7 of document WO/GA/XX/3):

"(a) First, a working group will meet in June or July 1997, whose membership will be open to every Member State of WIPO on an equal footing as well as to those organizations which usually participate in WIPO meetings. The Working Group will have three inputs and is expected to have three results.

– The first input will be a paper from the United States of America in which it will further explain and specify its proposals.

– The second input will be any written comment on the proposal of the United States of America or any new ideas, in writing, from any of the Member States or the said organizations.

– The third input will be a document from the International Bureau of WIPO which, as regards information technology activities, will state what the Organization is already doing and what is in the draft program and budget for the next biennium; it may also provide any other comments.

In keeping with the spirit of the proposal of the United States of America, those three inputs should be communicated also through the Internet.

The three expected results of the meeting of the Working Group would be the following:

– The first result would be a recommendation as to the future structure or institutional aspects, namely, whether there should be a new committee (in which case, what should be its name and its composition, etc.) or should the task be entrusted to existing WIPO bodies.

– The second result would be a recommendation as to what should be the program in this field for the rest of 1997 and for the next biennium—to the extent that that is not already in the present and proposed program.

– The third result would be a recommendation as to general objectives beyond 1999.

(b) Second, the Director General will propose, if necessary, adjustments to the budget for 1997, and, in any case, an additional budget for the 1998-99 biennium.

(c) Third, if considered necessary, a special session of the Budget Committee will be convened, a few days before the September-October 1997 ordinary sessions of the Governing Bodies, to consider the said proposed adjustments and the said additional budget.

(d) Fourth, the Governing Bodies would then, in the said ordinary sessions, be invited to approve the necessary changes in, and additions to, the program and budget for the rest of 1997 and the 1998-99 biennium."

3. The present document is the "third input" to the July 14 to 18, 1997, meeting of the Working Group on Information Technologies for Intellectual Property, and describes what the International Bureau of WIPO is already doing as regards information technology activities. This document cannot, however, state what is in the draft program and budget for the next (1998-99) biennium since, following the recommendation made by the Budget Committee at its session held on April 16 and 18, 1997, it is now expected that the Governing Bodies will decide, at their September-October 1997 sessions, that the draft program and budget for the 1998-99 biennium to be considered by them will be that which will be presented by the new Director General. Such draft will be presented probably some months after the appointment (in September 1997) and entry into function of the new Director General.

II. Introduction

4. It is clear that information technologies are extremely significant in the field of intellectual property for a number of reasons. The so-called "information revolution" has highlighted the importance of intellectual property matters, and has introduced a whole range of new problems related to intellectual property which require solutions. At the same time, as the costs of computer processing, data storage and electronic communications have plummeted, information technologies have provided numerous new opportunities to make operations more effective and efficient, and to make possible activities that could previously not have been envisaged. In particular, the Internet and related telecommunications technologies have enabled the obstacle of long distance to be essentially eliminated.

5. Information technology activities have been underway in the International Bureau for many years, in order to make the performance of tasks more efficient, especially in the area of services to industry and commerce, including the provision of information under the international registration treaties to member States, applicants and the public. A very significant use has been made of information technologies, throughout the International Bureau, as numerous information systems were introduced for supporting and automating the operational activities (especially concerning the international registration treaties) and administrative activities of the Organization. Such systems have subsequently been extensively developed, modernized and improved. Those systems at first dealt with operations where the input arrived on paper, the processing was assisted by computer, and a paper output resulted. In the last few years, with recent developments in information technology, a situation has developed where many of the outputs are now in electronic form, and inputs are increasingly coming in electronic form; the Organization is thus moving towards a situation where many of the inputs will be electronic, the processing will be facilitated by information technology systems, and most of the outputs will be in electronic form.

6. In addition to the extensive use of information technologies in its operational and administrative activities, the International Bureau has also been actively assisting developing countries, and countries in transition, in using information technologies for modernizing and automating their industrial property offices and in facilitating the dissemination and use of intellectual property information. At the same time, the International Bureau is working extensively with national and regional industrial property offices, in the context of the WIPO Permanent Committee on Industrial Property Information (PCIPI), to determine, in a coordinated manner, the best way for all to benefit from the use of new information technologies, especially in the changeover from the use of paper to electronic data carriers in the filing and processing of applications for industrial property titles, and in the exchange of industrial property information.

III. Overview

7. With information technologies now involved in virtually every aspect of the activities of the International Bureau, most of the staff use personal computer workstations in the performance of their daily duties. In addition, a number of staff and consultants undertake development work, and provide support and training; see paragraphs 16 to 18, below.

8. The information technology architecture within WIPO involves a Networked Office System (NOS) consisting of a large number of personal computer workstations and a number of distributed servers, interlinked through a cabling and networking system throughout the six buildings occupied by the staff of the International Bureau; external communications facilities include links to industrial property offices, as well as to the public through WIPO's Web site on the Internet, as described in paragraphs 19 to 23, below.

9. Two of the most important information systems are those that have been developed for effectively and efficiently handling the processing of international applications and other activities under the PCT and Madrid systems, for providing electronic communications between the International Bureau and a number of national and regional industrial property offices, and for effectively disseminating information concerning those systems, as well as concerning published patent applications and international trademark applications and registrations. A further information system has been developed to support the processing of international deposits under the Hague system. Current information technology activities concerning the PCT system are described in paragraphs 24 to 35, below; those concerning the Madrid system are described in paragraphs 36 to 46, below, and those concerning the Hague system are described in paragraphs 47 to 49, below.

10. In addition to the major information systems used for carrying out the activities under the PCT and Madrid systems, the International Bureau also has a number of other information systems supporting its operational activities, including maintaining databases for the collection of intellectual property legislative texts and for the Library, maintaining yearly statistics, and database management systems for the international classifications. CD-ROM products are published for the law collection (IPLEX), for the IPC, for the Nice, Vienna and Locarno Classifications and for Article 6*ter* communications under the Paris Convention. The latest information technology system being developed is for the WIPO Arbitration and Mediation Center, to provide for on-line arbitration for resolution of conflicts between Internet domain names and trademarks. These various operational systems are described in paragraphs 50 to 58, below.

11. The provision of information is a major function of the International Bureau, and that is greatly facilitated by various systems which enable much of the information to be provided by electronic means. Such information includes that relating to the above-mentioned information systems, as well as that generated by word processing systems. The earlier word processing systems have been replaced by a House-wide network of personal computers used for word processing, spreadsheet applications, electronic publishing and e-mail. The Organization's Web site on the Internet provides a major information service to users throughout the world, and will soon provide an electronic facility for placing orders for WIPO's publications. Increasingly WIPO is moving towards a policy of the widest possible dissemination of information free of charge (apart from that with significant value-added data). These information dissemination activities are described in paragraphs 59 to 65, below, with the International Bureau's policy in paragraph 66, below.

12. The International Bureau makes extensive use of information technologies in support of its various administrative activities, including major information systems for financial management and personnel management, for publication sales and stock control, for maintenance of address lists for meetings and document stock control, and for inventory management, as well as an Intranet able to provide access throughout the International Bureau to shared knowledge bases developed by different units of the International Bureau. Those administrative systems are described in paragraphs 67 to 78, below.

13. Building upon its own in-house experience and expertise in the use of information technologies, notably for handling international patent applications and international trademark registrations and for various administrative activities, as well as using the experience and expertise of national and regional industrial property offices, the International Bureau has been actively assisting developing countries in using information technologies in the modernization and computerization of the operations of their industrial property offices, copyright offices and collective management organizations, and in promoting the dissemination and use of intellectual property information. This activity is described in paragraphs 79 to 89, below. Parallel activities to assist countries in transition (particularly in Central and Eastern Europe and Central Asia) are described in paragraphs 90 and 91, below.

14. The International Bureau encourages and institutes close cooperation among national and regional industrial property offices, and among such offices and the International Bureau, in all matters concerning information and documentation covering patents, trademarks and industrial designs, concentrating, in particular, on: monitoring the development and impact of new information technology methods to determine the relevance of those in the field of industrial property information and documentation; making corresponding recommendations to industrial property offices, particularly in respect of the standards to be applied and systems to be established by them for the formatting, storage and retrieval of industrial property information as well as for the electronic filing of applications for the grant of industrial property rights; and making suggestions on the most effective means of disseminating such information to other industrial property offices and to users in general, taking into account the needs of users in developing countries for industrial property information and documentation. Those activities are planned and monitored by the WIPO Permanent Committee on Industrial Property Information (PCIPI) as described in paragraphs 92 to 99, below.

15. The International Bureau has been, and continues to be, active in a number of normative activities involving information technologies and intellectual property, including, *inter alia*, work relating to the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty, and relating to the proposed WIPO Database Treaty, intellectual property and global digital networks (including the Internet), and the legal effects of certain electronic communications. Since the nature of those normative activities is quite different from that of the other activities of the International Bureau concerning information technologies and intellectual property (which involve registration and other operational activities, information dissemination, administration activities, assistance to developing countries and countries in transition, and the work of the PCIPI), they are merely mentioned here *pro memoria*, and are not referred to further in this document.

