UNITED NATIONS DEVELOPMENT PROGRAMME
Office of Audit and Investigations

UNDP

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AUDIT

OF

UNITED NATIONS VOLUNTEERS PROGRAMME

INFORMATION AND COMMUNICATION TECHNOLOGY

Report No. 1173

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Report on the audit of the United Nations Volunteers Programme – Information and Communication Technology
Executive Summary

From 21 to 31 May 2013, the Office of Audit and Investigations (OAI) of the United Nations Development Programme (UNDP) conducted an audit of the Information and Communication Technology (ICT) function at the United Nations Volunteers programme in Bonn, Germany (UNV). The audit covered the relevant activities of UNV during the period from 1 January 2012 to 30 April 2013. The last audit of UNV was a management audit that covered programme and operations areas and was conducted by OAI in 2010.

The audit was conducted in conformance with the *International Standards for the Professional Practice of Internal Auditing*. These Standards require that OAI plan and perform the audit to obtain reasonable assurance on the adequacy and effectiveness of the governance, risk management and control processes. The audit includes reviewing and analysing, on a test basis, information that provides the basis for the conclusions and audit results. The audit followed the Control Objectives for Information and Related Technology Framework (COBIT), which is a globally recognized framework for the governance and management of enterprise IT, developed by the Information Systems Audit and Control Association.

Audit rating

OAI assessed the UNV ICT function as **partially satisfactory**, which means "Internal controls, governance and risk management processes were generally established and functioning, but needed improvement. One or several issues were identified that may negatively affect the achievement of the objectives of the audited entity." Ratings per audit area and sub-areas are summarized below.

Audit Areas	Not Assessed/ Not Applicable	Unsatisfactory	Partially Satisfactory	Satisfactory
1. ICT governance			▮	
1.1 Strategic alignment	Partially Satisfactory			
1.2 Value delivery	Partially Satisfactory			
1.3 Risk management	Satisfactory			
1.4 Resource management	Satisfactory			
1.5 Performance measurement	Satisfactory			
2. ICT general controls				▮
2.1 Change and patch management controls	Satisfactory			
2.2 Identity and access management	Satisfactory			
2.3 Business continuity management	Satisfactory			
2.4 ICT project management	Satisfactory			
2.5 Information security management	Satisfactory			

Key issues and recommendations

The audit raised 4 issues and resulted in 5 recommendations, of which 3 (60 percent) were ranked high (critical) priority, meaning "Prompt action is required to ensure that UNDP is not exposed to high risks. Failure to take action could result in major negative consequences for UNDP and may affect the organization at the global level."

The high priority recommendations are as follows:

Strategic alignment (Issue 1)	<u>ICT strategy not approved or aligned with UNDP ICT roadmap</u>. UNV ICT strategy documents covering the period 2009-2013 were not approved by management and they were prepared without ensuring that they were aligned with the UNDP ICT strategy. OAI recommends that UNV strengthen ICT governance by: (a) establishing an ICT governance committee; (b) developing an ICT strategy that is aligned with UNV's corporate strategy for 2014-2017, management's expectations and UNDP ICT policies and procedures; and (c) coordinating with the UNDP ICT Technical Committee to ensure that the strategy is reviewed and endorsed by the ICT Governance Group and is in alignment with the UNDP corporate strategy.
	<u>Corporate recommendation</u>: OAI also recommends that the Office of Information Systems and Technology of the Bureau of Management, in collaboration with UNV, establish mechanisms for tighter coordination to avoid misalignment of ICT efforts between the two entities.
Value delivery (Issue 2)	<u>Inefficiencies resulting from limited system integrations</u>. UNV uses various IT systems for talent management and human resources management. The lack of integration between these systems resulted in duplication of efforts and data entries. OAI recommends that UNV review its business processes and systems to identify opportunities for systems integration, ensure optimal use of technology resources and support technology investment decisions.

The implementation status of previous OAI audit recommendations (Report No. 762, 28 February 2011) was also validated. All seven recommendations were noted to be fully implemented.

Management comments and action plan

The Executive Coordinator of UNV and the Director of the Office of Information Systems and Technology, Bureau of Management, accepted all five recommendations and are in the process of implementing them.

