

UNEP Information and Communication Technology (ICT) Task Force Report

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Unedited Version

"A simple ICT tool is not going to fix a complex broken process. According to researchers, 75-80% of the resources should go to change the process (the soft part) and only 20-25% to the tools (the hard part)."

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Executive Summary and Key Recommendations

UNEP is a geographically dispersed organization with functional, divisional, regional, and outposted offices around the world. Over the years, UNEP has made relatively modest investments in ICT infrastructure and services. However, the time has now come to make significant investments in both ICT infrastructure and services and to provide a robust and reliable foundation that enables UNEP to function effectively as a networked organization. ICT has to be integrated in UNEP, into virtually all functions, to deliver the programme effectively by doing “**more with less**”. Information and data are key assets of the organization, similar to financial assets, and have to be treated as such.

The Task Force collected information and inputs from all UNEP divisional, regional, outposted offices and secretariats of MEAs. The intent was to understand the main uses of ICT in each of the offices, related problems / issues which hamper activities, current and planned resources, requirements and priority items to be addressed within the next 12/24 months. This report deals with core UNEP-wide ICT issues and those of persistent and reoccurring nature that could be solved in the relatively short time. A separate strategy is needed in the future to develop a long-term, forward-looking strategy and roadmap. UNEP-wide core ICT needs and key recommendations are classified in the following categories:

1. Need for a centrally - coordinated UNEP-wide ICT governance framework and to improve satisfaction of UNEP staff with ICT product and services.

Issues to be addressed:

- Lack of coherent ICT vision and leadership
- Inability of UNEP to articulate its ICT needs
- Ad-hoc development of ICT within divisions and locations, leading to duplication of efforts
- Unbalanced investments in core ICT infrastructure and services
- Lack of mechanisms to develop, monitor, and enforce standards and policies
- Lack of effective oversight of the level of ICT services provided to UNEP
- The weakness in voicing concerns and issues to various service providers

Recommendations:

In order to address these issues, the task force recommends an ICT governance structure consisting of the following five building blocks:

- Ongoing support from senior management
- Establishment of an ICT Team, headed by a senior ICT advisor, reporting to the Office of the Executive Director (OED)
- Establishment of a UNEP-wide ICT committee
- Establishment of a UNEP-wide ICT budget for the provision of core ICT services to staff at all UNEP locations
- Establishment and maintenance of a UNEP ICT strategy

Establishment of an ICT Team - The UNEP ICT Team should be headed by a Senior ICT Advisor at the D-1/P-5 level, and consist of a System Analyst at P-4 / P-3 level, and a GS support staff.

Establishment of a UNEP-wide ICT Committee - In line with OIOS recommendation 01, with ST/SGB/2003/17 and ST/AT/2005/10, the Task Force recommends the creation of an ICT Committee. This committee will ensure that all internal stakeholders, regardless of their location, organizational status, or financial power, routinely exchange information on ICT Initiatives across UNEP. This entity will also propose policies and facilitate enforcement. It will liaise with UN Secretariat-wide bodies, notably the UNHQ ICT Board.

Establishment of central ICT budget for UNEP-wide core ICT applications and services - Establish a UNEP-wide ICT budget for the provision of a unified core ICT platform for all UNEP staff members, regardless of their location. This budget would be managed or coordinated by the UNEP Senior ICT Advisor and will ensure a consistent ICT infrastructure and services among all UNEP offices.

Establishment and maintenance of a UNEP ICT strategy - Promulgate a set of standards and guidelines for UNEP-wide implementation. Strategies and policies covering the following topics were identified as being the most urgently required: Internet, Intranet, Extranet, Hardware, Software, Data management, Archiving, Document Management, Knowledge Management, IT Security, E-waste

To address the immediate need for coherence across the board and in the absence of governing bodies, the Task Force recommends publishing a collection of existing policies from different sources (UNHQ, UNON and other service providers) to raise awareness amongst UNEP staff.

2. Need for an Enterprise Resources Planning (ERP) system for transactional applications.

Issues to be addressed:

- UNEP programme managers lack timely, accurate and up-to-date information on the status of implementation of their programmes and projects – leading to the ad-hoc development of parallel homegrown workarounds.
- The current IMIS set-up, splitted between Nairobi and Geneva does not allow for real-time access to accurate consolidated administrative information.
- The implementation of the Bali Strategic Plan through joint programming between UNEP and UNDP is constrained by differences in procedures for programme / project implementation.
- UNHQ has decided to implement a new ERP system and adopt the international public sector accounting standards (IPSAS) by 2009, when support for IMIS will cease.
- A migration to UNDP / Atlas will require significant investments (tens of millions of US \$) and will take at least two to three years.

Recommendations:

In order to address this issue, the task force recommends:

- UNEP retains IMIS pending the UN Secretariat's implementation of its future ERP system.
- In the meantime, UNEP should optimize the use of IMIS and other administrative information by building:
 - an Executive Management Reporting System,
 - a Project Management System to provide programme managers with up-to-date information on the implementation of their programmes and
 - systems to automate administrative processes (such as approval of projects) currently handled manually within UNEP.
- Liaise with UNDP to obtain "read only access" to Atlas to monitor the implementation of joint UNEP / UNDP projects and to agree on requirements to facilitate data exchange between Atlas and IMIS.
- Work with UNHQ in order to streamline UNEP's business processes in preparation for the future ERP.

3. Need for a UNEP - wide Knowledge Management System (KMS).

Issues to be addressed:

- Lack of effective management of the institutional knowledge of the organization
- Lack of coherent and timely action on communications between UNEP and its stakeholders
- Inability to consistently and effectively collect, share and disseminate information held by UNEP and its partners
- Lack of access to and inability to retrieve official UNEP documents and records across the organization
- Loss of UNEP's intellectual capital

Recommendations:

In order to address this issue, the task force recommends:

- Purchase or develop a scalable content management system for all UNEP websites for the preservation of institutional knowledge, and the dissemination of information internally and externally.
- Create a new Internet (e-media) policy and establish an Internet (e-media) board.
- Develop a UNEP wide Intranet
- Implement a comprehensive Document Management / Archive System in order to ensure preservation of UNEP's intellectual property.
- Implement a correspondence tracking system.

4. Need for minimum set of UNEP-wide core applications, standards, services and support to facilitate ICT interoperability.

Issues to be addressed:

- Lack of a consistent platform across the organization to support knowledge management
- Lack of efficiency due to poor electronic access to central applications and services hosted in Nairobi
- Inconsistent corporate image and e-Identity
- Loss/theft of laptops and other mobile devices while traveling

Recommendations:

In order to address this issue, the task force recommends:

- Provision of a UNEP-wide core ICT application & services package.
- Establishment of a mirror site for current and future ICT core applications & services outside Nairobi, to facilitate access from outposted offices.
- Standardized use of the unep.org domain for all e-mail and website addresses.
- Examine the current procedures and insurance mechanisms, so the staff members are not adversely affected.

5. Need for a faster Internet connectivity and bandwidth in Nairobi

Issues to be addressed:

Lack of access to high speed Internet connection and other remote access services

Recommendation:

In order to address this issue, the task force recommends:

- Secure adequate bandwidth level for UNEP HQ in Nairobi, currently estimated to be at 10Mbit/sec.
- Work with UNON to improve remote access to resources from home and while on the route, as outlined in the “quick wins”.
- Develop, promote, monitor and enforce a policy for “acceptable use of bandwidth” in Nairobi.

6. Need for mainstreaming ICT into substantive programme.

Issues to be addressed:

- Less efficient programme delivery due to:
 - poor integration of ICT within the work programmes and
 - lack of up-front participation of ICT experts in the planning process.
- Reduced staff productivity related to lack of training
- Duplication of efforts in offices due to lack of interoperability of existing systems

Recommendations:

In order to address this issue, the task force recommends:

- Raise the level of investments in ICT, ensuring that expertise is available not only at the implementation stage, but also at the programme and project planning stages.
- Establish interoperability guidelines and standards to ensure that newly designed applications and systems can be used across the organization and that data can be easily exchanged between these systems.
- Facilitate sharing of technical ICT knowledge by establishment of an ICT Intranet, specialized helpdesks and a technical forum, where ICT solutions can be shared and awarded.
- Establish formal training programmes to ensuring that every staff member is properly trained in the use of the ICT tools.

7. Need for a higher level of investment in ICT infrastructure and services.

Issues to be addressed:

Current investment in ICT is fragmented and relatively low compared to similar information-centric organizations, resulting in the inability to realize UNEP's full potential.

Recommendation:

In order to address this issue, the task force recommends: Increase the annual investments in core ICT from currently estimated about \$3,000,000 to \$5,000,000, which represents about 1.5% of UNEP's \$300M budget. This refers to the running cost for core ICT; one time investment of about \$2,000,000 has to be made by UNEP, probably through the fund raising.

8. Greening of ICT.

Issue to be addressed:

As an environmental agency, UNEP needs to promote Sustainable Consumption and Production (SCP) in the field of ICT.

Recommendation:

In order to address this issue, the task force recommends: UNEP should apply what it preaches on green procurement, disposal, and recycling of e-waste.

9. Next steps.

Recommendation:

Pending establishment of the proposed ICT Team, ED to assign resources for immediate follow-up as outlined in Chapter 7 (**Quick Wins**).

1 - Introduction & Scope

*“The big things which make people’s life easier normally stem from small ones”
Theodor Kapiga, PCMU, UNEP*

1.1 Objectives and guiding vision

The overarching objective is to: a) strengthen the UNEP identity and b) ensure that UNEP staff members have the information and systems in place to accomplish their work objectives regardless of where they are – in Nairobi, offices away from Nairobi, or while traveling. UNEP staff members should have access to a robust ICT infrastructure, reliable desktop and notebook computer hardware, consistent phone systems, and applications such as e-mail, Intranet, and office productivity tools on a daily basis. Staff members should be able to use their computers from home and access their e-mail on PDAs or similar mobile devices. Senior managers and programme officers should have access to critical up-to-date organizational information, on demand, for informed decision making. Only when the basic ICT is in place, for all staff members, will UNEP be able to take the next step from a strong foundation to a comprehensive knowledge management.

1.2. Scope

The focus is on how to empower and enable staff members, senior managers, and programme officers to perform their tasks effectively using ICT tools. The report covers only ICT issues that affect UNEP as a whole. While it does not deal in detail with those issues that are specific or unique to individual divisional, regional, or outposted offices, it does propose a framework to guide and facilitate their resolution. This report and its recommendations focus on addressing those issues of a persistent and recurring nature that can be solved in a relatively short time. However it will provide key inputs to UNEP’s forward –looking, long term strategy and road map, which will still need to be developed.

1.3 Process

The UNEP ICT Task Force, although small, had a good balance of ICT skills, knowledge of UNEP work programmes and operations, as well as representation from UNEP HQ, divisional, regional, outposted offices, and convention secretariats, with UNON and UNOG as observers.

The ICT Task Force relied heavily on recent relevant documentation, input from Dalberg consultants, feedback received from UNEP divisional, regional, outposted offices, and secretariats of Multilateral Environmental Agreements (MEAs) through a questionnaire, personal interviews, over 200 comments on the draft report from UNEP staff members, and meetings with officials of the World Bank, United Nations HQ, UNON, UNV and UNDP. The team invited representatives from other Task Forces and listened to their needs and requirements. Additionally, the team invited senior managers to provide their points of view. The Task Force also received valuable input from ICT professionals in other organizations, namely UNDP, UN ITSD, consultants that worked on the implementation of ATLAS for UNDP and

UNOPS, and others. The Task Force received guidance from the Executive Director and Deputy Executive Director.

The ICT Task Force consulted during two meetings, the first in Nairobi, from 8 to 13 October, and the second in Paris from 31 October to 3 November 2006.

The Terms of Reference (ToR) of the ICT Task Force, documents quoted, and people consulted are listed in the Annexes.

“Those institutions that have reformed successfully have ‘turned themselves inside out’ by placing client information and knowledge at the core of the business and working hard to become ‘business-like’ even if they are not businesses. This arrangement demands that data and information (product) delivery is the core function: typically expressed through a relatively small number of high quality products or ‘flagship’ series.” David Piper, DGEF, UNEP

2 - UNEP's ICT Environment - the Analytical Approach

UNEP is a highly decentralized, geographically dispersed organization, with a global mandate and a limited budget based on multiple sources of funding. In addition, UNEP hosts the secretariats for a number of Multilateral Environmental Agreements, which brings a new legal dimension to the general picture. For these reasons, UNEP heavily relies on partnerships for its programme delivery. Many UNEP offices around the world are attached to other international organizations and have signed ICT service agreements with them. The lack of a UNEP-wide ICT strategy during its years of existence has led to ad-hoc and disparate development of ICT across different offices and duty stations. UNEP offices have adopted the technologies and acquired the skills they found to be most useful for their work, but without paying due attention to the need for efficient information exchange across the organization, and the importance of presenting a unified corporate image to the rest of the world.