IV. The Staff of the International Bureau Using Information Technologies

16. Virtually all of the activities of the International Bureau make extensive, and increasing, use of information technologies. The extent of such use is indicated by the fact that there are at present 650 workstations (mainly personal computers (PCs) plus some UNIX workstations) throughout the International Bureau (or an average of about one workstation per staff member), as well as 400 printers installed. Those workstations make use, as appropriate for the given applications, of the powerful mainframe computing services offered by the International Computing Centre (ICC, which is a major computer centre, located in Geneva, run as a cooperative by the United Nations and a number of organizations of the United Nations system which share its operating costs; the ICC reports to a Management Committee, one of whose members is appointed by WIPO) or one of the 16 servers connected to the House-wide network. Another indication of the extent of use of information technologies in the International Bureau is the fact that WIPO is the fourth largest user of the ICC at 16% of overall usage, even though WIPO is one of the smallest of the organizations of the United Nations system. In terms of ICC use per staff member, WIPO is by far the largest user of the ICC (having more than three times the ICC use per staff member of the next ranked organization).

17. In addition to the large number of the staff of the International Bureau who use information technologies in their daily work, there are a number of staff and consultants undertaking development work and providing support through: studying areas where a greater use of information technologies appears desirable; undertaking systems analysis; installing standard software packages, or writing and testing computer programs; developing and installing the systems themselves (including the associated hardware, software and network facilities) or overseeing consultants and contractors doing so; providing on-going maintenance of the hardware, software and network (and adapting and developing them as necessary); running computer programs and procedures; training users in mainframe, client-server and PC applications, and maintaining a "help desk;" developing CD-ROM products and running WIPO's Web site on the Internet, and, in general, undertaking all the other activities that are necessary for the Organization to have effective and efficient operations making an optimal use of current and new information technologies. Those information technology staff (totalling 38 at present) and consultants (nine at present) are mainly located in the Information Technology Department, the PCT Computerization Section and the Trademark Computerization Section.

18. Extensive training is provided for the staff, both users and the information technology professionals. Users receive training in a specially equipped training room, based on a user

guide specifically developed by the International Bureau to give guidance to users of the word processing system. Courses are offered on Windows, Word for Windows, Advanced Word for Windows, Excel and use of e-mail. Members of the information technology staff keep abreast of the latest developments in information technology through numerous professional contacts, especially with firms highly advanced in the field; members of the information technology staff also attend specialized training courses offered by outside firms concerning various softwares and systems.

V. The International Bureau's Information Technology Architecture

19. Until 1992, WIPO's computer systems involved a series of independent systems responding to the specific needs of a given division or project; they were either based on the IBM mainframes located at the ICC (which used a non-standard operating system) or on Wang minicomputers; there was also one UNIX server and a few PCs. A new system architecture, called WIPO NOS (Networked Office System) was then progressively put into operation, and is now implemented, as shown in Figure 1, through a client-server architecture, unified by an homogeneous network. The client side consists of PC workstations using a graphical user interface; based on Intel processors operating under Microsoft Windows 3.11, such workstations give the users access to any application on the network subject to the necessary authorizations. The server side combines the power and flexibility of three complementary families of servers:

(i) Novell IntraNetWare 4.11 servers on high-end Intel based platforms for workstations management and office automation services (word processing, spreadsheets, document management, electronic publishing, shared CD-ROM access, electronic-mail and associated services, Internet/Intranet services, and medium size databases and applications); there are two NetFrame super servers, eight Olivetti SNX servers and two HP Net Servers;

(ii) IBM MVS/ESA mainframe server located in the ICC for running the main information systems for PCT (CASPIA and CASPRO systems; see paragraphs 25 and 26, below), Madrid (MAPS system; see paragraph 38, below), and Finance (FINAUT system; see paragraphs 68 and 69, below) operations, using the ADABAS Database Management System (DBMS) and written with NATURAL (the associated 4th generation programming language); the recent adaptation of WIPO's mainframe systems to the standard (MVS/ESA) operating systems now implemented by the ICC has provided greater security and reliability, the use of more advanced technology, and permitted more efficient and effective use of EDP tools; and

(iii) UNIX servers for running advanced technology systems such as the PCT publication system (SPIDI) (see paragraph 27, below), the Madrid optical disc system (MINOS) (see paragraph 38, below), the new payroll and personnel management system (see paragraph 71, below) and the Flexi-time system (see paragraph 74, below).

20. The cabling and networking system now in place is the key to the sharing of resources and servers among users in the six different buildings occupied by the staff of the International Bureau. Within each of those buildings there are one or more local area network (LAN) segments connected together via routers and optical fiber backbones; the interconnection of the buildings (through PTT 2 Mbps optical fiber links) provides for the integration of the series of LANs into a WIPO wide area network (WAN). A total of over 2,000 outlets allow for the connection of any WIPO staff to the NOS network. The cabling and networking system is

made of a combination of state-of-the art technology: ATT Systimax cabling for 16 Mbps token-ring topology; Bay Networks Token-Ring concentrators; Cisco routers for Wide-Area-Networking and SunNet Manager network management tools. With that solid system in place, WIPO is able to connect any new servers to the WIPO network as the need arises; to move users and equipment around easily as the need arises, and to provide superior performance with electronic network management to prevent local problems from perturbing the whole network.

21. Security is a prime concern for the network designers and administrators. Many levels of security controls are in place, one of the key elements being the central Netware Directory Services (NDS) which allows central management of access rights and authorizations. Other techniques are also used, including traffic segregation and IP to IPX translation.

22. External communications facilities are added to NOS progressively to facilitate exchange of information with industrial property offices and the public throughout the world. The ICC is the major outside resource interfaced with NOS, through 2 Mbps optical fiber links; an ICC node was recently installed in the basement of the WIPO Building, allowing for a direct connection to ICC, as well as providing an alternate network path. Over 250 PCs make use of two Netware for SAA Version 2 Gateways, with a hot stand by facility; these PCs can then access WIPO mainframe applications running at the ICC. For electronic communication of data between the International Bureau and industrial property offices, leased line links and dial-up access are now used by several Offices. In 1996, the Novell GroupWise5 electronic mail and groupware product was installed on NOS. It provides access to Internet e-mail through a SMTP/MIME gateway, ICC being the Internet Access provider. In addition to individual e-mail addresses, a number of general e-mail addresses for departments and services of WIPO have been defined and publicized on the WIPO Web site to facilitate communications.

23. WIPO's Web site on the Internet is at present run by the ICC on a UNIX server, with its maintenance and the uploading of new material (across ICC's sophisticated firewall) performed through WIPO's House-wide network using the 2 Mbps optical fiber connection to the ICC.

VI. The International Bureau's Use of Information Technologies in the Administration of the PCT System

24. The services provided by the International Bureau under the PCT are effectively and efficiently supported by several information systems used in virtually every aspect of the processing of international applications, namely, the systems called CASPIA (see paragraph 25, below), CASPRO (see paragraph 26, below), SPIDI (see paragraph 27, below) and the PCT pamphlet scanning system (see paragraph 28, below) (see Figure 2). On-going developments and improvements are made to those systems as required. The high security requirements in the administration of PCT operations has led to the installation of a Cerflex electronic security system, which controls and logs individual access to every office used for PCT operations at the WIPO headquarters in Geneva. Information on the PCT system is published through WIPO's Web site on the Internet (as well as in paper form) (see paragraph 29, below). Information concerning international applications and associated material has started to be communicated electronically to industrial property offices (see paragraph 30, below). And information on published patent applications is made widely available through CD-ROMs, produced in cooperation with the European Patent Office, and

through information provided in electronic form to patent information service providers (see paragraphs 31 to 33, below). In addition to on-going developments of the above-mentioned systems, the International Bureau is working with the Trilateral Offices (European Patent Office, Japanese Patent Office and the United States Patent and Trademark Office), on the development of the EASY system for the electronic filing of patent applications (see paragraph 34, below) and is also working on a number of future developments to facilitate and streamline PCT operations (see paragraph 35, below).

25. Computer-Assisted System for the Processing of International Applications (CASPIA). The International Bureau has implemented the CASPIA system for the purpose of efficiently carrying out the tasks related to the administration of international applications; the main functions include (i) receipt, data entry and validation of bibliographic data, formalities examination, and subsequent processing of record copies, (ii) receipt and processing of international search reports and international preliminary examination reports, (iii) generation of 26 different forms (in paper, and in electronic form) for correspondence with applicants and with Offices, (iv) monitoring of deadlines, (v) interfacing with the FINAUT system regarding the payment of fees (see paragraph 69, below), (vi) interfacing with the SPIDI system (see paragraph 27, below) for the publication of the English and French Gazettes (*PCT Gazette/Gazette du PCT*) and of the front pages of the PCT pamphlets, (vii) interfacing with the Publications system (see paragraph 75, below) for standing orders for PCT pamphlets by IPC class, and (viii) providing indexes and statistics. The CASPIA system has currently over 135 users, who access the mainframe application through networked PC workstations. The CASPIA system has handled over 50,000 new international applications received during the last twelve months.

26. Computer-Assisted System for the Processing of International Applications as Receiving Office (CASPRO). The CASPRO system has been developed along the same lines as CASPIA, but with the purpose of reinforcing the activities carried out by the PCT Receiving Office within the International Bureau. The main functions of CASPRO include (i) data entry and validation of the bibliographic data related to new international applications, (ii) monitoring of deadlines, (iii) generation of 13 different forms used by the Receiving Office, (iv) processing of fees and payments, interfacing with the FINAUT system (see paragraph 69, below). The CASPRO system has on average five users, and has handled over 1700 new international applications filed with the International Bureau's receiving Office during the last twelve months.