Helge S. Osttveiten
Director
Office of Audit and Investigations

I.   Introduction

From 21 to 31 May 2013, OAI conducted an audit of the ICT function at the UNV premises in Bonn, Germany. The audit was conducted in conformance with the *International Standards for the Professional Practice of Internal Auditing*. These Standards require that OAI plan and perform the audit to obtain reasonable assurance on the adequacy and effectiveness of the governance, risk management and control processes. The audit includes reviewing and analysing, on a test basis, information that provides the basis for the conclusions and audit results. The audit followed the COBIT Framework.

Audit scope and objectives

OAI audits assess the adequacy and effectiveness of the governance, risk management, and control processes in order to provide reasonable assurance to the Administrator. OAI audits also aim to assist management in continuously improving governance, risk management, and control processes.

Specifically, this audit reviewed the following areas of UNV: ICT governance and ICT general controls. The audit covered relevant activities during the period from 1 January 2012 to 30 April 2013. The last audit of UNV was a management audit that covered programme and operations areas and was conducted by OAI in 2010.

The implementation status of previous OAI management audit recommendations (Report No. 762, 28 February 2011) was also validated. All seven recommendations were noted to be fully implemented.

II.   About UNV

The UNV programme, which was established by the United Nations General Assembly in 1970, is administered by UNDP. The UNV Executive Coordinator is appointed by the UNDP Administrator and also reports to the UNDP/UNFPA Executive Board. UNV's original mandate was to mobilize United Nations Volunteers in support of peace and development programmes for UNDP and other United Nations agencies. In 2001, the mandate was broadened by the General Assembly to include advocacy for, and development and integration of volunteerism into the programmes of United Nations agencies and governments. UNV Headquarters is located in Bonn, Germany, with operational programmes delivered throughout approximately 80 UNV field units located within UNDP Country Offices and UN Peacekeeping Missions.

The UNV ICT Section consisted of 12 staff members and was divided into 2 teams, responsible for infrastructure and system development. Talent management as well as the subsequent human resources management aspects of the UNV programme were accomplished by using various in-house and out-sourced developed applications as well as commercial software applications procured from external providers. The UNDP Enterprise Resource Planning system (Atlas) was used for human resources management as well as UNV financial and administrative operations. UNV ICT systems could be accessed by about 170 users at Headquarters and 200 users in the field units. Further, the Volunteer Reporting System could be accessed by around 7,000 volunteers and 5,000 volunteer supervisors around the world.

III.   Detailed assessment

1. ICT governance	Partially Satisfactory

ICT governance is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the ICT function sustains and extends the organization's strategies and objectives. According to the Control Objectives for Information and Related Technology, ICT governance covers five areas, i.e. strategic alignment, value delivery, risk management, resource management and performance measurement. OAI reviewed all five areas of ICT governance.

1.1 Strategic alignment	Partially Satisfactory

Issue 1   ICT strategy not approved or aligned with UNDP ICT roadmap

An ICT strategy is the overall plan which consists of objectives, principles and tactics relating to the use of available technologies within a particular organization, based on business requirements. Linkage to the business goals is essential for ICT to deliver identifiable value to the organization. At the corporate level, UNDP has established the ICT Governance Group, as part of the Organizational Performance Group, which is mainly responsible for ensuring the alignment of the ICT roadmap to the UNDP Strategic Plan. The UNDP Office of Information Systems and Technology is also responsible for oversight and monitoring of compliance with UNDP ICT policies and procedures by the various ICT units. However, its monitoring and oversight responsibilities with regard to UNV ICT have not been clearly defined.

In late 2008, the UNV ICT Section developed a three-year strategy/roadmap for the period covering 2009- 2011. This was done in consultation with all business units and senior management. According to UNV, the document was based on the "UNV Corporate Plan 2009 – 2011." In addition, during 2012 and 2013, the ICT Section developed an annual ICT roadmap. However, this document was not approved by senior UNV management.

At the time of the audit, UNV was preparing its corporate strategy for 2014-2017 to ensure its submission to the Executive Board as part of UNDP's strategy for the same period. In this context, the UNDP ICT Governance Group prepared a two-year ICT roadmap covering the objectives, principles and tactics relating to the use of technology in support of UNDP's corporate strategy.