A successful implementation of ICT in any organization requires a careful stock taking of all those factors which impact the ICT environment. Ultimately these factors will determine what ICT solutions are feasible for UNEP. Following are some of the key elements that conform the multi-dimensional environment to which ICT solutions should carefully adapt to:

- Institutional set-up
- Geographic distribution
- Funding / budgeting constraints
- Legal mandates and requirements
- External factors
- Existing ICT skills and investments

2.1 Institutional set-up

<p><i>Description</i></p> <p>UNEP has a hierarchical structure, where, for example, branches and offices report to the division directors, and division directors report to the OED.</p>
<p><i>Impact on ICT</i></p> <ul style="list-style-type: none">• There is little cross-division cooperation in ICT despite the fact that in many cases there is sharing of mandates and overlapping functions. Achieving the required extent of interoperability of applications and systems is a problem, but must be accomplished for the effective implementation of the Bali Strategic Plan.• An over-centralized type of ICT governance will potentially clash with the hierarchical structure in terms of reporting lines and budget issues, and should be carefully implemented. The following questions would have to be resolved in the context of moving towards centralized strategic ICT coordination:<ul style="list-style-type: none">○ How are ICT tools going to improve the productivity of divisional, regional, and outposted offices;○ How to address the uneven distribution of ICT needs and expertise in

- different divisional, Regional, and outposted offices;
- How to accommodate the new ICT reporting requirements into the existing reporting mechanism / lines;
 - How to raise awareness, access, and interoperability of databases and data exchange between divisional, regional and outposted offices;
 - How to ensure that Programme managers look at “what is already available” before initiating a new activity?

2.2 Geographic distribution

Description

UNEP is a geographically dispersed organization with HQ located in Nairobi, and divisional, regional, and outposted offices around the world. This has a significant impact on the ICT strategy because of the different levels of infrastructure; the diversity of existing technologies; the wide range of know-how, expertise, and support in the market place; as well as differences in cost (in Nairobi the bandwidth price is 20 times higher than in Europe; in Paris leasing PCs is much more cost effective than buying them, while in Geneva and Nairobi the opposite is true). Additionally, the geographic dimension has a direct impact on inter-office connectivity and on data exchange architectures.

Impact on ICT

- Address the global distribution of staff members (approximately 50% in Nairobi, and 50% in the rest of the world);
- Leverage on potential advantages of local ICT markets while proposing a global framework;
- Eliminate the disparity in technological conditions that range from high-tech to low-tech, including communications infrastructure, expertise, support, and difference in prices;
- Provide complex technical solutions for UNEP-wide connectivity;
- Address high bandwidth requirements.

2.3 Funding / budgetary constraints

Description

UNEP’s budget is composed of a small portion allocated from the core UN budget, the Environment Fund, and a larger portion from various Trust Funds. A great number of UNEP projects are funded through multilateral funding mechanisms and delivered through partnerships.

The funding dimension is important when analyzing UNEP’s corporate image and standards, because in many cases donors and partners have their own restrictions in regard to the image, visibility and standards that should be used in the project they are funding. It is a fact that UNEP will require to make an initial investment to improve the existing ICT infrastructure and related services. Fund raising might be necessary.

Currently, there is no reliable way to determine how much UNEP spends or should spend on technology to meet its goals and objectives.

Impact on ICT

- Donors and partners require visibility through joint publications, activities, and projects. This presents a problem when promoting UNEP's corporate image. For example a project website might be required to display the UNEP logo as well as partners /donors logos;
- Multiple varied funding sources have direct impact on the level of ICT investments. Some offices have access to trusts funds and / or donor resources through which they can run ICT projects, while other offices have to work within the limitations of the Environment Fund;
- Some programmes are in better position to raise funds to increase ICT investment, while others are not.

2.4 Legal mandates and requirements

Description

UNEP's Governing Council is the main governing body of UNEP, where the programme of work is discussed, and funding allocated for its implementation. The Multilateral Environmental Agreements have their own governing bodies where implementation of treaties is discussed and budgets allocated. Conference of the Parties decisions are legally binding, and therefore stricter with respect to deadlines and implementation approaches.

UNEP relies on partnerships for its programme delivery. This means that UNEP needs to negotiate and sign MoUs and other types of agreements. UNEP needs to be flexible to accommodate partners' legal requirements.

Impact on ICT

- Governing Council decisions require UNEP to provide information to the governments and other bodies;
- Mandates from MEAs Conference of Parties impact on the synergies in the area of ICT;
- Joint projects and partnerships may impose restrictions on the use of ICT, since UNEP may need to accommodate their policies and standards;
- A UNEP-wide ICT strategy should be flexible enough to accommodate for legally binding requirements of different governing bodies.

Example: the Conference of the Parties of the Stockholm Convention mandated its secretariat to put in place an electronic reporting system for its parties to report under article 15 of the convention, and to build a contacts database for its Official Contact Points and National Authorities under article 9 of the convention. The secretariat was given a deadline of 30 September 2006, giving enough time for parties to provide their national reports before 31 December 2006. These deadlines are

legally binding for the secretariat and for the parties. It is clear that if the secretariat of the Stockholm Convention had to go through a review committee which was not flexible enough to accommodate its requirements and priorities the system might not have been delivered in time and the secretariat would be in non-compliance with the requirement from the parties.

2.5 External factors

Description

In addition to the external elements covered by the funding and legal aspects, UNEP has to work in the context of the general UN reforms, which include heavy ICT components. Some of these reforms span longer implementation timeframes, and may not be available within the next 24 months; therefore UNEP has to find interim solutions to deliver its work programme and the Bali Strategic Plan. UNEP must work toward integration with the future ICT context of the UN. At the same time, UNEP must ensure that it continues to maintain interaction with other agencies like UNDP, the GEF, donors, governments, and partners, which are not of legal or financial nature, but may have an impact on UNEP's ICT.

Impact on ICT

- UN Secretariat ICT policies and standards are mandatory for UNON and UNOG, which are UNEP's main ICT service providers;
- A UNEP-wide ICT strategy has to provide means for interfacing with major partners like UNDP, WHO, FAO, UNIDO, donors and funding agencies like the GEF;
- Interfacing with external organizations and governments always impacts ICT areas like network security, technology standards, interoperability of applications, data transfer formats, business processes, etc.

2.6 Existing ICT skills and investments

Description

The lack of centralized coordination on ICT in the past has led to a significant disparity in investments among the various UNEP offices. Some have invested heavily, while others not at all. Programme managers have invested in the technologies, skills, and expertise that they considered best for their programmes. In many cases, in the absence of UNEP's own policies, decisions were driven by those of donors and partners. UNEP needs to leverage existing investments and available skills, while bringing its ICT up to the required level.

Impact on ICT

- Hardware, software, networking, security, analysis, programming scattered all over;

- Regular upgrading of staff members skills;
- Fast changing ICT landscape;
- Outsourcing issues;
- Legacy systems are difficult to standardize.

3 - Assessment of UNEP Needs and Proposed Framework

The Task Force collected information and inputs from all UNEP divisional, regional, outposted offices and secretariats of MEAs. The intent was to understand the main uses of ICT in each of the offices, related problems / issues which hamper activities, current and planned resources, requirements and priority items to be addressed within the next 12/24 months. Below is a summary of the needs classified into 8 categories:

Needs	Proposed framework
Centrally coordinated UNEP-wide ICT governance framework and improved satisfaction of UNEP staff with ICT products and services	Harness existing and new UNEP ICT capacities to: <ul style="list-style-type: none"> • Develop and implement UNEP-specific ICT policies and standards across the organization • Localize UNEP representation for interaction with UNEP service providers to negotiate and enforce compliance with service level agreements • Ensure UNEP is represented in other major ICT initiatives having impact on UNEP's ICT portfolio • Raise awareness about ICT, and promote and support cultural change in the use of ICT throughout the organization.
Enterprise Resource Planning (ERP)	Provide direction on technologies and approaches that UNEP should follow in the area of administration, finance, human resources, and other essential internal functions, including interfacing with the UN Secretariat, UNDP, and other organizations and partners.
Knowledge / content / document management	Ensure that UNEP has the tools and expertise in place to: <ul style="list-style-type: none"> • Manage and track its correspondence, • Manage and archive its documents in electronic format; and • Use ICT tools to share and exchange content internally and with its partners.
Core ICT applications and services, including UNEP wide connectivity	Ensure that all UNEP staff members around the world have access to a specified minimum level of basic services, applications, and connectivity.
Internet connectivity and bandwidth in Nairobi	Ensure that all UNEP HQ staff members have access to high speed Internet connection and other remote access services.
Mainstreaming ICT into substantive programmes	Ensure that UNEP uses new ICT across the organization in a manner that facilitates problem-free information exchange and increases staff member productivity. There is a need to catalyze a cultural change in the use of ICT in the daily operations of the organization.
Higher level of investment in ICT	Current UNEP investment in ICT is fragmented and low. As per the recommendations in the UN SG Reform report

	comparative industry and other public organizations spend approximately 13 to 17 % on ICT.
Greening of ICT	As the leading environmental entity UNEP needs to promote sustainable consumption and greening of all ICT products and services.

4 - Key Decision Areas – Summary Analyses and Conclusions

4.1 UNEP-wide ICT Governance

By implementing a UNEP-wide ICT Governance structure as outlined in this section, the following of the major issues will be addressed:

- Lack of coherent ICT vision and leadership
- Inability of UNEP to articulate its ICT needs
- Ad-hoc development of ICT within divisions and locations, leading to duplication of efforts
- Unbalanced investments in core ICT infrastructure and services
- Lack of mechanisms to develop, monitor and enforce standards and policies
- Lack of effective oversight of the level of ICT services provided to UNEP
- The weakness in voicing concerns and issues to various service providers

This governance structure should consist of the following five building blocks:

- Ongoing support from senior management
- Establishment of an ICT Team, headed by a senior ICT advisor, reporting to the Office of the Executive Director (OED)
- Establishment of a UNEP-wide ICT committee
- Establishment of a UNEP-wide ICT budget for the provision of core ICT services to staff at all UNEP locations
- Establishment and maintenance of a UNEP ICT strategy

4.1.1 Ongoing support from senior management

The ICT Task Force noted with enthusiasm the commitment for support provided by the Office of the Executive Director (OED), as demonstrated through the establishment of a Task Force for ICT. Any implementation of UNEP-wide ICT governance structures will fail without this ongoing support from the OED.

4.1.2 Establishment of an ICT Team

One common observation was that UNEP does not speak with one voice on ICT issues and therefore does not always get heard properly. The task force noticed a lot of tension between UNEP and UNON, which is partially related to the lack of an ICT governance structure within UNEP, as there is no single focal point to communicate with the service provider and to ensure that the Service Level Agreement (SLA) is properly implemented. In order to address this weakness, the Task Force suggests that UNEP-wide ICT issues of both internal and external nature need to be executed and managed by dedicated bodies.

Recommendation:

Therefore, the creation of a UNEP ICT Team, headed by a Senior ICT Advisor at the P-5 / D-1 level, and supported by an Analyst at the P-3 / P-4 level, is proposed.

The following tasks are expected to fall under the mandate of the ICT Advisor and his team and should be an integral part of the Terms of Reference for these positions:

- Coordinate between UNEP and its service providers (UNON, UNOG, other local providers in other locations), between UNEP and its partners (agencies, donors, implementing partners) and between UNEP and the UN Secretariat;
- In coordination with the ICT Committee, manage / oversee the core ICT budget (see below);
- Act as custodian of ICT assets, systems, and skills;
- Propose, implement, and oversee compliance with ICT standards, guidelines and procedures, in line with UN Secretariat as applicable;
- Monitor and evaluate Service Level Agreements with service providers, both at headquarter locations and at smaller outposted offices;
- Periodically assess the utilization of ICT across UNEP;
- Promote the adoption of best practices of ICT technology for UNEP;
- Assess and coordinate ICT training for ICT and all staff members;
- Streamline approval processes for the adoption of ICT;
- Identify cost effective options for outsourcing of ICT services;
- Encourage the exchange of ICT expertise across the organization by providing a technical platform for all UNEP ICT staff (technical staff as well as ICT project managers).