27. System for the Publication of International Application Data and Images (SPIDI). The purpose of SPIDI is to provide a high-productivity electronic publishing system for the preparation of PCT pamphlet front pages, as well as the English and French Gazettes. The system is highly automated, with the relevant bibliographic data downloaded from CASPIA only two weeks before the final publication date. The main tasks performed are (i) the on-line editing of the first pages, with the inclusion of the scanned drawings (and, where applicable, the insertion of translations of textual information), (ii) formatting of bibliographic data, with automatic reduction of the drawing, (iii) printing of camera-ready copies of the English and French Gazettes, as well as of the pamphlet first pages, and (iv) providing input for the planned production of a new, mixed mode ESPACE-FIRST CD-ROM product, as well as for other patent information service providers that are interested in acquiring first page information in an SGML tagged, mixed mode format. The SPIDI system, which for security reasons runs on a

separate network, is currently utilized by 15 users to process on average 950 new pamphlets, with the corresponding English and French Gazettes, per weekly publication cycle.

28. PCT Pamphlet Scanning. To increase the overall efficiency of the production of PCT pamphlets, the International Bureau has introduced the electronic scanning of a master copy of all PCT pamphlets prior to publication, the scanned images being used by the high-speed printers to produce the PCT pamphlets. Using data from the CASPIA system on the recipients of each PCT pamphlet, it will shortly be possible to print sets of pamphlets sorted by destination, thereby eliminating the need for manual sorting. Additional benefits of having the image data of PCT pamphlets available in an electronic format include (i) the possibility of bringing forward the publication date of the ESPACE-WORLD CD-ROM product, and (ii) the streamlining of the re-printing process of pamphlets on demand. (Copies of PCT pamphlets are now re-printed on demand from ESPACE-WORLD CD-ROMs in juke-boxes, using a system developed by the United Kingdom Patent Office; see paragraph 75, below.)

29. Electronic Information on the PCT System. The International Bureau is continuously enriching the contents of its Web site (see paragraph 63, below) in order to make use of the Internet for providing up-to-date information to the increasing number of PCT users worldwide. The following items of particular interest are now available free of charge on the Web site: (i) basic facts about the PCT, (ii) text of the PCT and Regulations, (iii) PCT press releases (including the 1996 activities of the PCT, new accessions, etc.), (iv) monthly PCT Newsletters (starting from January 1997), (v) PCT Applicant's Guide (Volumes IA, IB, IIA, IIB and IIC), and (vi) a number of key PCT forms, especially application forms, in different languages, together with filled-in sample forms to serve as examples. On an associated matter, the International Bureau publishes the quarterly JOPAL (Journal Of Patent Associated Literature) CD-ROM, which is made available free of charge to the national Offices of the PCT Contracting States.

30. Electronic Data Exchange. In an effort to reduce printing and postage costs, and to avoid inefficiencies due to multiple data entry operations, the International Bureau has gradually increased the scope of its electronic data transfer activities within the past years. Today, over twenty external partners (industrial property offices and commercial database vendors) receive various forms of electronic PCT data, including (i) bibliographic data from the PCT Gazettes, (ii) various PCT forms, and (iii) tagged front page data produced by the SPIDI electronic publication system. The International Bureau also receives and processes electronically fee data from Offices. While most of the data is transferred using magnetic tapes, increasing amounts of information are also exchanged on-line between the International Bureau and the European Patent Office. Further projects under consideration, together with the Trilateral Offices, include the exchange of priority documents and of international search reports in electronic format.

31. Access to Published International Patent Applications in Electronic Form. Information on published PCT applications has for many years been available in electronic form through the ESPACE range of CD-ROM products, produced in cooperation with the European Patent Office, of which (i) the weekly ESPACE-WORLD CD-ROMs contain entire PCT pamphlets (with full text and drawings) in facsimile form, together with certain searchable bibliographic data; all international applications published (since 1978) are available in the ESPACE-WORLD series, (ii) ESPACE-FIRST contains the first page information in both facsimile form and as searchable bibliographic data, and (iii) ESPACE-ACCESS provides a

cumulative search database containing a summary of bibliographic data, titles and abstracts (in English and French) for all PCT international applications published in the past. A new, mixed-mode ESPACE FIRST CD-ROM product is now also under preparation using electronic output from the SPIDI system.

32. Pursuant to a 1990 decision of the Assembly of the PCT Union, in order to promote the use of patent information in electronic format instead of on paper, the International Bureau has to date supplied, free of charge, to over 60 national Offices of PCT member States which elected to receive PCT pamphlets on CD-ROM instead of in paper form, PC workstations equipped with CD-ROM readers and printers, as well as free subscriptions to various CD-ROM products containing patent information; the International Bureau has also provided such workstations and subscriptions to CD-ROM products containing PCT information to a number of developing countries not yet members of the PCT.

33. Furthermore, commercial database vendors will continue to be able to receive published patent information in electronic format from the International Bureau, allowing them to provide on-line patent information to subscribers and to the public. Front page/Gazette data are supplied on tapes at marginal cost to patent information service providers. The International Bureau is in contact with a patent information service provider to assess the possibility of making the PCT front pages in mixed mode and the PCT pamphlet in facsimile mode available on the Internet.

34. Electronic Filing of PCT Applications. Recognizing the importance of consolidating the flow of electronic information throughout the patent application process, the International Bureau has been actively pursuing, together with the Trilateral Offices, the implementation of the EASY (Electronic Application SYstem) system to be used on personal computers by applicants for preparing and filing patent applications in electronic form. (The EASY system will allow applicants to input the various data to be indicated in the request form and provide automatic validity checks of such data, and to prepare the remainder of the international application (description, claims and abstract) by using a word processing software, and the drawings as facsimile images. The whole application may be filed in the form of a diskette accompanied by a filing docket signed by the applicant, and in a later stage, the EASY system should allow applicants to undertake complete on-line electronic filing of international applications, leading to the elimination of paper filing.) The first version of the PCT/EASY software, currently under development in conjunction with the European Patent Office, is planned to be released in the second half of 1997. The EASY software has been designed in such a way as to allow adaptation to different language environments, including the possibility of handling languages not using the Latin alphabet. The expected benefits for applicants and Offices of using the EASY software are (i) facilitating the preparation of the patent application, using “help screens,” (ii) data validation at the source, leading to a reduction in initial filing errors, (iii) elimination of multiple data entry operations, on the applicants’ side, as well as at the receiving Offices and at the International Bureau, (iv) better quality publication of international applications, and (v) a more streamlined patent administration process built around the use of electronic (instead of paper) documents, leading to cost savings throughout the life cycle of the international application.

35. Future Developments. The International Bureau has initiated a comprehensive study focusing on the PCT Operations Department with the aim of (i) reviewing existing processes and procedures, (ii) analyzing future requirements and new opportunities, taking into

consideration the foreseeable impact of electronic filing of applications to replace paper-based filing systems, the increasing use of on-line data exchanges between industrial property offices, and a move towards electronic publishing solutions, and (iii) making recommendations with regard to the reorganization of existing processes, and the implementation of appropriate information and document management solutions and technologies within the PCT Operations Department of the International Bureau. Because of the close link between the work undertaken in that Department and the work undertaken in national and regional patent offices concerned with various aspects of the PCT system (receiving Offices, International Searching Authorities, International Preliminary Examining Authorities, designated and elected Offices), it is clear that further progress needs to be made in harmonizing electronic data formats and data exchange protocols that could be utilized throughout the life cycle of international applications, so that international applications filed in electronic form will have the most streamlined processing possible both within the International Bureau and in the above-mentioned Offices and Authorities.

VII. The International Bureau's Use of Information Technologies in the Administration of the Madrid System

36. The services provided by the International Bureau under the Madrid Agreement and Protocol for the international registration of marks are effectively and efficiently supported by the automated management, registration and publishing system called the Madrid Agreement and Protocol System (MAPS) (see Figure 3), which has effectively resulted in a paperless office for handling all transactions, with the international register in electronic form and all paper documents stored on optical discs (see paragraphs 37 to 39, below). On-going developments and improvements are made to that system as required. All international registrations in force are published on the ROMARIN CD-ROMs (see paragraphs 40 to 42, below). Facilities for electronic communication between the International Bureau and Offices are now being offered through secure ISDN links (see paragraph 43, below); access to the electronic database is offered to the trademark registries of Contracting Parties and to the public (see paragraphs 44 and 45, below), and information on the Madrid system is published in electronic form on the Internet (see paragraph 46, below).

37. Madrid Agreement and Protocol System (MAPS). The main purposes of MAPS are:

(i) to eliminate (except for general correspondence) the circulation of paper documents inside the International Bureau, that is, mainly within the International Trademark Registry and between that and the Finance Division, thereby, *inter alia*, speeding up the processing of international applications, refusals, subsequent designations and other requests for change, as well as renewals, by allowing several operations to take place in parallel, and eliminating manual filing and archiving operations;

(ii) to streamline and control the processing of international applications, refusals, subsequent designations and other requests for change, as well as renewals, by distributing the work to the workstations of the staff concerned, monitoring deadlines and prompting actions;

(iii) to facilitate the formality examination of international applications through built-in validity and consistency checks; to provide for computer-assisted classification of the list of goods and services, computer–assisted translation of the list of goods and services and other elements to be translated in international applications; to process subsequent designations,

limitations, partial cancellations and refusal or invalidation notifications; and to largely automate outputs (irregularity letters, extracts, certificates, notifications and publications, as well as statistics and management information);

(iv) to integrate all components of the Registry's computer system, including an image database, and to establish an electronic interface with the computer system of the financial services (FINAUT, see paragraph 69, below);

(v) to provide for electronic (paperless) communications with interested trademark registries of Contracting Parties and for access by trademark registries and the general public to the electronic Register.