UNV is represented at the UNDP Operational Performance Group and its ICT Technical Committee. Before any ICT decision, strategy or roadmap is presented to the Operational Performance Group and finalized, it is shared in a consultative manner with the ICT Technical Committee. UNV also participates in UNDP's Atlas Change Control Board, and strategic ICT initiatives such as e-Recruit, the Messaging migration and the Public Cloud RFP process. However, UNV is not represented in the UNDP ICT Governance Group which seeks to ensure appropriate and coordinated use of business ICT means and resources across the organization, and to manage the ICT governance framework.

UNV's ICT roadmap, policies and procedures are expected to be aligned with the UNDP ICT policies and procedures, however, the UNDP Office of Information Systems and Technology did not oversee or monitor the level of UNV ICT compliance with UNDP ICT policies and procedures.

The lack of approval of an ICT strategy by UNV senior management could lead to misalignment between UNV's business objectives and those of the UNV ICT Section and/or inefficiencies of ICT efforts, negatively impacting

attainment of the organizational goals. Further, the lack of proper oversight and monitoring by the UNDP Office of Information Systems and Technology may lead to inconsistencies between UNV and UNDP ICT strategies.

Priority	High (Critical)

Recommendation 1: United Nations Volunteers programme should strengthen its Information and Communication Technology (ICT) governance by: (a) establishing an ICT governance committee to review and approve the ICT strategy for 2014-2017; (b) developing an ICT strategy/roadmap that is aligned to UNV's corporate strategy, management's expectations and UNDP ICT's policies and procedures; and (c) coordinating with the UNDP ICT Technical Committee to ensure that the strategy is reviewed and endorsed by the ICT Governance Group and is in alignment with the UNDP corporate strategy.
Management comments and action plan: __√__ Agreed   ____ Disagreed (a) UNV will establish the recommended governance group in 2014 for the corporate cross organizational functions related to volunteer management, including ICT. This group will provide the required corporate guidance and prioritization for those functions. (b) UNV is in the process of developing different strategies, including the ICT strategy to support UNV's Strategic Framework 2014-2017 and the related Integrated Results and Resources Matrix. UNV's ICT strategy for 2014-2017 and the UNV ICT roadmap for 2014-2015 will be aligned with UNDP ICT policies and procedures. (c) The UNV ICT roadmap 2014-2015 will be submitted to the UNDP ICT governance structure for review and appropriate inclusion in UNDP ICT roadmap.
Corporate Recommendation 2 (UNDP): The Office of Information Systems and Technology of the Bureau of Management, in collaboration with UNV, should establish mechanisms for tighter coordination to avoid misalignment of ICT efforts between the two entities.
Management comments and action plan: __√__ Agreed   ____ Disagreed ▪ BOM/OIST will ensure continued representation on the ICT Technical Committee, which reports to the ICT Governance Group, and on the Atlas Change Control Board. ▪ BOM/OIST will encourage UNV to submit an ICT strategy or roadmap for review by the ICT Technical Committee to assess coordination and alignment of ICT efforts, with the overall goal of endorsing the ICT strategy to the ICT Governance Group. ▪ When UNDP BOM/OIST consults with the ICT technical practice network, we will ensure that UNV receives the communication as part of this network.

1.2 Value delivery	**Partially Satisfactory**

Issue 2   Inefficiencies resulting from limited system integrations

Talent management as well as the subsequent human resources management aspects of the UNV programme are accomplished using various IT systems, such as: in-house developed applications used for rostering, identification, recruitment and hiring of the volunteers); outsourced developed applications (such as the online volunteering system and volunteer reporting system); commercial software applications procured from external providers (including the UNV SharePoint Portal and Atlas) which is used for UNV human resources management and financial and administrative operations.

UNV had not carried out a comprehensive review of business processes that would have identified the level of automation that would be involved in those processes. This review would have enabled the development of a comprehensive inventory of the technology-dependent processes and manual processes. OAI noted inefficiencies related to the lack of integration between systems, which resulted in the same information concerning volunteers having to be manually re-entered in the various systems, e.g. Atlas and Volunteers Management System. This duplication of effort had not been clearly identified and documented by UNV. Further, the integration between UNV business applications was part of the ICT strategy/roadmap prepared by the UNV ICT Section.