It should be noted that the proposed ICT Team will not provide operational support for day-to-day activities and is therefore not competing with UNEP's ICT service providers.

The ICT Team should initially (i.e. for a period of two to three years) be located in the OED. After this period, a revision of the organizational structure should be undertaken.

4.1.3 Establishment of a UNEP- wide ICT Committee

Recommendation:

In line with OIOS recommendation 01, with ST/SGB/2003/17 and ST/AT/2005/10, the Task Force recommends the creation of an ICT Committee. The mandate and Terms of Reference for this committee can be found in the documents listed above. This committee will ensure that all internal stakeholders, regardless of their location, organizational status, or financial power, routinely exchange information on ICT Initiatives across UNEP. This entity will also set policies and enforce compliance. It will liaise with UN Secretariat-wide bodies, notably the ICT Board.

The Committee should act as an advisory / approval body for significant new proposals for ICT Solutions, in that

- it will verify whether solutions similar to the proposed initiative have not already been deployed in UNEP and
- it will comment on / enforce synergies between the proposed system and existing / future requirements by recommending / enforcing the application of interoperability standards.

In order to allow for swift implementations of new initiatives, the Committee needs to guarantee that all proposals be treated within one month of their formal submission.

The Committee will be chaired by the OED (ED or DED) and the Senior ICT Advisor will act as the secretary to the Committee. The participants will be ICT focal points from divisional, regional, outposted offices, conventions etc. They will represent the corresponding entities and will therefore need to have the authority to do so. Committee members representing more than one logical entity (for example representatives of small outposted offices) are expected to present the point of view of all represented offices.

The ICT Team will provide secretariat support to the committee. UNON (and, as may be deemed necessary, other service providers) will have observer status. The total number of committee members should not exceed ten (to fifteen).

The committee should be provided with resources for one annual plenary meeting, which could have a larger audience, and which could serve as a forum on ICT for informal consultations between all divisional, regional, outposted offices, and MEAs. All other meetings will be organized via videoconference. It is suggested that the Committee initially meet once every one or two months. Ad-hoc meetings for the sole purpose of reviewing new ICT Initiatives can be convoked on an as-needed basis.

Note:

It is important to clearly define the relationship between the ICT Committee and the ICT Advisor and his team, as well as their interfaces with the rest of the organization. The Task Force proposes one of two models:

Model One:

The ICT Committee represents the views of all UNEP entities. It will take binding decisions for the whole organization. The ICT Advisor and his Team will execute these decisions and report compliance back to the ICT Committee.

Model Two:

The committee will serve as a sounding board for the business, in that it will collect UNEP requirements and voice them. The ICT Advisor will verify the validity and soundness of these requirements vis-à-vis the established strategy and will make a recommendation to the OED for the approval of corresponding actions (implementations, investments, modification of policies etc).

A diagram of the two bodies and their relationships with other bodies can be found in the Diagram section (see Diagram 1).

4.1.4 Establishment of central ICT budget for UNEP-wide core ICT applications and services

It is apparent that there is a large disparity in the levels ICT hardware and software is in use at each of UNEP's offices as well as among staff within a particular office. This is despite the fact that, in Nairobi, all computer equipment was replaced and standardized in 1999 in order to ensure that all of UNEP's equipment was Y2K compliant, and that the UN recommends that all computer hardware be replaced on a four year cycle. Such disparities adversely affect the efficiency of staff members as

outdated hardware and software are expected to interoperate with newer technologies and problems are inevitable without measures in place to ensure uniformity.

The Task Force also learnt that the number of computers in use by UNEP staff is the mechanism that is used by UNON (and possibly other service providers) to determine their SLA charges. Since the management of UNEP's computer inventory is a centralized task, in Nairobi there is an enormous discrepancy between the number of computers and laptops on the inventory and the number of UNEP staff members. Most of these laptops are not connected to the network and are mainly used by staff on mission. Clearly, the lack of a corporate approach towards managing UNEP's ICT resources is costing the organization dearly.

The Task Force feels that every UNEP staff member, irrespective of location, should have access to a set of core ICT services which are outlined in the section "UNEP-wide Connectivity, Core Applications & Services" of this report. Therefore, the provision of this core package should be considered as an obligation of the organization vis-à-vis each staff member, just like the provision of office space and other facilities are.

Recommendation:

In order to fulfill this need and to ensure more coordinated management of UNEP's IT infrastructure, the Task Force recommends:

- The establishment of a UNEP-wide ICT budget for the provision of a unified core ICT platform for all UNEP staff members, regardless of their location. The budget would be managed or coordinated by the UNEP Senior ICT Advisor who would ensure a consistent ICT infrastructure and services among all UNEP offices.
- The UNEP Senior ICT Advisor would maintain an up-to-date inventory of all UNEP's ICT equipment and ensure that charges by service providers reflect the actual utilization by the organization.

Recalling that the Task Force does not have sufficient administrative knowledge of the internal budget allocation between divisional, regional, and outposted offices, projects, and MEAs, the implementation of this recommendation will require further analysis by the OED. The Task Force proposes one of two models, which could serve as a basis for further discussion:

Model One: Centralized budget

All entities will be requested to transfer a portion of their budget to a central Core ICT budget, to be managed by the ICT Advisor in close cooperation with the ICT Committee. The amount per staff will be determined for each site by the ICT Committee, based on (routinely undertaken) assessments of the costs of the ICT core package at this site.

Model Two: Two-tier budget

Alternatively, it could be considered sufficient that all entities formally allocate a portion of their budget for core ICT (depending on the local requirements as explained above) and report the status of this budget, and of corresponding expenditures, to the ICT Advisor on a regular basis.

Taking into account the legal status of MEA's, a mix of both models could be envisaged for them.

4.1.5 Establishment and maintenance of a UNEP ICT strategy

Since UNEP has recognized that ICT, when used rationally, is a tool for both substantive programmes and administrative tasks, the Task Force recommends that the ICT Team and the ICT Committee be requested to promulgate a UNEP ICT Strategy including a set of standards and guidelines for UNEP-wide implementation.

Strategies in this context are understood to be mid- to long-term, forward-looking documents, whereas policies are required to provide UNEP-wide answers to external developments such as industry trends. Given the speed at which ICT technologies change across the world, it is also understood that this set of policies must not be taken as "carved in stone", but rather as living documents, which require constant revision by the governance bodies.

The Task Force recommends promulgating a set of standards and guidelines for UNEP-wide implementation. Strategies and policies covering the following topics were identified as being the most urgently required: Internet, Intranet, Extranet, Hardware, Software, Data Management, Archiving, Document Management, Knowledge Management, IT Security, E-waste. It is understood that, whenever possible, UNEP should strive to comply with the corresponding UN secretariat policy.

To address the immediate need for coherence across the board and in the absence of governing bodies, the Task Force recommends publishing a collection of existing policies from different sources (UNHQ, UNON and other service providers) without formally enforcing them. These should serve as interim guidelines across UNEP until the corresponding UNEP strategy and policies have been adopted.

4.2 Enterprise Resource Planning Systems for Transactional Analysis

The Task Force identified the following issues:

- UNEP programme managers lack timely, accurate and up-to-date (integrated) information on (both) the (financial and substantive) status of the implementation of their programmes and projects – leading to the ad hoc development of parallel homegrown workarounds.
- The current IMIS set-up, splitted between Nairobi and Geneva does not allow for real-time access to accurate consolidated administrative information.
- The implementation of the Bali Strategic Plan through joint programming between UNEP and UNDP is constrained by differences in procedures (and tools) for programme / project delivery.

Introduction

An Enterprise Resource Planning System (ERPs) attempts to integrate all the administrative data and processes of an organization into a single unified system. There are currently two leading commercial off-the-shelf ERP solutions (SAP and

Oracle / Peoplesoft) available on the market. The advantage of using a commercial off-the-shelf solution is that it implements industry's best practices in enterprise resource management; however, it requires extensive customization to fit an organization's business processes and is very costly and complex to implement, operate and maintain. The United Nations Secretariat has recognized the advantages of using an ERP system and has decided to replace IMIS with a commercial ERP solution by 2009.

There have been suggestions that UNEP should move to a commercial off-the-shelf Enterprise Resource Planning Software (ERP) due to programme manager's frustrations with the UN's Integrated Management Information System (IMIS) as well as to facilitate joint project implementation between UNEP and UNDP in implementing the Bali Strategic Plan. In this regard, there is an expectation that adopting UNDP's Atlas system (a customized version of one of the leading ERP solutions (Oracle / Peoplesoft) on the market) will provide a quick fix to the problems faced by UNEP.

In order to resolve the frustrations experienced by UNEP Programme Managers, UNEP has the following options:

1. Build upon UNDP's expertise and experience in customizing UNDP's Atlas to suit its needs;
2. Remain in line with the UN Secretariat; optimize the use of IMIS until it is replaced by the UN Secretariat's ERP in 2009.

The following table summarizes the key elements of each option:

	Adopt UNDP's Atlas	Optimize use of IMIS	Utilize the UN Secretariat's ERP replacement for IMIS
Description	An Oracle / Peoplesoft software solution customized to suit the administrative processes of UNDP	Software developed and hard-coded from the ground up to fit the administrative processes of the UN Secretariat	A leading off-the-shelf commercial ERP customized to suit the administrative processes of the UN Secretariat
Integrated Modules	Includes administrative modules (Human Resources, Finance, Payroll, Procurement etc.) and Project Management Note: Due to its complexity, the UN payroll for International staff has not yet been implemented in Atlas. This could affect the accuracy of data on staff expenditure.	Includes only administrative modules (HR, Finance, Payroll, Procurement etc.), not Project Management	Likely to include administrative and project management modules
Architecture	Central server hosted in the USA, accessed from UNDP country offices via the Internet using a web-based interface. All data contained in a central database.	Client-server model, accessed locally via a desktop front-end and only recently, remotely via CITRIX Data contained in decentralized databases	Options being evaluated To be determined, UNEP needs to be part

		at locations of UN administrative offices (UNON, UNOG etc) making it difficult to get consolidated data for all UNEP offices	of the UN Secretariat's system design working group to ensure all its data can be consolidated in a single database
Costs of Backend Server operations	Costly licensing negotiated on a case by case basis with the vendor but likely to be in the range of millions of US dollars per year UNDP out-sources backend server operations to IBM. UNEP will need to pay for costs associated with its operations	No license fee, system developed in-house at the expense of the UN-Secretariat Handled by UN Administrations (UNON, UNOG etc) with Regular Budget funding	UN Secretariat will most likely cover license costs from the UN Regular Budget Likely to be fully funded by the UN Regular Budget
System Development	Took two years to develop, two years to implement, initial investment of US\$ 80 million; still a work in progress UNEP will need to raise resources to customize Atlas to suit its needs while benefiting from UNDP's experience and expertise in this area	Developed over the last 15 – 20 years, current development focuses on reporting enhancements. Development has been an ongoing process Development funded by the UN Regular Budget	UNEP needs to document and streamline its business processes prior to customizing the software UNEP needs to participate in the UN Secretariat's system design working group designing the new ERP system Development will most likely be funded by the UN Regular Budget
Upgrades	Vendor will provide security fixes and software patches within license costs The more complex the customization of the software, the more complex the upgrade to newer releases. Upgrades will be complex, requiring significant effort to test and upgrade business processes Regular upgrade of entire system is necessary as vendors eventually discontinue support of older versions	UN Secretariat needs to identify and pay for security fixes and software patches Only necessary to upgrade certain components of the system e.g. backend database servers. Significant effort required as UN business processes are complex Only components with external dependencies (database servers) require upgrading	Vendor will provide security fixes and software patches within license costs The more complex the customization of the software, the more complex the upgrade to newer releases. Upgrades will be complex, requiring significant effort to test and upgrade business processes Regular upgrade of entire system is necessary as vendors eventually discontinue support of older versions, but will be handled by the UN-Secretariat
Suitability / Flexibility	Designed to suit the business processes of UNDP	Designed to suit the needs of UN-Secretariat Funds and Programmes – therefore probably more oriented towards UN	Designed to suit the needs of UN-Secretariat Funds and Programmes – therefore probably more oriented towards UN