38. The MAPS system comprises the following elements:

(i) an administration sub-system which manages the whole international registration procedure and provides access to the data, images and documents stored electronically in the other sub-systems; its MATCHES (MAPS Assisted Translation and Classification (Help for Examiners) System) module facilitates the classification and translation (English to French and French to English) of the lists of goods and services contained in international applications; the administration sub-system also includes an interface with the computer system in the Finance Division which deals with the fees received by the International Bureau;

(ii) an electronic database in which are input and stored all the alpha-numeric data which are inscribed in the international register and which are used for the notifications and for publication in the fortnightly bilingual English-French periodical *WIPO Gazette of International Marks/Gazette OMPI des marques internationales*;

(iii) an image database on magnetic disc in which are input the scanned images of the marks as well as the scanned images of all documents received by the International Bureau in the framework of the international registration procedure; these are stored in this sub-system until completion of the registration and publication process, after which they are archived (see item (iv), below);

(iv) an optical disc archive sub-system called MINOS (Marks Information Optically Stored), in which the scanned images of all documents received by the International Bureau are archived on WORM (Write Once, Read Many) discs. The MINOS sub-system now includes some 4.3 million pages, representing some 360,000 international trademark registration files;

(v) a publication sub–system, which uses the electronic database and the scanned images of the marks for the composition and printing of the notifications addressed to the trademark registries of the Contracting Parties and of the registration and renewal certificates, and for the composition of the periodical *WIPO Gazette of International Marks/Gazette OMPI des marques internationales*;

(vi) a communications module allowing the International Bureau to receive from, and send to, the trademark registries of interested Contracting Parties all communications concerning the international registration procedure in electronic form (without paper).

39. In terms of the operating environment and equipment, the MAPS system makes use of the powerful mainframe computer located at the ICC and an in-house NetFrame super server, with about 50 PC dual-screen workstations and three high-speed printers connected through the WIPO network. The MINOS sub-system includes two juke-boxes with two servers. The workstations integrate access to MAPS, to the image database on disc (which has its own server) and to MINOS on one Pentium unit working under Windows with two 17" screens (one giving access to the ICC based database using Netware for SAA and IRMA, the second giving access to the images of the marks and to scanned documents stored either on magnetic disks under Netware and Wang Open Image or (when archived) on optical disks under UNIX). The publications system uses one dedicated server, two black and white printers and one color printer-photocopier.

40. Madrid Register CD-ROM Product (ROMARIN). The International Bureau publishes all relevant information regarding all international registrations of marks made under the Madrid Agreement and the Madrid Protocol, which have been entered in the International Register of Marks and are currently in force, on CD-ROMs called ROMARIN (Read–Only Memory of Madrid Active Registry INformation). A ROMARIN "BIBLIO" disc is published every four weeks, containing the complete bibliographic data of some 320,000 international registrations currently in force (each new disc replacing the previous BIBLIO disc), and one ROMARIN "IMAGE" disc, containing a complete image data set of some 120,000 images (representing all the figurative marks whose international registration is currently in force) in black and white and in color of figurative marks, is published once a year. The "BIBLIO" discs also include the texts of the International Classification of Goods and Services for the Purposes of the Registration of Marks (Nice Classification) and the International Classification of the Figurative Elements of Marks (Vienna Classification), in English and French, in a form displayable and searchable for relevant class(es) and classification symbol(s). The majority of the bibliographic data stored on the "BIBLIO" discs are also available in the form of indexes and can therefore be searched using a number of parameters. The individual words of the list of goods and services are also searchable. The ROMARIN CD-ROMs also include all appellations of origin registered under the Lisbon Agreement for the Protection of Appellations of Origin and Their International Registration. Improvements are made to ROMARIN to improve its performance and adapt it to new electronic publishing developments; in particular, ROMARIN is now published using the new GTI/TM platform, with a retrieval software that supports parallel search of the files on the CD-ROM and the daily update files that the user can download from WIPO's Web site on the Internet (see paragraph 63, below), and also permits parallel search of the various ROMARIN-clones (see paragraph 42, below).

41. The International Bureau provides, free of charge, to the national trademark registry of each of the member States of the Madrid Union, a workstation with a color ink-jet printer and two CD-ROM drives, for using the ROMARIN CD-ROMs which are also provided to it free of charge.

42. The International Bureau provides advice and assistance to national and regional registries wishing to put national and regional trademarks of certain countries and groups of countries on ROMARIN-type CD-ROMs (ROMARIN-clones). A number of such clones have been developed (in particular, for Germany, Central and Eastern European and Baltic States, and Benelux), while for a number of other countries (ASEAN countries and Latin American countries), such clones are being developed.

43. Electronic Communication of Data. As concerns the electronic communication of data between the International Bureau and national and regional trademark registries in the framework of the Madrid system, the International Bureau has established secure links with the Benelux Trademark Office and the trademark registries of Sweden and the United Kingdom for the purpose of exchanging electronic data (namely, the data relating to notifications issued by the International Bureau under the Madrid Agreement and the Madrid Protocol); the same facility is being extended to the Finnish and the Swiss trademark registries. This system of electronic data exchange, using standard ISDN (Integrated Services Digital Networks) links provided by the PTT, is called the MECA (Madrid Electronic CommunicAtions) system. (It is to be noted that the RESMA project of the European Communities, which will result in the Office for Harmonization in the Internal Market (Marks and Industrial Designs) (OHIM) and the trademark registries of the European Union countries being linked into a single network, uses essentially the same technical specifications as those developed for the MECA system and will comply with the MECA data formats.)

44. Access to the Electronic Database of international registrations is provided by several means. National and regional trademark registries of members of the Madrid Union are able to have on-line real-time read-only access, via a leased line or dial-up modem, to registered and to pending textual data in the MAPS administration sub-system; the trademark registries of Switzerland and Italy make use of this facility, for which WIPO makes no charge. Several other trademark registries and several commercial trademark information vendors receive magnetic tapes every two weeks containing the data published in the *WIPO Gazette of International Marks/Gazette OMPI des marques internationales;* the said registries pay only the cost of producing, handling and mailing the tapes, while commercial vendors pay slightly more. To replace the use of tapes, these photocomposition files will shortly be made available on the ICC server, and the International Bureau intends to seek the approval of the Assembly of the Madrid Union at its September-October 1997 session to make the photocomposition files accessible to everybody free of charge. Several trademark registries and several commercial trademark information vendors have obtained the backfile of the ROMARIN database (bibliographic data and images of figurative marks) and receive updates on magnetic tapes every month; the fees charged for the backfile and the updates, as well as royalties (in the case of commercial use) per record cited, vary according to the type of user and the intended use (internal or commercial). These will also be replaced by making the ROMARIN monthly updates available on the ICC server, as for the photocomposition files, and the International Bureau intends to seek the approval of the Assembly of the Madrid Union at its forthcoming session to make the monthly updates totally free of charge, irrespective of the user or intended use (although a lump-sum charge would continue to be made to information vendors who wish to receive the backfile). General public access to registered data and to data on pending applications (including images) is offered through the ROMARIN CD-ROMs and daily update files which are made available free of charge on the Internet.

45. The policy resulting from the proposals that the International Bureau will submit for the approval of the Assembly of the Madrid Union in September-October 1997, concerning the dissemination of information on international registrations in electronic form, would be that, apart from significant “value-added” data (namely, the ROMARIN backfile and the ROMARIN CD-ROMs), for which charges would continue to be made, “raw” data on international registrations would be made available free of charge for all users (trademark registries, commercial vendors or anybody else) whatever the intended use (internal or

commercial). This policy would fully support the recognized importance of making information on international registrations widely available at the lowest possible cost.

46. Electronic Information on the Madrid System. The provision of information on the Madrid system for applicants and potential applicants is undertaken on the Internet through providing general information about the Madrid system, the text of the Madrid Agreement and Madrid Protocol and Regulations, the *Guide to the International Registration of Marks Under the Madrid Agreement and the Madrid Protocol*, and all official forms.

VIII. The International Bureau's Use of Information Technologies in the Administration of the Hague System

47. An information system has been developed to support the operations of the International Industrial Designs Registry under the Hague Agreement. Bibliographic data concerning international deposits and renewals are captured, verified and used for the preparation for publication of the bilingual English/French monthly periodical *International Designs Bulletin/Bulletin des dessins et modèles internationaux*, and the annual compilation of the Table of Owners (of industrial design deposits) as well as for the production of communications (standard letters). This information system is currently implemented under the NetWare operating system on the same NetFrame super server used for the MAPS system (see paragraph 39, above), with 10 PCs and 4 laser printers all integrated under a Windows environment. It is intended to further develop the Hague information system by integrating the data on international deposits of industrial designs in the MAPS system.

48. The International Bureau produced in 1996 a prototype of a CD-ROM entitled SARINDI (System for Archiving and Retrieving INdustrial Design Information) containing bibliographic data and reproductions of registered industrial designs, with a view to studying the possibility, in particular, of replacing, at least as far as reproductions were concerned, the traditional paper publication of the periodical *International Designs Bulletin* by a publication on CD-ROM. Proposals in this respect will be submitted to the Assembly of the Hague Union at its September-October 1997 session.

49. Official forms and other information material on the system of international deposit of industrial designs is being included on WIPO's Web site on the Internet.

IX. The International Bureau's Use of Information Technologies in Carrying Out Other Operational Activities of WIPO

50. Other operational activities of the International Bureau are supported by a number of information systems, including establishing the bibliographic and full text databases for the collection of intellectual property legislative texts and publishing the IPLEX CD-ROM (see paragraphs 51 and 52, below), the indexing and control of access to the collections in the International Bureau's Library (see paragraph 53, below), maintaining worldwide yearly statistics concerning numbers of applications for and grants of industrial property titles (see paragraph 54, below), the database management systems for the International Patent Classification (IPC) and for the Nice, Vienna and Locarno Classifications (see paragraphs 55 and 56, below), the publishing of Article 6*ter* communications on CD-ROM (see paragraph 57, below), and the system under development to provide for on-line arbitration for resolution of conflicts between Internet domain names and trademarks (see paragraph 58, below).

51. Law Collection. The International Bureau is establishing a computerized bibliographic database and a computerized full-text database of intellectual property legislative texts, the latter developed using the Folio Views DBMS. The bibliographic data and texts of laws and regulations that members of the World Trade Organization (WTO) notify to that Organization are included in those databases. The International Bureau has contracted to have the legislative texts in paper form converted into machine-readable form with the simultaneous creation of hyperlinks within and among these texts, in order to provide advanced text search capabilities in the full-text database. It is planned to give access to those databases on-line and via the Internet later in 1997, as well as through CD-ROMs.

52. IPLEX. Important intellectual property legislative texts continue to be published in the IPLEX series of quarterly CD-ROMs, with each update replacing the previous disc. IPLEX contains texts of international treaties and national and regional laws and regulations in the field of intellectual property as in force at the time of publication. The texts on the CD-ROM are in English and French; some of them are in Spanish and German. IPLEX contains a "Treaties and Legislation" file, a "Ratification Situation" file and a "Glossary" file, and is provided with a search software allowing for simultaneous display of texts in two languages on the screen.

53. Library. The new computerized library management system, installed at the end of 1996, is called GLAS (Graphical Library Automation System) for Windows, running on the WIPO network system (NOS NetWare environment) with five workstations, three in the library and two in the reading room. The new system contains eight modules, namely, Catalogue, Circulation, Serials Control, Acquisition, On-line Public Access Catalogue, NetPac (allowing access to Z39.50 compliant databases), WorldPac (which would in the future allow publication of the library catalogue on the Internet) and Databridge (allowing import or export of MARC records). The GLAS system and Internet access (provided through a separate workstation in the reading room) made possible the performance, for users of the library, of complex searches in publications and documents for various specific subjects in the whole field of intellectual property. The library's bimonthly bibliographic lists of new acquisitions are distributed on diskette (and in printed form), free of charge to over 230 persons and institutions worldwide.

54. Statistics. The International Bureau collects yearly statistics from all the industrial property offices of the world concerning the number of applications and grants of patents, and the number of applications and registrations of marks, industrial designs and other subjects of industrial property. The data so collected, as well as the data of the International Bureau concerning the use of the PCT, Madrid and Hague systems, are included in the statistics database. A selected part of that is available in Excel form on WIPO's Web site on the Internet, and the full database (including the published statistics of prior years) will be published on CD-ROM. Studies are underway to allow industrial property offices to submit their statistics in electronic form.

55. International Patent Classification. The database management system IPCIS (International Patent Classification Information System) contains the current (sixth) edition of the IPC in English and French as well as the amendments to that edition adopted by the IPC Committee of Experts. It constitutes the main tool for the International Bureau in the ongoing revision of the IPC and catchword indexes, generates an on-line database for use by national industrial property offices and provides the data files for printing the IPC. IPCIS thus

facilitates the work of offices participating actively in the IPC revision work or preparing translations of the IPC. The IPC:CLASS (IPC Cumulative and Linguistic Advanced Search System) CD-ROM, which was produced by WIPO in cooperation with the German Patent Office and the Spanish Patent and Trademark Office, contains the first to sixth editions of the IPC in English and French, and various editions in German, Hungarian, Russian and Spanish; catchword indexes in English, French and Spanish; a bilingual (German/English) catchword index; revision concordance data relating to the second to sixth editions of the IPC, and the IPC symbols data. The retrieval software allows for searching with keywords and/or IPC symbols in any of the data files on the CD-ROM and for easy switching between language versions and different editions, with simultaneous display of two or more data files on the screen. IPC:CLASS has been produced in both MS-DOS and Windows versions. More than 100 copies have been made available free of charge to States members of the IPC Union, to developing countries and to countries in transition. Information concerning the IPC is being included on WIPO's Web site on the Internet. It is planned to make the English and French versions of the IPC available, free of charge, on WIPO's Web site on the Internet in the first half of 1998, and also to make the English and French versions of the IPC available in electronic form free of charge to anybody interested; a proposal to that end will be made to the Assembly of the IPC Union at its September-October 1997 session.

56. Nice, Vienna and Locarno Classifications. The database management system NIVLIS (NIce, Vienna and Locarno Information System), similar to IPCIS, is being implemented for assisting in the revision and publication of new editions of the Nice Classification of Goods and Services for the Purposes of the Registration of Marks, the Vienna Classification of the Figurative Elements of Marks and the Locarno Classification for Industrial Designs. The English and French versions of those Classifications will be published on CD-ROM in the second half of 1997, and it is also planned to publish them on WIPO's Web site on the Internet, to be accessed free of charge, and furthermore to make those Classifications, which are available in electronic form, available free of charge to anybody interested; a proposal to that end will be made to the Assemblies of the Nice, Vienna and Locarno Unions at their September-October 1997 sessions.

57. Article 6ter Communications. As concerns the State emblems, official hallmarks and emblems of international organizations communicated to the International Bureau according to Article 6*ter* of the Paris Convention for the Protection of Industrial Property, a CD-ROM using the GTI/TM software and containing those notifications has been published and distributed free-of-charge to all WIPO Member States, as well as those entities that are not member of WIPO but are members of the World Trade Organization.

58. The WIPO Arbitration and Mediation Center has a database of some 10,000 persons and companies which manifested an interest in WIPO's activities in this area and of some 700 arbitrators and mediators. Information is provided on WIPO's Web site on the Internet concerning the services offered by the Center, the WIPO Mediation Rules, Arbitration Rules and Expedited Arbitration Rules, recommended contract clauses and submission agreements, and related matters. The International Bureau is currently installing a Web server, connected to the Internet through the ICC, for the WIPO Arbitration and Mediation Center which will administer the administrative challenges and other dispute-resolution procedures concerning second level domain names registered in the generic top-level domain name space covered by the Memorandum of Understanding on the Generic Top-Level Domain Name Space of the Internet Domain Name System which was open for signature on May 1, 1997. The procedures

will be conducted on-line, and will, *inter alia,* allow an intellectual property right holder to petition for a determination whether a second-level domain name violates the policy that a domain name cannot infringe an internationally known intellectual property right.

X. The International Bureau's Use of Information Technologies in the Dissemination of Information Outside the House

59. The provision of information is a major function of the International Bureau, which is greatly facilitated by various information systems. Information is provided by various electronic means in respect of the international registration treaties (PCT, Madrid and Hague) administered by WIPO, as well as concerning other operational activities (see paragraph 60, below). The International Bureau now has a House-wide network of personal computers and word processors used for various functions (see paragraph 61, below), including electronic publishing (see paragraph 62, below). The Internet is used as a major means of disseminating up-to-date information to interested parties throughout the world (see paragraphs 63 and 64, below), and its related "electronic bookshop" will facilitate the ordering of publications (see paragraph 65, below). WIPO's developing policy concerning the dissemination of information in electronic form concerning intellectual property should greatly benefit users of such information throughout the world (see paragraph 66, below).

60. Operational Activities. As the previous sections have indicated, the operational activities of the International Bureau have a significant information dissemination component, which is growing rapidly. In particular, as concerns the PCT and Madrid systems, guides for applicants, application forms and other relevant information concerning those systems are made available on WIPO's Web site on the Internet, which ensures that such information, complete and up-to-date, is easily available around the world. Data are exchanged electronically with national and regional industrial property offices, especially through communications links. At the same time, information on published PCT patent applications is available on a series of CD-ROMs, and through commercial data vendors who receive data in electronic form from the International Bureau; information on trademark registrations is available on CD-ROMs, with updates downloadable through the Internet, and through commercial data vendors who receive data in electronic form from the International Bureau. On-line and Internet access for the collection of legislative texts is planned for later in 1997. Other information resulting from the International Bureau's operational activities is also disseminated in electronic form, including CD-ROMs for IPLEX, JOPAL, IPC-CLASS and the CD-ROM for the Nice, Vienna and Locarno Classifications. *The WIPO Handbook on Industrial Property Information and Documentation* (in English, French and Spanish) will shortly be published on CD-ROM.

61. Word Processing. The earlier word processing systems which were installed in the International Bureau starting in 1980 have now been entirely replaced by the House-wide network of personal computers used for word processing and image processing for producing internal communications, letters, facsimiles, documents for member States, reports, presentations, publications and related material; used for e-mail; used for electronic publishing; and used for spreadsheets, databases and related applications. Those functions are undertaken using the latest word processing and office automation software, in particular, Microsoft Office (Word for Windows, Excel, Powerpoint, Access). The word processing system handles texts in English, French and Spanish, as well as in Arabic, Chinese and Russian.