	<p>Changes / enhancements to the system developed at headquarters, therefore not easy for small offices to get the system specifically tailored to any of their unique needs</p> <p>Data can be exported directly from user interface – therefore data analysis can be done using third party applications (e.g. MS Excel etc.)</p> <p>Once implemented, an ERP imposes its own logic on an organization thereby reinforcing bureaucracy and minimizing flexibility in the application of rules</p> <p>A well designed ERP implements business processes independently of the user interface, which facilitates the adaptation of business rules relatively easy. It can also be used to test, enhance and optimize existing business processes</p>	<p>headquarters than offices away from headquarters</p> <p>System designed and maintained at headquarters, difficult for outposted offices to influence, UNON has expertise to customize reports</p> <p>Users have to negotiate with IMIS coordinators to get raw data exports from the system</p> <p>Once implemented, an ERP imposes its own logic on an organization thereby reinforcing bureaucracy and minimizing flexibility in the application of rules</p> <p>In IMIS business processes are hard-coded in the user interface which makes it rigid and difficult to customize. Business processes can not be optimized</p>	<p>headquarters and large operations (peacekeeping) than offices away from headquarters</p> <p>Likely to be centrally designed and difficult to influence</p> <p>Likely to have some direct data export capability</p> <p>Once implemented, an ERP imposes its own logic on an organization thereby reinforcing bureaucracy and minimizing flexibility in the application of rules</p> <p>A well designed ERP implements business processes independently of the user interface, which facilitates the adaptation of business rules relatively easy. It can also be used to test, enhance and simplify existing business processes</p>
User operations (HR, Finance Units etc)	UNDP has administrative units at headquarters and at each country office to handle administrative tasks	Administrative tasks handled by UN Administrations (UNON, UNOG, ESCAP)	Administrative tasks will be handled by UN Administrations (UNON, UNOG, ESCAP)
Training	US\$ 2 million spent annually on Helpdesk; additional expenditure on continuous training of staff	Training and helpdesk provided by the UN Secretariat	Training and helpdesk provided by the UN Secretariat is likely
Implementation Timeline	May take two to three years to change and implement UNEP administrative processes	Currently in use	Software currently being evaluated / selected / announced in 2007 but likely to be either SAP or Peoplesoft (the two leading ERP vendors); to be in place by 2009

Advantages and disadvantages of potential options:

Option 1: Build on UNDP's expertise and experience; customize the UNDP's Atlas to suit UNEP needs

Advantages:

1. UNEP would have its administrative transactional data in a centralized database;
2. UNEP's programme managers would have real-time, accurate information on the status of programme / project delivery using the Management Reporting tools built in to the Atlas system;

Disadvantages:

1. As UNEP is currently obliged to follow the administrative procedures of the UN Secretariat, it will need to (obtain permission from) negotiate with the UN Secretariat (and appropriate governing bodies) before customizing Atlas to suit its needs;
2. UNEP will need to obtain resources to customize Atlas to suit its administrative processes;
3. UNEP will need to either (i) negotiate with the UN-Secretariat (UNON, UNOG etc.) to use Atlas for recording UNEP related administrative transactions which will likely be at an additional cost or (ii) negotiate with another service provider (e.g. UNDP) to provide UNEP with administrative services using Atlas or (iii) establish administrative units within UNEP (Finance, Human Resources, Procurement, Payroll etc.) to operate Atlas. If UNEP were to select options (ii) or (iii), it would effectively be forgoing the significant Regular Budget resources provided to UNON, UNOG etc. for the provision of administrative services to UNEP (economies of scale);
4. It is estimated that UNEP may require approximately 2- 4 years (6 months to 1 year to analyze and document UNEP's administrative processes; 1 – 2 years to customize Atlas; 1 – 2 years to migrate, implement and stabilize Atlas) to be fully operational using the Atlas system by which time the UN-Secretariat's ERP would also have been operational at a significantly lower cost to UNEP;
5. UNEP will find it increasingly difficult to fulfil its financial and programmatic responsibilities to the UN-Secretariat as it will be using different tools from those (IMDIS, Galaxy, IMIS replacement etc.) developed by the UN-Secretariat for such purposes;
6. UNEP will need to develop an interim solution to provide programme managers with accurate up-to-date information on the implementation of the programmes and projects.

Option 2: Remain in line with the UN Secretariat; optimize the use of IMIS until it is replaced by the UN Secretariat's ERP in 2009

Advantages:

1. UNEP will maintain its close alignment with administrative processes and practices of the UN-Secretariat;

2. The costs associated with developing and migrating to a commercial off-the-shelf ERP will be borne by the UN Regular Budget;
3. UN administration offices (UNON, UNOG etc.) will be responsible for the migration, training and operation of a new ERP system;

Disadvantages:

1. UNEP will need to develop an interim solution to provide programme managers with accurate up-to-date information on the implementation of the programmes and projects;
2. The new ERP software will be developed to accommodate the needs of all UN-Secretariat operations, including peace-keeping operations and consequently will not be tailor made for UNEP. In this context, it is imperative that UNEP have a strong presence in the UN-Secretariat's working group established to coordinate the design of the new ERP system;

Observations:

Although it has been suggested that UNEP should adopt Atlas to facilitate the implementation of the Bali Strategic Plan, it should be noted that joint UNEP / UNDP projects are currently administered through UNDP and consequently already use Atlas. UNEP would therefore only need to secure read-only access to Atlas to monitor the implementation of joint UNEP / UNDP projects which UNDP has granted to other UN organizations when requested. UNEP will however need to work with UNDP to facilitate the exchange of information between Atlas and IMIS.

In order to maximize the benefits of UNDP's experiences with Atlas, UNEP would need to closely align its administrative processes with UNDP's. However, the use of Atlas is not a prerequisite for working with UNDP as they have many partners that do not use Atlas. Furthermore, in order to ensure data integrity, Atlas implementations do not allow for the automated import of data from other systems as is the experience between UNDP's and UNOPS's Atlas implementations.

Whether UNEP adopts Atlas or migrates to another commercial ERP system selected by the UN-Secretariat, it is envisaged that neither system will be operational until 2009 at the earliest. It is therefore apparent that UNEP will need to put in place an interim solution in order to enhance Programme delivery. The task force therefore proposes that UNEP:

- Undertake a review of UNEP's business (administrative) processes, rules and procedures with a view to documenting and streamlining wherever possible;
- Develop systems to automate administrative processes (travel approval, personnel management etc.) that are currently handled manually within UNEP;
- Develop systems to track the substantive and financial implementation of programmes, projects, MOUs etc.;
- Develop an Executive Management Information System based on IMIS and other systems identified above to provide programme managers with up-to-date, accurate and user-friendly information on programme delivery and the use of resources.

Conclusion:

In view of the significant cost and effort associated with UNEP migrating to Atlas, the task force believes that UNEP should retain IMIS pending the UN-Secretariat's implementation of its future ERP system. In the meantime, UNEP should optimize the use of IMIS and other administrative information by building:

- an Executive Management Reporting System,
- a Project Management System to provide programme managers with up-to-date information on the implementation of their programmes and
- systems to automate administrative processes (such as approval of projects) currently handled manually within UNEP.

Recommendations:

1. Liaise with UNDP to obtain “read only access” to Atlas to monitor the implementation of joint UNEP / UNDP projects and to agree on requirements to facilitate data exchange between Atlas and IMIS.
2. Work with UNDP to agree on a data requirements to facilitate data exchange between Atlas and IMIS.
3. Develop a systems analysis capability within UNEP to streamline business processes and develop requirements for corporate applications aimed at enhancing administrative efficiency and providing Programme Managers information on Programme delivery:
 - an Executive Management Reporting System,
 - a Project Management System,
 - systems to automate administrative processes.

4.3 UNEP-wide Knowledge Management

Definition of knowledge management: *“Knowledge Management (KM) refers to a range of practices used by organizations to identify, create, represent, and distribute knowledge for reuse, awareness, and learning across the organization.”*
(Wikipedia, the free encyclopedia)

UNEP must ensure that it has the tools and expertise in place to: manage and track its correspondence, manage and archive its documents in electronic format; and use ICT tools to share and exchange content internally and with its partners. The Task Force decided to concentrate its efforts on the basics of KM, covering what is achievable in the next 24 months. Once the UNEP Senior ICT Advisor and Team are in place, they should pursue the completion of a more thoroughly designed Knowledge Management Strategy. In the long run the KM Strategy of the organization should drive the ICT initiatives.

It is important to note that a KM Strategy cannot be achieved by solely providing the technical (ICT) tools to do the job. UNEP must immediately start preparing to migrate to a comprehensive solution by identifying, documenting, and re-engineering its business processes.

4.3.1 Adoption of a global CMS system for Internet website management and creation of an Internet Board

Definition of content management system: *“A content management system is a computer software system for organizing and facilitating collaborative creation of documents and other content. A content management system is often a web application used for creating and managing websites and web content.”* (Wikipedia, the free encyclopedia)

Centralized view of www.unep.org to the world, but decentralized management of data.

By the end of the 1990s, the electronic dissemination of multimedia materials was still not considered a priority within UNEP. Currently however, the multitude of sites being created and the enthusiasm shown towards incorporating a web/multimedia component to every UNEP activity, product, and output clearly demonstrates an ever growing appreciation throughout the organization, both at and outside headquarters, of the need and great effectiveness of electronic information dissemination.

Unfortunately, the organization as a whole has been slow in adopting this new medium, and the level of buy-in by divisions, regional, and outposted offices, etc. has varied greatly. Also, the limited guidelines and best-practices put in place to govern electronic publishing have hardly ever been followed. As a result, today, UNEP's global plan of work, the sheer scope of its activities, and ambitious strategies are not fully nor properly reflected online. Overall, the institution's online presence is fragmented (different URLs, various presentation of information, dissimilar “look and feel”) and badly structured (duplication of information, little cross-referencing between various sites and related information, not user-friendly). UNEP HQ alone has over 100,000 web pages, most in HTML. There is a lack of corporate identity and branding, which to the average user translates into a sense that the organization is fragmented, lacks focus, and is not result-oriented.

A number of elements feed this perception, not least of which: the proliferation of UNEP subsites and associated sites that fail to identify themselves in style, in look, in design and most especially, in substance as UNEP products.

In that, the situation as it stands now is not too dissimilar to that which prevailed in traditional publishing prior to the creation of the UNEP Publication Board. In order to ensure that all UNEP online multimedia material is developed and published in a rational and consistent manner, a policy governing the Internet (electronic media or e-media) must urgently be developed and enforced.

As was the case for traditional publishing, the creation and dissemination of e-media too needs to be ruled by a set of basic principles and guiding procedures. The proposed policy would cover the repackaging of all public information generated by or through the organization for electronic consumption. All sections of the organization, whether based at headquarters or not, whether specialized or general, regardless of source of funding, would be mandated to adhere to the policy. Because the presentation of the source information would vary according to objectives and target audience, the policy would cover all forms of electronic media, from text and

graphics, to video and audio, to any new electronic means emerging through advancing technologies.

Advantages of using a CMS (adapted from Microsoft):

- Provide a simple, familiar, and consistent user experience.
- Boost employee productivity by simplifying everyday business activities.
- Help meet regulatory requirements through comprehensive control over content.
- Effectively manage and repurpose content to gain increased business value.
- Simplify organization-wide access to both structured and unstructured information across disparate systems.
- Connect people with information and expertise.
- Accelerate shared business processes across organizational boundaries.
- Share business data without divulging sensitive information.
- Enable better-informed decisions by presenting business-critical information in one central location.
- Provide a single, integrated platform to manage Intranet, Extranet, and Internet applications across the enterprise.

Recommendations:

The ICT Task Force recommends a two step solution:

- **Purchase / develop a scalable content management system for all UNEP websites** for preservation of institutional knowledge and dissemination of information internally and externally. The CMS would be developed centrally, and provided to all offices to ensure consistency of presentation and pertinence of content. Different levels of access would be established: contributors, editors, publishers, administrators, etc. With this tiered security access, content uploading would be decentralized to focal points through a simple web interface, while the responsibility for editing, quality control, and final online publishing would remain with the Internet Unit. Focal points would be responsible for the maintenance and update of websites. This should be considered a priority for UNEP.

There are two options:

- Option One: purchase an off-the-shelf CMS system such as Microsoft Content Manager (or Microsoft SharePoint Server 2007 which should be released next year) and customize for UNEP use (US \$ 190,000.00 for software, \$110,000.00 for customization, implementation 6 months.), or
- Option Two: develop a proprietary CMS, using open standards and software, and tapping into the existing expertise within UNEP (US \$ 300,000.00 for the development of a customized solution using open standards, implementation 12 months).
 - Conduct a UNEP-wide needs analysis to identify and document the growing needs of the organizations, including 2 to 3 year projections of future needs and growth.