62. Electronic Publishing. Optical character recognition (OCR) technology has been largely utilized for the capturing of texts and graphics, and formatting of documents in various languages. The International Bureau has also made extensive use of desktop publishing software specially designed for the production of the masters used for electronic publishing and for the printing of periodicals (including *Industrial Property and Copyright/La propriété intellectuelle et le Droit d'auteur/La Propiedad industrial y el Derecho de Autor*), the *WIPO General Information Brochure* and many other publications of the Organization. A state-of-the art heavy duty laser printer, analogous to those which are now used for the printing of PCT pamphlets from the electronic scanned images (see paragraph 28, above), is being used for the in-house production of certain publications and the majority of WIPO meeting documents; it will soon be interfaced through the House-wide network for on-demand printing (without the need for paper masters).

63. Internet. WIPO's Web site on the Internet was created in September 1996, and is used to provide up-to-date information to interested parties throughout the world, thereby effectively removing the barrier of long distance. A large amount of information has already been uploaded, involving the equivalent of some 10,000 typed pages (and more is added on an on-going basis), including the following:

(i) general information concerning WIPO (including the *WIPO General Information Brochure*, catalogue of publications, ratification situation of WIPO-administered treaties, and texts of WIPO-administered treaties);

(ii) documents concerning WIPO meetings of general interest (e.g., the documents for and of the December 1996 Diplomatic Conference on Certain Copyright and Neighboring Rights Questions, documents for the Governing Bodies meetings (March 18 - 21, 1997, session; September 22 - October 1, 1997, session)); the provision of documents in this way makes it possible for them to be accessed immediately in Member States located throughout the world, thereby eliminating the delays inherent in mail services;

(iii) documents, project files and circulars concerning PCIPI meetings, with restricted access requiring a password;

(iv) material concerning the PCT system (including basic facts, text of the PCT and Regulations, PCT press releases, PCT Newsletters, PCT Applicant's Guide, forms including sample filled-in forms);

(v) material concerning the Madrid system (including general information, text of the Madrid Agreement and Madrid Protocol and Regulations, Guide to International Registration of Marks, forms, daily updates of ROMARIN-type data);

(vi) material concerning the Hague system (including forms and other information material);

(vii) material concerning the IPC (including general information and introductory manual to the IPC);

(viii) material concerning the WIPO Arbitration and Mediation Center (including the WIPO Mediation Rules, Arbitration Rules and Expedited Arbitration Rules, recommended

contract clauses and submission agreements, forms);

(ix) material concerning trademarks and Internet domain names;

(x) information on various WIPO meetings and seminars (list of selected meetings; information, documents and registration forms for certain meetings, seminars and workshops);

(xi) selected statistics concerning industrial property rights;

(xii) certain WIPO standards;

(xiii) press releases; and

(xiv) addresses of (and links to) Web sites of other industrial property offices.

Further information planned to be added on WIPO's Web site includes the bibliographic and full text databases for the collection of intellectual property legislative texts, as well as the IPC and the Nice, Vienna and Locarno Classifications.

64. The information on the Internet Web site exists in one or more of the English, French and Spanish languages, and is provided in one or more of the HTML (Hypertext Markup Language), Adobe PDF (Portable Document Format) or Microsoft Word formats. The information provided is clearly of great interest to a number of persons throughout the world, as indicated by the fact that there are at present some 160,000 requests for files ("hits") per month on WIPO's Web site.

65. "Electronic Bookshop" An electronic facility for placing orders for WIPO publications is being planned. Based upon the catalogue of publications on WIPO's Web site on the Internet, and an order form to be added there, an individual will be able to fill out the order form on-line (including giving credit card information), place the order electronically, with the payment being debited by WIPO's bank on-line; the publications ordered will then be sent immediately. This system will greatly simplify, streamline and expedite the process of ordering publications.

XI. The International Bureau's Policy Concerning the Dissemination of Information Outside the House

66. WIPO's policy concerning the dissemination of information in electronic form is that the electronic form (instead of paper) should be promoted and used wherever possible. Furthermore, the policy is developing in the direction that, apart from significant "value-added" data (generally that on CD-ROMs, because of the re-structuring of the data, the addition of various associated information and the provision of powerful search tools), all information in electronic form produced by the International Bureau (whether concerning documents, information and guides for applicants concerning international registration systems, the output of those systems (in particular, published PCT international applications and international trademark registrations), intellectual property legislative texts, international classifications or other information) would be made available *free of charge*, through WIPO's Web site on the Internet and files on the ICC server, to Offices, commercial vendors and the public, without regard to the intended use (commercial or internal), and proposals to that end will be made to

the interested Governing Bodies at their September-October 1997 sessions (see paragraphs 44, 45, 55 and 56, above).

XII. The International Bureau's Use of Information Technologies in Carrying Out Internal Administrative Activities

67. As concerns administrative activities, this is the area where the first computer systems were installed (in 1976 for certain payroll and accounting operations), and word processing systems were added starting in 1980 (see paragraph 61, above); extensive use is made of information technologies to ensure that administrative activities are undertaken by the most effective and efficient means. There is a major financial management system handling accounting, payments (including the payroll), receipts (including fees and contributions) and control functions (see paragraphs 68 to 72, below). The personnel management systems assist in the processing of candidature files and personnel actions, maintaining post and staff records, and the administration of presence at work and of leave (see paragraphs 69 to 74, below). Information systems are used for the billing and mailing of publications to subscribers and purchases as well as the control of stocks (see paragraph 75, below), for the maintenance of address lists for meetings and document stock control (see paragraph 76, below), and for the procurement and inventory of equipment and supplies (see paragraph 77, below). An Intranet is also being developed to provide access throughout the International Bureau to shared knowledge bases developed by different units of the International Bureau and to the information on WIPO's Web site (see paragraph 78, below).

68. Financial and Personnel Management. The major FINAUT information system (see Figure 4), implemented in phases since 1986, handles the complete accounting of the Organization: the processing of invoices and travel requests, the running of the payroll for staff and short-termers, and the automatic processing of the payments, internal or external. It is also able to bill the contributions to the member States, acknowledge receipt of the payments and to produce at any time a status of the arrears of contributions situation by country. FINAUT receives most of the payments due to WIPO through an interface with WIPO's main banks, avoiding a large amount of manual data-entry and facilitating cross-checking by providing automatic bank reconciliations and enabling the allocation of payments to be made with minimum delay to PCT, Madrid, Hague, publications and other areas. The system provides the facility for recurrent users of WIPO activities to open a customer account in WIPO's books; FINAUT currently handles some 725 accounts, sending monthly statements and warnings when the balance is too small and reminders when necessary.

69. The system provides for the full range of control functions, financial analysis and reports required by WIPO management. As the main computerized support of the personnel database, it provides for various tools of personnel management including the monitoring of posts and the status of staff, as well as a large range of statistical lists and data. Furthermore, it interfaces with other systems for activities involving fees or payments. FINAUT is interfaced with the MAPS system (see paragraph 38, above) in such a way that any trademark transaction having a financial implication creates an accounting transaction which is validated by the Finance Division against the payment received; in addition, fee consolidations and distributions are automatically processed. Similar interfaces were built for both the publications system (see paragraph 75, below) and the CASPRO system (see paragraph 26, above), and are being built for Hague transactions (see paragraph 47, above). An improved interface is being developed between FINAUT and the CASPIA systems (see paragraph 25, above). FINAUT uses the

ADABAS DBMS and NATURAL programming language and runs on the ICC mainframe servers. Investigations of advanced EDI (Electronic Data Interchange) techniques are underway to improve the financial flow between WIPO and the banking system. There are around 60 PCs accessing the FINAUT system via the NOS network.

70. The related budget information system is used in undertaking the detailed calculations required for the preparation of WIPO's draft budget for each biennium, as well as in generating a number of tables that are included in the draft program and budget document.

71. For payroll and personnel management, a new system is in the final testing phase. This new system, running in the UNIX/Oracle client-server environment, is based on IBM HR Access (Human Resources package) formerly called SIGAGIP/CS (used also in Geneva by the International Migration Organization, the International Telecommunications Union and the World Trade Organization for payroll and personnel management). This new system will provide more flexibility and openness for an efficient management of the International Bureau's human resources. Integrating information on the staff (including short-termers and consultants) and on pay elements, and information from the system of flexible working hours management (see paragraph 74, below), it will enable the continuing growth of the number of staff in the Organization and the necessary changes in its structure to be accommodated. The combination of a relational database management system, and a query and reporting system, combined with the Microsoft Office tools, will ease periodical administrative procedures concerning individuals, provide statistical information and offer improved management information.

72. The HR Access is also a pilot system for the evolution toward a new class of information systems using state-of-the-art client–server standard industry technologies. The next project, currently being started, is the re-engineering of the FINAUT system: the new system, called FINAUT 2000, will communicate easily with the new payroll and personnel management system, while decreasing development and maintenance costs through the use of common technologies.

73. As concerns the recruitment of staff, an information system, provided by the ADP-GSI company, assists in dealing with the number of candidatures received by the International Bureau. This system was designed to register each candidate, to provide individualized correspondence with each of them and to facilitate the selection of candidates. As concerns pension information, there is a link, through ICC, with the central database of the United Nations Joint Staff Pension Fund, which allows transmission of data and periodical reports between WIPO and that Pension Fund, as well as calculations of estimates of benefits.