- Review, scan, evaluate, and document all CMS systems currently in use in UNEP to allow for an educated and cost-effective decision regarding a new CMS. Building on an existing system may be more cost effective / efficient than starting with a new product.
- **Create a new Internet (e-media) policy and establish an Internet (e-media) board.** This would achieve the following (adapted from Publishing Policy):
 - Ensure all UNEP websites have consistent domain names: www.unep.org for HQ and constant nomenclature for OAH;
 - Project the same corporate identity;
 - Reaffirm the key elements of e-media dissemination at UNEP;
 - Ensure UNEP's copyright issues are safeguarded;
 - Ensure UNEP's institutional memory is preserved;
 - Improve the planning, coordination, and harmonization of e-media preparation and production in UNEP;
 - Assist UNEP's divisional, regional, and outposted offices in maintaining the high quality of content and appearance that is essential to underpin the role and status of UNEP as a corporate e-media publisher;
 - Ensure that UNEP's online outputs reflect the programme's policies and objectives;
 - Ensure that all of UNEP's online outputs follow a well-defined path for approval, production, and dissemination;
 - Improve usability, performance, consistency, design; and cross-referencing of UNEP websites;
 - Ensure use of one central and shared calendar;
 - Allow for information sharing (and eliminate duplication) with existing systems, such as the UN Official Document System (ODS); and
 - Allow for better maintenance by ensuring that the most up-to-date information is available and highlighted.

4.3.2 Adoption of a global Intranet

“One intranet for one UN worldwide, with consistent layout, standard technology, providing relevant and consistent messages to reach staff everywhere.”- iSeek Mission Statement

The ICT Task Force recognized the organizational need for internal communication, in particular document / data / information exchange and version control. To a major extent, document management and archiving are areas of concern, if UNEP's institutional memory is to be safeguarded. The ICT Task Force would therefore recommend that a review of needs be conducted to determine the extent of the Intranet requirements for the organization. In order to allow for decentralized instances of existing Intranets, such as the one developed and in use at DTIE, it is recommended that these be made interoperable via open standards. UN HQ has already developed and deployed a corporate Intranet - iSeek. Instead of burdening UNEP with additional development and installation costs, the Task Force recommendations are geared toward using existing systems and expanding them to all UNEP divisional, regional, outposted, and other offices around the world.

Recommendations:

- UNEP to review and investigate using iSeek as the primary tool for internal Secretariat communication, as requested by UN HQ. iSeek should be used as a communication tool from senior management to staff members and vice-versa, as well as a repository for basic duty station information. All departments / offices are encouraged to use iSeek as a portal to their own Intranets, where they already exist, or in place of, where they do not.

UNEP in cooperation with UNON, who already have a well developed Intranet, could secure a slice of iSeek for its internal communication needs. iSeek offers a common area, that is visible and available to all offices within the UN secretariat, but also ensures that each individual organization has its own “Local Space under Local Control” that is available only to its staff members. UNEP could thus upload information that is UN-wide or UNEP-wide. It could even further segregate its space to provide specific information tailored only to some divisional, regional, outposted, or other offices. In addition iSeek Intranet sites could be password protected, for draft document sharing, or for SMG use. The UNEP iSeek Intranet site could be the repository of Tidbits, UNEPLink, miscellaneous PCMU forms and guidelines, the Publications manual, other policies and procedures, etc.

The problem related to using iSeek as UNEP’s exclusive Intranet solution is that it resides on servers in New York, and therefore may not be available to all UNEP staff members at all times around the world. Connectivity and availability (different time zones) issues would have to be resolved prior to embarking on this solution. As an alternative, other developed Intranets like the one is use at DTIE, should be examined to determine whether they could be considered as the solution.

- Provide users with customized access / portal to the Intranet. Every UNEP staff member should have access to an Intranet environment where pertinent and customized information is available automatically. This could be accomplished by verifying the user logon, determining the location of access, and providing geographic, institution, and programme specific data. iSeek is in the process of developing a MySeek portal that would provide users with customized access.
- Provide a UNEP-wide solution for scalable and customizable meeting registration system, as part of the Intranet solution.

4.3.3 Adoption of a global system for Extranet

In addition to the need for an Intranet, the ICT Task Force recognized the organizational need for secure communication between UNEP staff members and those of other partner organizations such as UNDP, Governments, NGOs, etc. In particular there was a requirement to share documents, data, and information in raw form while working on reports or other outputs prior to their dissemination to the public. Some offices in UNEP have already developed solutions to this requirement by implementing a variety of systems, such as SharePoint, WIKI, QuickPlace, etc.

The use of these systems should be propagated among offices. Additional licenses for user access need to be purchased.

Recommendations:

- Conduct a review of needs to determine the extent of the Extranet requirements within the organization.
- Evaluate existing team collaboration products such as: SharePoint, WIKI, and QuickPlace, make recommendations for use, and arrange for training where necessary.
- Provide users with customized access / portal to the Extranet. Every UNEP or partner staff member should have customized and limited access to the shared area of work dedicated to their project.

4.3.4 UN Document Management / Archive System

UNEP has recognized the need for an integrated document management system for the tracking, administration, and archiving of its documents. However, after a lengthy evaluation of technologies available for this purpose, it was evident that as an organization, UNEP does not have clearly defined business processes that dictate how the institutional knowledge should be preserved. There are no policies or guidelines on the type of documents that need to be managed, nor is there a UNEP policy on retention periods for these documents.

UNEP HQ, in cooperation with UNON and UN-HABITAT, underwent a lengthy evaluation of document management systems to be purchased and equally shared between the 3 organizations. Among the products evaluated were Sperion and OmniDocs. The evaluation team selected Sperion.

The exercise afforded the UNEP team to determine what features the proposed document management system should incorporate:

- Scan - retrieve - amend applications
- Life-history of documents stored, including track changes and audit trail
- Audit trail remains live even if document is destroyed
- Extensive search criteria
- Consecutive and automated file codes
- User-defined codes including mandatory code fields according to user requirements
- Retrieval policies and user preferences tailored and customized to user needs
- Securities implemented to various functions at administrator's discretion
- Versatile and secure using encrypted formats – can be used with web interface
- Multiple administrator capability
- Support for 200+ file formats including movie files, pdfs, jpgs, docs, etc.
- Integrate Lotus Notes or other e-mail platform within original platform
- Reasonable work-flow system
- Web interface / Internet access for staff members in transit or from home

During the evaluation period it became evident that the UN Secretariat was in the process of identifying and procuring an UN-wide document management system. It

would not be cost effective for UNEP HQ to purchase Sperion, even if the cost was to be split three ways with UNON and UN-HABITAT, only to be used as an interim measure until the UN-wide system is implemented. UNEP would be better off to invest its resources, effort, and time in defining its business processes, developing the appropriate policies, while fast tracking the implementation of the new document management system selected by UN HQ.

During a meeting with UNON in April 2006 UNEP was informed that UN HQ has completed the technical evaluation, selected the vendors, and committed the funds for the new document management system. UN HQ is still deciding between EMC Documentum and OpenText. Proof of concept will be completed by DPKO. The target date of July 2006 has been extended due to pre-implementation task delays. However, the UN Secretariat is confident that implementation should be completed by the end of this year.

Recommendations:

- Define business processes, policies, and procedures – ICT Team with ICT Committee
- Commence pre-implementation tasks and requirements definitions
- Negotiate a fast track implementation date
- Negotiate cost - normally paid by the agency – propose cost sharing between UNON, UNEP and UN-HABITAT
- Implement UNEP wide Document Management / Archive System in order to ensure preservation of UNEP's intellectual capital, after the creation of a UNEP Document Management Policy
- Provide training - normally paid by the agency – propose cost sharing between UNON, UNEP and UN-HABITAT

Approximate cost US \$ 500K. Implementation time up to 24 months.
US \$ 500,000.00 for UNEP's portion of the UN HQ portion of the DMS.
Implementation within 12 months depending on the UN HQ deployment schedule. Additional cost may be incurred for training.

4.3.5 Correspondence Tracking System (CTS) for UNEP

UNEP receives a large amount of correspondence that needs to be acted upon in a timely manner. The majority of the correspondence that is of a corporate nature ends up in the Office of the Executive Director's (OED) mail log, from where it is delegated to the appropriate staff members. The distribution is currently handled manually, resulting in poor tracking, occasional duplication, and some loss of responses. In some cases the same correspondence is distributed to a large number of staff members and it unclear whose responsibility it is to respond.

Managing UNEP's correspondence with a computer based tracking system will not only greatly increase the organization's responsiveness, but also allow for the creation of a database that will become an invaluable knowledge base for UNEP's staff members.

The UN Secretariat is planning on deploying an UN-wide Document Management System which will incorporate a Correspondence Tracking System. The UN-wide system is expected to be in place within the next 2 to 3 years.

UNON and several UNEP offices are currently using a Correspondence Tracking System developed in house by UNON. Pending deployment of the UN-wide system, the Office of the Executive Director has requested UNON to customize the Correspondence Tracking System for immediate implementation in the OED. This CTS will be used to track correspondence between the OED and UNEP's divisional, regional, outposted, and other offices.

Recommendations:

The Task Force recommends that the ICT Committee evaluate the proposed CTS tool as an interim solution for UNEP-wide deployment. It is important to determine if this tool will satisfy the needs of the whole organization, or if it primarily targeted for UNEP HQ use. The CTS should be scalable and easily adapted for distributed use in all UNEP locations.

4.3.6 Interoperability / Accessibility (services & databases)

UNEP, as any large organization, maintains data in many distinct independent databases that have been developed at different times, on different platforms, using different data management systems. These databases are housed on a variety of UNEP servers around the world. The need to access and exchange data between UNEP staff members and partners brought about the subject of interoperability. The explosion of massive and heterogeneous, and sometimes redundant or contradictory, data sets necessitates powerful and intelligent interoperability mechanisms so that:

- Users can access data in a transparent way.
- A query to any UNEP web application produces a single, consolidated, and coherent answer.

Problems that are caused due to lack of Interoperability:

- UNEP increasingly requires access to data residing in multiple locations throughout the organization. However, the lack of a function rich standardized database protocol for interoperability has made this difficult and costly. This has also inhibited the consolidated output of institutional knowledge.
- Staff members want and need to economically and easily integrate those databases in order to effectively use their ICT resources.
- UNEP currently can not achieve the benefits of the open system's promise of vendor independence when it comes to database management systems.
- Staff members also want to be able to integrate their desktop tools and other applications in a consistent manner with whatever databases are available in UNEP.

Database interoperability key challenges:

- The need of platform interoperability to overcome the heterogeneity of hardware and database management systems.

- The need of a semantic interoperability to reconcile disagreements among databases on the structure, representation, or interpretation of the data they wish to exchange.
- The need of coordination mechanism to impose discipline on the interaction between databases. This is usually expressed by common access method and specific network architecture.

Recommendations:

In order to achieve a highly interconnected information society within UNEP, the Task Force recommends:

- Embrace and promote International Standards for Interoperability - ISO/IEC 19500-2 or COBRA standard for the International Standards for interoperability (http://findarticles.com/p/articles/mi_hb3234/is_200012/ai_n7924972);
- Embrace and promote Meta-data Standards - AttentionXML standard for the Meta Data (<http://developers.technorati.com/wiki/attentionxml>);
- Ensure that any open standards selected have available capacity for support, training, consultancy, development;
- Compile UNEP-wide catalogue of databases, services, and applications (some efforts already done in this regard by HQ - Publications, Ozone, Issues Based Modules, EOU, Lesson Learned, Roster of Experts - to have a better understanding of their platform / structure / data);
- Research available technologies (WebServices, SOAP, WDSL, RSS, etc.);
- Identify core databases, services, and applications and ensure they are made interoperable.

4.4 UNEP-wide Connectivity, Core Application & Services

All UNEP staff members throughout the organization need access to a standard ICT package (hardware, software, and services) to deliver / implement UNEP's work programme and its activities (Foundation for knowledge management). The Task Force identified the following issues to be addressed:

- Lack of a consistent platform across the organization to support knowledge management,
- Lack of efficiency due to poor electronic access to central applications and services hosted in Nairobi,
- Inconsistent corporate image and e-identity,
- Loss/theft of laptops or other mobile devices while traveling.

4.4.1 ICT core package

The core package would have to be implemented by the ICT Team in accordance with existing UN guidelines, taking into account open standards for interoperability, and security for both access and information integrity. The core ICT package would need to be evaluated and revised as new technologies and services become available.

Funding for the core package should be made available from the corporate ICT budget as part of the basic infrastructure to carry out UNEP's work programme. Considering the variations of local costs, it is certain that the basic package will require different levels of expenditure at each location. This is similar to the funding allocated for other basic infrastructure elements, such as cost of renting office space, or cost of living adjustment (post adjustment).