74. Flexi-Time and Leave Recording. In 1994 a system of flexible working hours management, developed by the Advanco company, was introduced. It provides, through a network now comprising 25 clocking devices serving the six different buildings occupied by the staff of the International Bureau, for the automatic recording of staff presence and absence, including reasons for absence (leaves, missions, medical appointments, etc.). It also provides personnel management tools, such as statistics on actual working hours, including overtime, per administrative unit, on annual leave and sick leave, etc. This system is based on a UNIX server; its maintenance is secured by telemaintenance from Brussels.

75. Publications Sales and Stock Control. The Publications Sales and Distribution Section is extensively using two integrated systems running on WIPO NOS. The first system is used to automate the printing of PCT pamphlets from ESPACE-WORLD CD-ROMs kept in a set of three large CD-ROM juke-boxes; printing is made on three high performance network printers, and is initiated by the order-entry process. A second publications system, recently put into production to replace the previous mainframe-based system, manages the overall publications sales and distribution related activities. This system is based on the Microsoft Access database package. It is used for handling subscription operations and sales of individual publications, as well as stock control. It contains client files and all publications, including periodicals and CD-ROMs. It generates invoices for annual subscriptions and for individual orders, as well as producing reminders of payment. It also generates dispatch lists and mailing lists and labels. The system is linked with the PCT CASPIA system (see paragraph 25, above) for handling standing orders for PCT pamphlets by IPC class, and with the FINAUT system (see paragraph 69, above) for invoices and renewal of subscriptions of periodicals when paid.

76. Meetings and Documents. A new system is being developed, in the NOS context, using an Access database, to support the work of the Meetings and Documents Service. A database of names and addresses of Authorities (Government Departments, Permanent Missions, etc.) and individuals has been established to permit mailings to those entities concerning meetings organized by WIPO and general information material. Data related to the meetings themselves (place, time, participants) and about meeting-related documents are also captured and structured into the database. The system will also assist in the control of stocks of documents.

77. Inventory Management. In 1996, the old Wang-based inventory lists for all equipment in the International Bureau were phased out and replaced by a unified NOS-based system using an Access database. The system includes data on the characteristics and location of furniture and equipment (including computer hardware) as well as financial information. Users of the system are mainly in the Building Division, Information Technology Department and Finance Division.

78. Intranet. With one of its super servers running IntraNetware 4.11, and with PC workstations using the Netscape Web browser, the International Bureau's up-to-date network infrastructure enables the International Bureau to benefit from the use of an Intranet, which is being developed to progressively provide access throughout the House to shared knowledge bases developed by different departments and divisions, including the calendar of meetings and missions, internal work plan, directories of industrial property offices and copyright administrations, country fact sheets, address files, internal telephone directory, and various management tools, as well as to provide access to the information available on WIPO's Web site on the Internet. Furthermore, it is planned that staff members on mission will be able to have the facility to access the Intranet, through a global service provider.

XIII. The International Bureau's Use of Information Technologies in the Field of Assistance to Developing Countries

79. The use of information technologies is a growing feature of WIPO's institution-building assistance to developing countries. The International Bureau is increasingly involved in providing technical and financial assistance related to the modernization and computerization of national or regional industrial property offices (see paragraphs 80 to 86, below) as well as of

copyright offices and collective management organizations (see paragraphs 87 and 88, below). The activities undertaken by the International Bureau, at the request of individual governments or groups of governments of developing countries, involve not only modernizing and computerizing offices; they also involve promoting the dissemination and use of intellectual property information. The activities range from initial conceptualization and planning, to formulation of operational plans, tendering and evaluation of contractors and their offers for hardware and software development, development of special software, utilization of CD-ROM technology, and establishing electronic communication links to the outside world (using e-mail and the Internet). At the same time, the International Bureau uses various information systems internally for monitoring development cooperation projects, including WIPO's patent information services, and keeping rosters of consultants and experts (see paragraph 89, below).

80. Industrial Property Offices. Modernization of industrial property offices focuses on the simplification and/or streamlining of procedures and, wherever feasible, computerization of operations for granting of industrial property titles, as well as for providing industrial property information services to users. Working in close consultation and collaboration with the officials of the offices or institutions concerned, the staff of the International Bureau and WIPO consultants provide assistance which generally covers the following activities:

(i) formulation of plans for computerization, including the study of users' needs and requirements, simplification and streamlining of procedures in a computerized environment, and determination of the appropriate computer hardware, software and training, and the necessary short-term and medium-term organizational and budgetary requirements;

(ii) assistance in the implementation of the computerization project, including assistance in formulating and executing tendering procedures for the identification, evaluation and selection of contractors; project planning, scheduling and monitoring; supervision and monitoring of contractors' work; establishing appropriate arrangements for the on-going management of the new systems and their maintenance, and overall project evaluation.

81. As concerns the formulation of plans, assistance is provided by the International Bureau in formulating project proposals for computerization activities at industrial property offices, for submission to national finance and other ministries and to external funding institutions. The scope of each project obviously depends upon the situation in the country concerned, in particular, the degree of appreciation (within government circles and among users) of the importance of modernization of the industrial property office, the extent of modernization needed, the availability of local technical support from hardware and software firms, the local telecommunication infrastructure and the availability of resources (from the country itself, WIPO, the United Nations Development Programme (UNDP) or other multilateral and bilateral sources). Recognizing that the requirements of many industrial property offices are common or similar, the International Bureau has published *Guidelines for the Definition of Plans to Automate the Trademark and Patent Operations of Industrial Property Offices in Developing Countries*, and has assisted in the development of common basic software on standard, widely used platforms; to provide parallel approaches wherever possible, the International Bureau endeavors to have the common software and comparable information technology products utilized by selected groups of countries in each region (recognizing the constraints of costs and technical considerations).

82. The implementation of the projects generally involve the provision of the following elements:

(i) *training* of the management and staff of the industrial property office (involving study visits, seminars and workshops, and on-the-job training) covering the planning and design of computerization projects, familiarization with state-of-the-art information technology products and services, project management including supervision of contractors' activities, operational training for users and system administrators, and training of management and staff regarding system maintenance;

(ii) acquisition (or development) and installation of appropriate *software* for the administrative procedures for the processing of patent and trademark applications, maintenance of the official registers of patent and trademarks, the computerization of patent information services to users, and the computerization of trademark search services—this including the development of necessary databases, search and retrieval systems, desktop and other publishing systems, networking and communication, on the basis of the individual requirements of industrial property offices in developing countries; and

(iii) *hardware* for stand-alone or networked configurations, or both, including servers (with operating system software), personal computers, printers, modems, CD-ROM readers, power regulators, network cabling and accessories, and other peripherals.

83. With the widespread availability of Internet access, current projects now include, as a standard activity, encouraging national industrial property offices to use global communication technologies and Internet services as an integral part of a modern industrial property administration, and encouraging offices to establish their own Web site for information dissemination purposes. A rapidly increasing number of industrial property offices in developing countries have started to utilize electronic mail through the Internet in communicating with the International Bureau and with their counterpart offices in other countries, in addition to other electronic communication systems via the national PTT or satellite communications; an increasing number of offices have also put up their own Web sites on the Internet. The possibility of developing more secure "Intranet" systems, for instance, for OAPI and ARIPO or for the ASEAN countries, is a promising development that is currently being investigated by the International Bureau.

84. At present, WIPO's assistance program on computerization and use of information technologies for the administration of the industrial property system involves cooperating, to varying degrees, with some 15 countries in the Asia and the Pacific region, 20 countries in the Latin America and Caribbean region, nine countries and the two regional industrial property organizations (OAPI and ARIPO) in the African region, and six countries in the Arab region. Assistance on computerization is being provided in nearly all cases in the framework of a national WIPO technical assistance project, which enables the International Bureau to follow through computerization plans and their implementation over a period of several years. In the development of software and its application, external experts, usually from the private sector, are successfully used as WIPO consultants. In the case of the Latin America and Caribbean region, the use of a group of such experts stationed in the region ensures continuity and consistency of advice, as well as helping to promote a certain degree of harmonization in the computerization of administrative and technical work in the industrial property offices of the countries concerned in that region.

85. In addition to the above-mentioned activities for modernizing industrial property offices, the International Bureau has for a number of years promoted the dissemination and use of industrial property information, especially for purposes of technology transfer and development, through the use of CD-ROMs. A total of 84 developing countries and two regional industrial property organizations have received or are receiving personal computer workstations with CD-ROM readers and printers, and free of charge subscriptions to various CD-ROM products containing patent information and trademark information. In some cases, that activity was carried out in cooperation with the UNDP, the European Patent Office (EPO) and the patent offices of certain member States.

86. The International Bureau also continues to assist countries in developing CD-ROM products for documentation of industrial property information, information exchange and dissemination of information to industry and other interested parties. Such products include the DOPALES CD-ROM containing the first pages of patents for 19 countries in the Latin America and Caribbean region (produced in cooperation with the Spanish Patent and Trademark Office and the EPO), and CD-ROMs being developed (which are ROMARIN clones, see paragraph 42, above) containing trademark information (including figurative elements) for four Latin American countries (the prototype CLARO CD-ROM) and for member States of ASEAN. The International Bureau is also investigating the possibility of putting such industrial property information material on Internet Web sites to provide wider availability (see paragraph 83, above).