In order for UNEP to realize the full potential of its ICT investments, a robust training component must be an integral part of UNEP's ICT Services. Training in core applications and services needs to be made available not only to ICT staff members but to all UNEP staff members, worldwide, on an ongoing basis.

Components of the ICT core package:

- Up-to-date hardware (desktop computer, laptop, printer)
 - Appropriate budgetary amounts need to be made available for hardware replacement as per the UN recommendation of the 4 year cycle
- Bandwidth
 - Establish minimum acceptable bandwidth per user
 - Review / establish the “acceptable use policy” to ensure responsible use of resources especially in location where bandwidth is not easily accessible
- Access to UNEP-wide e-mail-Directory
 - Automate sharing of e-mail directories based on an open standard LDAP mechanism
- E-mail services, (including anti-spam and anti-virus protection at server level)
 - Recommend that all UNEP staff members use the unep.org e-mail domain for all official communications
 - Consolidate to one e-mail standard while providing migration support for existing applications and tools
 - Provision and use of mailing lists
 - Remote access to corporate e-mail via Internet
 - E-mail access through mobile devices (Phone, PDA, laptop)
- Secure access to and from Internet
 - Recommend that all offices are covered by professional firewall
- Secure remote access to internal resources
 - Preferably from both home and during travel
 - Provide access to HQ resources as required to OAH
- Desktop management
 - Locally managed
 - Protection for anti-spam, anti-virus, OS updates
 - Local sites should manage shared files, backup, printers
- Backup / Recovery for e-mail
 - E-mail backup and recovery should be done on corporate level
- Centralized license procurement and management for all core software, (economies of scale)
 - OS
 - Office productivity tools
 - Licence sharing

- Security tools: anti-virus, anti-spyware, remote access
- ICT Training (ICT and all UNEP staff members)
 - Allow regular update of ICT knowledge to the widest possible range of UNEP staff members in general, and IT staff members in particular
 - Provide induction courses for new staff members
 - Provide update courses every time a new or a substantially upgraded software is added to the core package
- Complete Helpdesk support including Apple Macintosh computers
- IT Expert Forum – Knowledge Sharing Environment
 - Provide best practices
 - Q&A
- Enable VoIP communications (Voice Over IP Network) like Skype, Net-meeting
- Access to Phone / fax / video conferencing
- Provision of a global WIFI provider while on travel to access UNEP’s email and internal resources
- Ensure appropriate Insurance coverage for laptops and accessories while on travel

4.4.2 ICT core Package Delivery

To achieve a unique domain name, UNEP.ORG, deliver the core ICT package and provide all staff access to UNEP knowledge management applications, UNEP will need to establish a communication network, which will connect all offices to each other and provide Internet connectivity at sufficient speeds to users in all offices.

The challenge of having UNEP HQ in Nairobi is that the access and sharing of resources are plagued by high costs and high latency (slow response) because of the use of satellites - the only technology available to connect HQ via the Internet to the rest of the world.

The new architecture needs to:

- 1) Enable strong credentials to allocate and secure access to shared resources,
- 2) Provide service continuity, reliability and mirroring,
- 3) Include performance and contention,
- 4) Facilitate scalability,
- 5) Include replication technologies, and
- 6) Enable local and remote administration.

Diagram 2, in the Diagram section, - Infrastructure provides a visual representation of the proposed interoperability framework. The proposed architecture allows for the provision of the UNEP corporate image, UNEP.ORG, the delivery of the core package, knowledge management, and the means by which various UNEP offices, MEAs and partners will access them. For example, the infrastructure will allow Office A to access their resources locally while Office B will access similar resources remotely through the European Replica.

Additionally, the broader framework will provide the standards and guidelines for interoperability of applications and services which are not part of the core package (see numbers 1, 2, 3, 4).

Programme specific applications and services remain under the responsibility of the respective offices or MEAs. This architecture will allow for local administration and ownership of programme specific information knowledge.

A large number of staff members are carrying laptops and/or other mobile devices. Occasional loss or theft of these devices without proper insurance coverage would be a disincentive for the staff members to carry such devices and therefore affect their productivity.

Recommendations:

- Establishment of a mirror site for current and future ICT core applications & services outside Nairobi, to facilitate access from outposted offices.
- Analysis of the support and technical skills needed in each outposted office for the possible implementation of the ICT core package, (internal versus outsourcing).
- Provision of a UNEP-wide core ICT application & services package.
- Standardize the use of the unep.org domain for email and website addresses.
- Implement the delivery of UNEP's core ICT application & services package for all, including MEAs.
- Investigate the amount of information that will transit in the UNEP-wide network to define the minimum necessary bandwidth for mirroring and offices replication.
- Establish procedures for funding and implementation of regular updates / upgrades of software included in the core package.
- Develop procedures to ensure UNEP-wide monitoring and maintenance of the core package.
- Develop automated procedures to ensure maintenance of UNEP-wide e-mail lists.
- Examine the current procedures and insurance mechanism so that the staff members are not adversely affected in case of loss or theft of mobile devices.

4.5 Need for a faster Internet connectivity and bandwidth in Nairobi

Lack of access to high speed Internet connection and other remote access services in Nairobi was frequently mentioned as one of the major problems at the UNEP HQ.

Recommendation:

In order to address this issue, the task force recommends:

- Secure adequate bandwidth level for UNEP HQ in Nairobi, currently estimated to be at 10Mbit/sec.
- Work with UNON to improve remote access to resources from home and while on the route, as outlined in the "quick wins".

- Develop, promote, monitor and enforce a policy for “acceptable use of bandwidth” in Nairobi.

4.6 Mainstreaming ICT into Substantive Programmes

Mainstreaming ICT into substantive programmes is probably the most challenging aspect of this strategy. This is a longer term goal that will require considerable change in the way we do business, increase in existing ICT investments, shift in staff profiles, as well as cultural change in our practices and relationships.

The use of ICT within substantive programmes in UNEP is driven by availability of resources, existing infrastructure and expertise, and in many cases donor or partners’ requirements and policies. There is a visible disparity across the organization, with some offices making considerable investments, while others none. Most UNEP offices remain understaffed in ICT. The professional level of existing ICT positions remains at a very low level (mainly interns, UNVs, JPOs, P2, P3). ICT expertise is used mostly for project implementation aspects and there is little or no participation of ICT experts in the planning process. The result is an ICT that is not well integrated into the work programme and that does not respond to the objectives of the organization.

In order to mainstream ICT into substantive programmes UNEP needs to change the status quo in the level and expertise of available ICT staff members.

It is common to see projects, heavily dependent on ICT, prepared without an ICT budget. ICT and information experts are consulted after the project has been started. In many cases the ICT component has already being designed before hand by non ICT experts. The outcome is therefore far from satisfactory, leading to the development of disparate systems and applications that are not compatible amongst them, and in most cases ending up in failure.

Many offices outsource the design and development of ICT applications to external companies in the absence of in house ICT expertise. These exercises could be successful if external companies had inside knowledge of UNEP mandates and objectives and understood the way the organization functions. If this type of outsourcing is to be considered, transfer of knowledge from UNEP programme officers to the ICT company will be required. The success of the project depends on the success of this knowledge transfer, so it is an important area UNEP should be paying attention to.

Recommendations:

To address these problems, the Task Force recommends:

- Substantive programmes should consider raising the level of investment on ICT, ensuring that ICT expertise is available not only at the implementation stage, but also at the programme and project planning stages (budget reference figures 12-17%). UNEP requires more in house expertise on ICT project management and liaison with external application developers.

- The participation of ICT experts in project review committees, to ensure that the ICT components are properly incorporated and that UNEP standards, policies, procedures, and recommendations on ICT are followed.
- For small projects, not reviewed by project committees, efforts should be made to obtain advice from ICT experts to ensure standards, policies, procedures, and recommendations are followed.
- The establishment of interoperability guidelines and standards to ensure that newly designed applications and systems can be used across the organization and that data can be easily exchanged between these systems.

A number of UNEP offices have invested considerable on ICT and have developed tools that are used successfully. Some of these tools could be reused by other offices with little or no modifications. The problem is the lack of awareness and inter-office communication on existing tools and solution across the organization.

To facilitate this communication, the Task Force Recommends:

- The creation of a database (or adoption of the existing iSeek solution) on existing systems and applications, to allow ICT and other staff members to know what's available and minimize duplications of efforts.
- The establishment of an ICT scientific / technical forum for UNEP's ICT community, where ICT systems and applications could be submitted for competition. This forum would stimulate innovation and provide a framework to award those champions that have done a better job in building and using ICT tools to support UNEP's goals and objectives. The forum could be organized by the ICT Team and hosted on a rotational basis by the different UNEP offices.
- The establishment of an ICT Intranet, including WIKIs, blogs, fora, and other features to facilitate sharing knowledge and information within the ICT community.

The use of ICT in our daily work largely depends on our own know-how and abilities. The lack of appropriate training is in many cases the cause of low productivity and improper use of technology. In some cases it is simply the lack of awareness that inhibits our staff members from doing their job better.

To drive a change in ICT culture through the organization, the Task Force recommends:

- That periodic ad-hoc training sessions are organized within UNEP offices, where staff members could share their expertise and help others.
- Establish specialized help desk support, wherever possible to build the required awareness about software features and expertise. A simple shortcut can make a big difference in our work.
- Establish electronic forums, locally or UNEP-wide, where tip-of-the day type of knowledge is shared. Announcements on availability of new tools, features and services can be posted.

- The establishment of more formal training programmes, ensuring that every staff member, including ICT staff members, is properly trained in the use of the ICT tools that they need for their daily work.

4.7 Greening of ICT

As an environmental agency ,UNEP need to promote Sustainable Consumption and Production (SCP) in the field of ICT .

Recommendation

It is a good opportunity for UNEP's image to promote sustainable products in this field. It is important to start to thinking now on integrating Sustainable Consumption and Production (SCP) into the ICT policy. For instance, having in all printers recto-verso units to avoid paper wastefulness. Also, be able to use recycled paper or chlorine-free paper in all machines, vegetable ink? As for hardware, to think of buying materials with no heavy chemicals in it and that could be "easily" recycled after use. Policies and procedures have to be in place for disposal and recycling of hardware to minimize e waste.

5 - Implementation

Summary of Implementation	Year 1				Year 2				Year 3				Year 4			
Governance																
IMIS+																
Enterprise Resource Planning																
Knowledge Management																
Connectivity																
ICT Package																
ICT support to activities																
Quick Wins																

	No activity
	Preparation, partial implementation
	Full implementation

Governance:

Activity	Year 1				Year 2			
	1 qtr.	2 qtr.	3 qtr.	4 qtr.	1 qtr.	2 qtr.	3 qtr.	4 qtr.
Establishment of an ICT team to lead, advise, coordinate and monitor UNEP-wide ICT activities								
Establishment of an ICT Committee to represent the diversity of out-posted offices/MEAs in the ICT decision process								
Establishment of a UNEP ICT central budget								
Approve and publish ICT strategy and corresponding policies								

Enterprise Resource Planning System:

Activity	Year 1				Year 2			
	1 qtr.	2 qtr.	3 qtr.	4 qtr.	1 qtr.	2 qtr.	3 qtr.	4 qtr.
Obtain "read only access" to UNDP's Atlas								
Agree on data requirements with UNDP to facilitate data exchange between Atlas and IMIS								
Review and streamline UNEP's business processes								
Develop computer based systems (Executive Management Information System; Project Management etc.)								
Provide input into the UN-Secretariat's new ERP system								

Knowledge Management:

Activity	Year 1				Year 2			
	1 qtr.	2 qtr.	3 qtr.	4 qtr.	1 qtr.	2 qtr.	3 qtr.	4 qtr.
Implement a UNEP-wide Content Management System (UNEP.ORG domain name) and MEAs (specific domain name) websites, Intranet and Extranets								
Implement a UNEP-wide Document Management System								
Implement UNEP-wide UNON's Correspondence Tracking System								

Connectivity and Core ICT Package:

Activity	Year 1				Year 2			
	1 qtr.	2 qtr.	3 qtr.	4 qtr.	1 qtr.	2 qtr.	3 qtr.	4 qtr.
Establishment of UNEP HQ data center replica for current and future ICT core applications & services in Europe or North America to facilitate access for all UNEP staff / offices/MEAs and Internet visitors outside of Nairobi								
UNEP.ORG e-mail for all, including MEAs								
Delivery of UNEP's core ICT application & services package for all, UNEP-wide								

ICT Support to Substantive Programmes:

Activity	Year 1				Year 2			
	1 qtr.	2 qtr.	3 qtr.	4 qtr.	1 qtr.	2 qtr.	3 qtr.	4 qtr.
Substantive programmes should consider raising the level of investments on ICT, ensuring that ICT expertise is available not only at the implementation stage, but also at the programme and project planning stages, periodic training for all staff								
Participation of ICT experts in project review committees, to ensure that the ICT components are properly incorporated and that UNEP standards, policies, procedures, and recommendations on ICT are followed								
Establishment of interoperability guidelines and standards to ensure that newly designed applications and systems can be used across the organization and that data can								

be easily exchanged between these systems																						
Establishment of an ICT scientific / technical forum																						
Establishment of an ICT Intranet to facilitate sharing of knowledge within the UNEP's ICT community																						

6 - Resource Plan

A rough estimation of the resources required for the implementation of the recommendations of this report is presented in the below table.

Summary of resources	Initial Investment	Yearly running costs
ICT governance	\$0.00	\$350,000.00
Core infrastructure*	\$1,200,000.00	\$3,960,000.00
KM core applications	\$900,000.00	\$315,000.00
ERP and IMIS+ (over 3 years only)	\$0.00	\$350,000.00
Totals	\$2,100,000.00	\$4,975,000.00

* Hardware, software, connectivity, support

** Current and new expenditure

Details of the above calculation

A. Core Infrastructure, including hardware, basic software, connectivity, and support, but excluding voice and fax communication (estimate of current expenses)			
HQ	50%	\$2,000.00	x user x year
<i>Based on UNON SLA (lower cost is due to regular budget subsidies)</i>			
Outposted offices	50%	\$4,000.00	x user x year
<i>Based on average current costs in DTIE Paris, IETC, and Chemicals</i>			
Total for 1000 users		\$3,000,000.00	

Estimated cost for UNEP-wide ICT core infrastructure

The estimate is based only on figures from Nairobi, DTIE Paris, IETC, and Chemicals. In reality, current expenditures could be below this figure, since many offices do not have the same level of ICT technology and services. It does not include any "subsidies" from partner organizations.

B. Required investment for the new Infrastructure, including hardware, basic software, connectivity, and support	
Establishment of a mirror site in Europe	
Hardware, software, installation	\$1,200,000.00

To cover Nairobi, 1 mirror site, connecting 30 offices

Nairobi site	\$80,000.00
Per mirror site	\$80,000.00
Licence fees	\$250,000.00
Tools	\$40,000.00
Per office	\$25,000.00

C. Required investment for KM core applications, covering licenses, customization, and training	
Content Management System (CMS)	\$300,000.00
Document Management System (DMS)***	\$500,000.00
Correspondence Tracking System (CTS)	\$100,000.00
Sub-total KM core applications	\$900,000.00

****The DMS may be partially paid for by UN HQ*

TOTAL ESTIMATED ONE TIME INVESTMENT B and C	\$2,100,000.00
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D. Additional running cost overhead required for B and C			
Training & Support (KM core applications)	20%	\$180,000.00	20% of C
Software maintenance fees (KM core applications)	15%	\$135,000.00	15% of C
Support for the new infrastructure - HR	30%	\$360,000.00	30% of B
Mirror site hardware replacement		\$240,000.00	B - 5 year cycle
Additional bandwidth for Nairobi and 1 mirror site		\$360,000.00	For B
Sub-total additional running costs		\$1,275,000.00	

ESTIMATED YEARLY RUNNING COSTS	\$4,275,000.00
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A + D, includes existing and new infrastructure and KM applications

E. Governance yearly Costs	
Senior ICT Advisor	\$180,000.00
Support staff	\$70,000.00
ICT Committee	\$50,000.00
Administrative costs for ICT team	\$50,000.00
Sub-total governance	\$350,000.00

F. Enterprise Resource Planning and IMIS+ costs (annual costs until ERP is established in 2010)	
Analyst	\$150,000.00
Development costs for IMIS+	\$100,000.00
Process reengineering with UN HQ	\$100,000.00
Sub-total ERP	\$350,000.00

7 - Quick Wins

Recommended in order of priority:

No	Quick Win	Major steps	Duration (months)						Follow-up by
			1	2	3	4	5	6	
1	Secure dedicated bandwidth for UNEP Nairobi	Request UNON to initiate negotiations with UN-ITSD to provide additional bandwidth (6 MB downlink / 4 MB uplink). Approximate cost US\$ 400K per year; Existing UNEP / UNON SLA expected to cost US\$ 150K less per year resulting in an additional annual cost of US\$ 250K							PCMU
		Revise the UNEP / UNON Service Level Agreement							
		Evaluate bandwidth capacity after 6 months							
2	Implement content management system	Purchase / develop a scalable content management system for all UNEP websites to be used in HQ and all divisional, regional, outposted offices, etc. to ensure consistency of presentation and pertinent content.							Internet Unit
3	Revise e-mail attachment size (Nairobi)	Within 1 month: UNON will make changes to default settings on the e-mail client to disable automatic reply with attachment							PCMU
		Within 3 months: UNON will make necessary changes to support attachments over 4Mb and have them automatically converted into URL links for recipients to download							
		After bandwidth increase: UNON will increase attachment size to match UN HQ (10Mb)							
4	Enhanced connectivity to UNEP's network resources from home for users in Nairobi	Within 3 months: UNON will finalize the agreement to connect to the Kenya Internet Exchange Point (KIXP) resulting in faster access to UNEP resources through local ISPs						PCMU	
		Following connection to KIXP, issue staff with guidelines on options for accessing UNEP resources from their homes							
5	Enhanced e-mail connectivity for Nairobi based staff when travelling	UNON to give iNotes access to ALL staff members						PCMU	
6	Phone and teleconferencing (Nairobi)	Raise awareness of currently available options for inter-UN calls using Brindisi or New York dialling codes						PCMU	
		UNEP will request UNON to investigate options for establishing							

		teleconferencing bridging facilities (similar to the ones available in Geneva)							
7	Enhanced Fax Services (Nairobi)	Raise awareness among staff on the use of e-mail as an alternative to faxing							PCMU
		UNEP to request UNON to study feasibility and cost for a Unified Messaging Solution (fax from desktop)							
8	Videoconferencing (Nairobi)	UNEP should instruct UNON to investigate the current VC infrastructure, identify problems, propose and implement a solution							PCMU
9	Investigate options for a mirror site that will include e-mail, core applications & services, and IMIS+	Investigate current websites mirroring solutions (Hague)							DTIE
		Investigate current email mirroring solution (New York)							
		Propose a UNEP-wide solution for all services and applications							

8 - Annexes

Annex 1 - Reference Documents

- Report of the Secretary General, A/60/692 *“Investing in the United Nations: for a Stronger Organization World Wide”*
- *“OIOS Audit of UNEP Information Technology (IT) Management (AA 2003/220/02)”*
- MoU between UNDP and UNEP
- Dalberg Report *“Harmonization of UNEP and UNDP Operational Procedures for Joint Programming”*
- Dalberg Report *“Streamlining UNEP’s programme planning and implementation process”*
- Findings of the Task Team on Improving Managerial Efficiency and Effectiveness and Administrative Processes *“Managing the Future UNEP”*
- Findings of the Task Team on the Bali Strategic Plan *“From Strategy to Action – a Strategy for UNEP to implement the Bali Strategic Plan”*
- UNHQ Service Level Agreement for Desktop Services (SLASEC2006.doc)

Annex 2 - Individuals & Organizations Consulted / Interviewed

Atlas versus IMIS

- Mr. Jens Wandel, Team Leader ERP Finance Management Centre for Business Solutions, UNDP
- Ms. Atsede Worede – Kal, UNV
- Mr. Gordon Johnson, Practice Manager, Environment and Energy Group UNDP
- Mr. Keshwar Leelah, Programme / Finance Analyst, Environment and Energy Group UNDP
- Mr George Peradze, Team Leader-Client Support and Roll Out Centre for Business Solutions, UNDP
- Mr. Robert Valantin, Information Solutions Group, the World Bank
- Mr. Micheal Clark, Chief IMIS, UN-ITSD

UNEP

- Mr. German (Jerry) Velasquez, Bali Plan Task Team
- Ms. Tessa Goverse, Management Reform Task Team
- Ms. Carmen Tamara, DGEF
- Mr. Theodor Kapiga, PCMU
- Mr. Eric Falt, DCPI
- Mr. Kilaparti Ramakrishna, Senior Policy Adviser to ED
- Mr. Mick Wilson, DEWA
- Ms. Monika Wehrle-MacDevette, DRC

Dalberg Consultant

- Mr. Henrik Skovby
- Mr. Mohamed Amin Cassim

Annex 3 - Terms of Reference of the ICT Task Team

Terms of Reference for the Task Team on UNEP Information and Communication Technologies (ICT) strategies

Background

UNEP is a distributed organization with its headquarters located in Nairobi and a number of geographically separated regional and out-posted offices. UNEP's programmatic work is implemented through seven Divisions each with unique programmatic content. In addition there are a number of environmental Conventions, regional agreements and action plans administered by UNEP.

The degree of ICT use varies among UNEP's offices. The majority rely on the UN Common Service organizations at their duty stations for common ICT services and support (e.g. UNON, UNOG, ESCAP). In addition there are specialized data bases maintained by respective divisions and MEAs. There is a need to integrate out-posted offices and integrate services.

There is need for the development of a coherent UNEP-wide strategy for information and communication technology (ICT) to improve the organizations performance by optimizing resources i.e. to do more with less using ICT as a tool. To support this effort, the Executive Director is establishing this Task Force which will complement the efforts of Task teams on the Improving managerial efficiency and effectiveness and administrative processes and the Bali Strategic Plan. Programmatic IT requirements are in most cases determined on individual divisional needs and availability of resources without coordination and there is a need for coordination of policies and procedures on programmatic IT activities. The inherent nature of the IT costs (which continue to rise because of rapid technological changes), the need for system compatibility in order to allow smooth exchange and sharing of information, and the need to avoid duplication of efforts require that IT activities are coordinated in a transparent manner across divisions. This will enable UNEP to attain substantial economies of scale that result in both reduced support costs and improved support levels due to the strengthening of in-house capacity.

Terms of the Reference of the Task Team

The task team is expected to review the relevant UN Secretary General's proposal contained in the management reform report "**Investing in the United Nations: For a Stronger Organization Worldwide**", relevant recommendations of the Dalberg report and the report of the Task teams on improving managerial efficiency and effectiveness and administrative processes.

The overall objective of the Task Force is to conduct a strategic review of the ICT priorities and constraints and to develop a 12 months (immediate) and a 24 month (medium term) action plan for upgrading and integrating UNEP's ICT.

Some of the issues that need to be covered in order to achieve the overall objective are:

- Study UNEP's objectives, work programmes and activities and identify ICT requirements within the programme and the management.
- Analyze external factors influencing the success of UNEP's ICT strategy in particular the United Nations ICT policies, strategies and other related initiatives (e.g. "digital-divide").
- Assess the current state of the ICT environment encompassing (a) institutional mechanisms for planning funding and management; (b) systems, resources, capabilities and current investments; and (c) performance of existing arrangements for providing ICT services with a view to integrate out-posted offices and to integrate services (administration, finance, project, Human Resource, activities, etc.).
- Identify gaps at the institutional and technical level where current ICT environment is insufficient to meet the programmatic and management needs.
- Develop recommendations including an ICT governance and funding model to bridge the institutional gaps identified above.
- Propose technical solutions for closing the technology gaps identified above.

Outputs

The following short action oriented documents are expected:-

1. An ICT strategy that includes analysis and decisions on the following items
 - a. Overview of where and how UNEP better can use ICT during the next 12 and 24 months plus an update on UNON and the UN HQ's current ICT initiatives
 - b. Recommendations on UNEP's ICT platform in the following order
 - i. Adopt UNDP's Atlas vs. an IMIS + option
 - ii. Introduction of new hard ware and security standards
 - iii. Development of enhanced intranet/internet policies and capabilities
 - c. Recommendations on knowledge management, which includes intranet / portal capabilities, database synchronization and coherence, policies around data maintenance, etc.
 - d. Recommendations on basic working tools underpinned by ICT that UNEP needs to adopt
 - e. Recommendations on UNEP ICT governance and organization, particularly in relationship to UNON and potentially UNDP
2. Implementation and resource plan

Composition and timing

Maxwell Gomera will attend the meetings of the Task Team on behalf of the OED as appropriate.

The Task Team will be advised Messrs Dalberg as needed.

The Task Team's work will be facilitated by Ashbindu Singh and Robert Rodriguez.