87. Copyright Offices and Collective Management Organizations. The International Bureau is implementing technical assistance projects in a number of developing countries involving the use of information technologies in establishing, or strengthening and modernizing the operation of, copyright offices and collective management organizations. Such projects include the development of databases for literary and artistic works and other protected productions; designing, development and implementation of software for collective management organizations; providing and installing appropriate computer hardware, and training in the use of information technologies in the operations of collective management organizations. Such projects have been or are being implemented in four countries in Africa, one Arab country, three countries in the Asia and Pacific region, and three countries in the Latin America and Caribbean region. A total of 35 copyright administrations have received or are receiving from WIPO personal computer workstations with printers.

88. The International Bureau has contributed to the development and installation of a common basic software used to carry out the administrative and management procedures for processing literary and artistic works and other protected productions, for keeping and maintaining national registers/repertoires of works. This software—the Copyright Offices and Societies Information System (COSIS)—facilitates collective management of copyright at both national and international level, and provides collecting societies and copyright offices with a modern information source on protected works of right holders, using CD-ROM products and, in the future, with possible networking through the Internet.

89. Development Cooperation Monitoring. Several systems are available on the WIPO in-house network for monitoring the progress and implementation of development cooperation projects and activities: data on budgets, forecast expenditures and commitments for meetings, administration of fellowship programs, roster of consultants and experts, as well as lecturers

invited to give courses and lectures on intellectual property matters. The fellowship system, in particular, keeps the required information to allow the set-up and monitoring of the courses and to produce correspondence with the participants. Statistical information concerning the International Bureau's activity in or for the developing countries is available at any time. The existing systems are being redesigned to permit extension of, and wider access to, their functions, as well as better integration of the different modules. The new system will run on the UNIX/Oracle platform so that there will be a close integration with the new Finances system (see paragraph 72, above). A further information system is used in monitoring WIPO's program of patent information services to developing countries.

XIV. The International Bureau's Use of Information Technologies in the Field of Assistance to Countries in Transition

90. Similar activities to those for developing countries are undertaken by the International Bureau for countries in transition (particularly in Central and Eastern Europe and Central Asia). Assistance for individual countries has included the provision of CD-ROM workstations and the ROMARIN and ESPACE series of CD-ROMs, along with training in the use of those. Technical advice on the computerization of patent offices has been given to 11 countries, involving providing comments on computerization plans, advisory missions to patent offices, and study trips by officials of those offices. UNDP projects are being executed with respect to three countries for modernizing their industrial property offices, including purchase of computer hardware and software, and development of automated trademark and industrial design administration systems; similar UNDP projects are under preparation with respect to three other countries.

91. At a regional level, the International Bureau has provided assistance in the establishment of the Eurasian Patent Organization, and donated CD-ROM workstations and ESPACE-WORLD CD-ROMs to that Organization; a proposal for further cooperation with WIPO involving information technologies is under elaboration. Regional seminars on patent information and research have been organized. And the International Bureau has participated in the development, under the Regional Industrial Property Project (RIPP) of the European Patent Office, of a common CD-ROM (called "TRACES") to contain the trademarks of the Central European countries.

XV. Activities of the WIPO Permanent Committee on Industrial Property Information (PCIPI) in the Field of Information Technology

92. The objective of the WIPO Permanent Committee on Industrial Property Information (PCIPI) is to encourage and institute close cooperation among national and regional industrial property offices, and among such offices and the International Bureau, in all matters concerning information and documentation covering patents, trademarks and industrial designs including, in particular, the standardization of the form of data and data carriers (such as paper and electronic media) and of the indexing and classifying of patent documents, all this in order to facilitate the exchange of industrial property information, the retrieval of the information contained in data carriers, the establishment of the state of the art, searching for the purposes of patent examination and effective use of the information by the public. The broad coverage of the PCIPI's activities is intended to be of significant assistance to a large number of member States.

93. The PCIPI was established in 1987 (as a successor to the former Permanent Committee on Patent Information (PCPI)) by the Assemblies of the Paris, PCT and IPC Unions, and is open to States members of those Unions. Currently, 116 countries and five intergovernmental organizations are members of the PCIPI.

94. The Permanent Committee determines its overall policy, strategy and priorities, to be taken into account by its Executive Coordination Committee (EXEC) when establishing the biennium working program for itself and for the PCIPI working groups. The EXEC has successfully coordinated the various activities undertaken by the working groups, with an efficient working relationship between all of those bodies. The EXEC normally meets twice each year for the above purposes and to consider and adopt the recommendations of the working groups. There are at present the following four working groups, which are each generally convened once or twice every year:

(i) The Working Group on General Information (PCIPI/GI) which deals with standardization matters, exchange of industrial property documents and the conduct of surveys;

(ii) the Working Group on Search Information (PCIPI/SI) which deals with the preparation of the revision of the International Patent Classification (IPC) as well as the development and use of the IPC and search systems based on the IPC;

(iii) the ad hoc Working Group on the Management of Industrial Property Information (PCIPI/MI) which deals with certain tasks of specific interest to management, especially those which have a direct bearing on changes in industrial property office procedures;

(iv) the ad hoc Working Group on Trademark Information (PCIPI/TI) which deals with the study of questions dealing specifically with trademark information and the development of appropriate standards.

95. The PCIPI policy in the present (1996-97) biennium, set by the Permanent Committee and subsequently endorsed by the Governing Bodies at their September-October 1995, sessions, is as follows:

(a) to facilitate the international transmission, exchange and dissemination of industrial property information—including text and image—in electronic form and the harmonized development of electronic search methods;

(b) to continue actively seeking harmonized practices by all industrial property offices regarding compliance with standards for electronic data processing in respect of procedures for filing, examination, publication and registration of industrial property titles, including not only patents but also trademarks and industrial designs;

(c) to encourage industrial property offices publishing on electronic media to invest in the development of new software in order to further improve certain functions, e.g., to support improved retrieval and printing of documents,

(d) to further develop the IPC, both as a system for the orderly arrangement of patent documents and as a computer-assisted search tool;

(e) to address adequately the problems arising from the general trend of information technology;

(f) to address adequately the particular problems of developing countries as formulated by the Permanent Committee for Development Cooperation Related to Industrial Property.

96. The PCIPI places special emphasis on the recent developments of information technology in order to bring its member countries up-to-date about new possibilities offered by information technologies, as the use of new media often results in a need for international standardization. Standardization efforts in the area of information technology during the present biennium focused on revisions and updating of the existing WIPO Standards in order to prepare for the year 2000 and for the advent of more performant electronic data processing systems for industrial property information. The most recent achievements regarding standardization include the completion and updating of two fundamental standards (WIPO Standards ST.32 and ST.35) which should facilitate international exchange of electronic files. The elaboration of a new WIPO Standard and the updating or revision of the existing Standards not only provides useful guidance to an industrial property office's planning of computerization but also makes possible the exchange of electronic files or data exchange between industrial property offices.

97. In the face of growing interest in, and use of, the Internet, active exchange of experience and discussions about the new possibilities offered by the Internet contributed significantly to enhance the level of activity of industrial property offices in this area in terms of creation and/or improvement of their Web sites. Some 20 offices took part in a pilot trial in 1996 of the use of e-mail to distribute PCIPI documents electronically and to submit comments to the International Bureau; certain project files were prepared by electronic processing of the comments received from various offices in electronic form. The PCIPI area on WIPO's Web site (see paragraph 63, above) provides members with Internet access to PCIPI documentation on meetings, related material, selected WIPO Standards and industrial property statistics. These activities encourage all PCIPI members to undertake efforts towards the promotion of the dissemination and use of intellectual property information.

98. The PCIPI continues to work on a number of projects which are included in the current working program. The following projects are those most directly related to information technology:

(i) Exchange of information on experience in the field of automation of industrial property information, with industrial property offices making presentations about their recent developments;

(ii) Monitoring of the development of patent applications in machine-readable form;

(iii) Examining the potential offered by the Internet for the electronic communication, between industrial property offices and the International Bureau, of information relating to

PCIPI matters;

(iv) Updating the study relating to the provision by an industrial property office of a Web site and conducting a survey of the intentions of industrial property offices in respect of making searchable industrial property information available on the Internet;

(v) Elaboration of a WIPO Standard concerning the magnetic tape format for the exchange of bibliographic data regarding trademark applications;

(vi) Conducting a survey to identify current and potential problems arising as a result of the changeover to the use of electronic data carriers for industrial property information and documentation, and proposing solutions with a view to elaborating the long-term policy of the PCIPI for the electronic age (to be considered at the June 30 to July 4, 1997, meeting of the PCIPI/MI which will take place in Rio de Janeiro, Brazil).

99. The PCIPI also plays a pivotal role in encouraging and coordinating different industrial property offices to change over to the use of electronic data carriers, as it is believed that various problems arising from the changeover are facing all offices which embark on a computerization plan of office procedures using information technology. The PCIPI adopted the Statement of Principles concerning the changeover to the electronic data carriers of patent documents, implemented from the beginning of 1996, as a first step in an attempt to take concerted and synchronized action towards the common objective of achieving general acceptance of the use of electronic data carriers for the exchange of patent documents by the year 2000 at the latest.

100. The Working Group on Information Technologies for Intellectual Property is invited to note, with whatever comments it may wish to make, the contents of this document.

[The Figures follow]