The members of the Task team will be composed of following staff members:

- Ashbindu Singh, DEWA, UNEP
- Robert Rodriguez, DTIE, UNEP
- Osmany Pereira, Chemicals, UNEP
- Gabor Szilagyi, NYO, UNEP
- Louis McCaul, UNOG – invited but replaced by Armin Plum
- Fanina Kodre, DCPI, UNEP
- Suresh Khattri, UNON
- Bruce Noronha, PCMU, UNEP

The Task Team will solicit inputs on current and past initiatives/thinking by PCMU, OIOS, UNON IT unit, DCPI, DEWA (and WCMC), DTIE and other divisions and MEAs as well as the facilitators of the previous 2 Task Forces.

The ED and the DED will brief the Task Team at the beginning of the work and will be available for consultations throughout the work of the Task Team.

The Task Team is expected to begin work on 1 October for 1 week in Nairobi and have the flexibility of re-convening the last week in October to complete its work by 31 October 2006.

Annex 4 - Glossary

ATLAS	<p>The customized Enterprise Resource Planning solution chosen by UNDP to automate their business processes. ATLAS is the product of a company called PeopleSoft, recently bought by Oracle Corporation.</p>
Business Process	<p>A Business Process is a description of tasks and outcomes associated with a business activity. The business process is often drawn, depicting tasks, roles, resources, and actions to be taken according to the business needs.</p> <p>Business processes can be thought of as a cookbook for running a business and reaching business goals defined in the organization's business strategy. There are three types of business processes:</p> <p>Management processes - the processes to run the operation, and comply with all relevant requirements. Typical management processes include "Corporate Governance" and "Strategic Management".</p> <p>Operational processes - these processes deliver the customer value, they are part of the core business. For example: "Deliver goods".</p> <p>Supporting processes - these support the core processes. Examples include "Accounting", "Recruitment", "IT support".</p>
CMS	<p>A Content Management System is a computer software system for organizing and facilitating collaborative creation of documents and other content. A content management system is often a web application used for creating and managing websites and web content. A CMS system is essentially a way of separating your visual presentation from your actual content – whether that content includes photos, text or product catalogs. This separation allows one to accomplish several key things, including:</p> <p>Automated Templating: Create standard visual templates that can be automatically applied to new and existing content, creating one central place to change that look across all content on your site.</p> <p>Easily Editable Content: Once your content is separate from the visual presentation of your site, it usually becomes much easier and quicker to edit and manipulate. Most CMS software include WYSIWYG editing tools allowing non-technically trained individuals to easily create and edit content.</p> <p>Scalable Feature Sets: Most CMS have plug-ins or modules that can be easily installed to extend your existing site's functionality. For example, if one wanted to add a product catalog or chat functionality to a website, one could easily install a module/plug-in to add that functionality rather than hiring a web developer to hand code that new functionality.</p> <p>Web Standards Upgrades: Active CMS solutions usually receive regular updates that include new feature sets and keep the system up to current web standards. These updates are usually designed for easy installation over/on-top of your existing website.</p>

Community Support: Most active CMS solutions have developer support forms. Since CMS users/developers are beginning from a common base, it's more than likely that developers are encountering the same development challenges and can solve those challenges as a community.

Lower Cost Maintenance: CMS hosted sites are often easier and cheaper to maintain. Since any CMS powered website would have a community familiar with the tools of that specific CMS, it would be quite easy for a new developer to dive right in and begin updates/maintenance.

CTS	A Correspondence Tracking System - is an automated information system (or set of computer programs) used to flag, categorize, dispatch, and archive correspondence. CTS is also used to assign required actions to people and follow up on replies.
DMS	A Document Management System (DMS) is a computer system (or set of computer programs) used to track and store electronic documents and/or images of paper documents. Document management systems commonly provide storage, versioning, metadata, security, as well as indexing and retrieval capabilities. The term has some overlap with the concepts of <i>Content Management Systems</i> and is often viewed as a component of <i>Enterprise Content Management Systems</i> and related to <i>Digital Asset Management</i> .”
ERP	Enterprise Resource Planning (ERP) software attempt to integrate all departments and functions across an organization into a single computer system that can serve those entire department’s particular needs. A key ingredient of most ERP systems is the use of a single, unified database to store data for the various system modules. Typical modules of an ERP system include Financials, Human Resources, Payroll, Customer Relationship Management, Project Management, Different Levels of Reporting, Manufacturing, Supply Chain, and Data Warehouse Management. How can ERP improve organization’s performance? ERP offers significant rewards, if implemented properly, but risks they carry are equally great. ERPs are complex and expensive and also tie the hands of managers. ERP imposes its own logic on organization’s value, culture and strategy. ERP asks people to change how they do their jobs. The software is less important than the changes made in the ways people do business. To do ERP right, the ways people do their jobs will need to change. How long an ERP project takes? The real transformational ERP efforts usually run between one to three years on average. What does ERP really costs? It is difficult to predict as software installation has so many variables and modules. The vendors created chunky, proprietary methods of connecting systems to talk to one another and exchange information. They are monolithic, highly integrated and difficult to

change. ERP is complex and expensive and costs millions of dollars.

What are ongoing costs of ERP?

The ERP packages are built from database tables, thousands of them, that information system programmes and end users must set to match their business processes; each table has a decision “switch” that leads the software down one decision path or another. To implement these complex set of tasks business processes are to be reengineered, ERP’s way. So there are a lot of tasks involved which requires constant flow of funding for followings:

- Training and Help Desk
- Integration and testing
- Customization
- Data Conversion
- Data analysis
- Consultants
- Implementation teams can never stop

How difficult is it to upgrade ERP software?

It’s extremely difficult.

Extranet

An **Extranet** is a private network that uses Internet protocols, network connectivity, and possibly the public telecommunication system to securely share part of an organization's information or operations with suppliers, vendors, partners, customers or other businesses. An Extranet can be viewed as part of a company's Intranet that is extended to users outside the company (eg: normally over the Internet).

It has also been described as a "state of mind" in which the Internet is perceived as a way to do business with other companies as well as to sell products to customers.

Briefly, an Extranet can be understood as "a private Internet over the Internet".

An argument has been made that "Extranet" is just a buzzword for describing what institutions have been doing for decades, that is, interconnecting to each other to create private networks for sharing information.

Another very common use of the term "Extranet" is to designate the "private part" of a website, where "registered users" can navigate, enabled by authentication mechanisms on a "login page".

ICT

Information and Communications Technology

IMIS

Integrated Management Information Systems

Interoperability

The ability of products, systems, or business processes to work together to accomplish a common task. The term can be defined in a technical way or in a broad way, taking into account social, political and organizational factors. In telecommunication, the term can be defined as:

1. The ability of systems, units, or forces to provide services to and accept services from other systems, units or forces and to use the services exchanged to enable them to operate effectively together.
2. The condition achieved among communications-electronics

systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined when referring to specific cases..

With respect to software, the term interoperability is used to describe the capability of different programs to exchange data via a common set of business procedures, and to read and write the same file formats and use the same protocols.

Intranet

An **Intranet** is a private computer network that uses Internet protocols, network connectivity, and possibly the public telecommunication system to securely share part of an organization's information or operations with its employees. Sometimes the term refers only to the most visible service, the internal website.

The same concepts and technologies of the Internet such as clients and servers running on the Internet protocol suite are used to build an intranet. HTTP and other Internet protocols are commonly used as well, especially FTP and e-mail. There is often an attempt to use Internet technologies to provide new interfaces with corporate 'legacy' data and information systems.

Briefly, an intranet can be understood as "a private version of the Internet", or as a version of the internet confined to an organisation."

KM

Knowledge Management (KM) refers to a range of practices used by organizations to identify, create, represent, and distribute knowledge for reuse, awareness and learning across the organization.

Knowledge Management programs are typically tied to organizational objectives and are intended to lead to the achievement of specific business outcomes such as shared business intelligence, improved performance, competitive advantage, or higher levels of innovation.

MEAs

Multilateral Environmental Agreements

Metadata

Metadata (Greek *meta* "after" and Latin *data* "information") are data that describe other data. Generally, a set of metadata describes a single set of data, called a resource.

Metadata are of special interest in various fields of computer science, e. g. information retrieval and the semantic web.

PDA

Personal Digital Assistant, an electronic device which can include some of the functionality of a computer, a *cell phone*, a music player and a camera.

UNEP-Wide

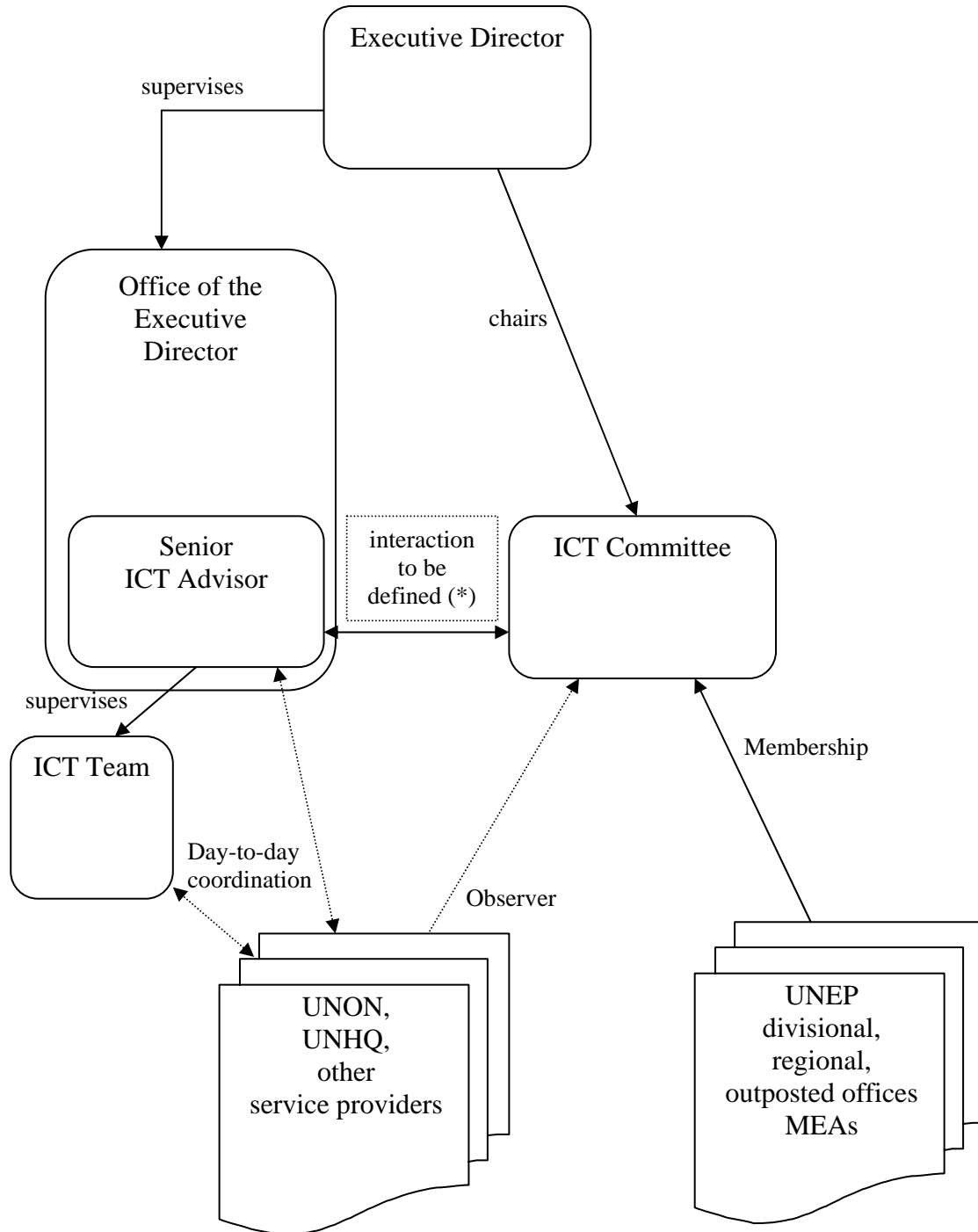
Covers all UNEP offices as well as Secretariats of UNEP administered MEAs

VoIP

Voice over Internet Protocol - a protocol to transmit voice using internet technologies.

9 - Diagrams

Diagram 1 - ICT Governance



(*): Options:

Model A: ICT Committee takes binding decisions, ICT Advisor to execute

Model B: ICT Committee recommends to ICT Advisor, ICT Advisor to decide and execute

Diagram 2 - Infrastructure