Without a comprehensive review of its business processes, UNV might not identify inefficiencies or optimize the use of technology and may not have a reliable basis for decisions relating to investments in ICT.

Priority	High (Critical)
Recommendation 3: The United Nations Volunteers programme should review its business processes and systems to identify opportunities for systems integration, ensure the optimal use of available technology resources, including Atlas, and support technology investment decisions. At a minimum, the review should cover: ▪ areas of duplication; ▪ business processes to be optimized and automated; ▪ systems/applications to be integrated; and ▪ potential technology to be used.	
Management comments and action plan: __√__ Agreed ____ Disagreed In August 2013, UNV conducted, with the engagement of the UNDP Management Consulting Team, an initial business process review for the core volunteer management function as the first step of a comprehensive business process reengineering and related system optimization in 2014-2015. At the same time, UNV has decided to expand the utilization of appropriate human resources module within Atlas for volunteer management. This will require certain coordination with UNDP and alignment with UNDP Atlas Roadmap 2014-2015.	

1.3 Risk management	Satisfactory

Issue 3   Comprehensive corporate risk management including ICT risk management not implemented

ICT risk management is the process of identifying vulnerabilities and threats to the organizations' data and IT resources and then deciding, based on a cost/benefit analysis, what countermeasures, if any, to implement in order to reduce the identified risk to an acceptable level. This process should be part of the corporate risk management mechanism, which needs to clearly identify the organization's risk appetite for use in assessing the identified potential risks and in evaluating the possible countermeasures.

OAI noted that the UNV ICT Section had developed comprehensive tools for change, incident and problem management which enabled the organization to identify and capture some of the ICT related risks by the business units, technical and change control groups and the ICT Section. The ICT Section proactively operated network security scans for all UNV nodes to test for known vulnerabilities. The matters identified by these scans are dealt with by the change/incident/problem management tools.

However, in the absence of a comprehensive corporate operational risk management mechanism, UNV could not fully assess the potential business impact of the ICT risks. Therefore, the countermeasures and the costs for mitigating the identified risks may not be based on UNV's risk appetite or in line with the business requirements. Rather than permitting a proactive approach to addressing risk, the current system of basing the risk identification process solely on incident logs and identified problems is a reactive approach which limits the analysis to events that have already occurred.

As a consequence, potential risks which have not yet occurred are not identified and countermeasures are not considered.

Priority	Medium (Important)
Recommendation 4: UNV should adopt the UNDP Enterprise Risk Management model to design and implement a comprehensive corporate risk management mechanism that also addresses ICT risk management requirements.	
Management comments and action plan: __√__ Agreed ____ Disagreed As part of the development of the corporate Integrated Results and Resources Matrix, UNV has identified the main corporate risks for its Strategic Framework 2014-2017, and in 2014 will develop the associated risk management mechanism to address corporate and operational risks.	

1.4 Resource management	Satisfactory

OAI reviewed the ICT resource management processes, including those relating to human resources, financial resources, equipment, facilities and technologies. The UNV Volunteer Knowledge and Innovation Section had made a commitment to the donors that it would expand the online volunteering system to a mobile platform without having properly assessed the capacity of ICT human resources. UNV agreed to involve the ICT Section earlier when planning initiatives that required ICT support to ensure adequate resources to meet business

needs. UNV was in the process of finalizing long term agreements with ICT service providers to support the ICT section in case of overload. No reportable issues were identified.

1.5 Performance measurement	Satisfactory

OAI reviewed the processes used to measure ICT performance management, including tracking ICT delivery and monitoring ICT services. The ICT Section uses several tools to measure ICT systems performance and the service and application availability of such systems as Nagios, Opsview, Logwatch, etc. Further, the incident, problem, change and patch managements are recorded in a ticketing system that generates different statistic and performance reports related to those processes. No reportable issues were identified.

2. ICT general controls	Satisfactory

ICT general controls apply to all systems components, processes, and data for a given organization or information and communication technology environment. OAI reviewed major areas relating to ICT general controls, such as change and patch management controls, identity and access management, business continuity management, ICT project management and information security management. One reportable issue was identified.

2.1 Change and patch management controls	Satisfactory

OAI reviewed the change management process, including emergency maintenance and patches, relating to infrastructure and applications within the production environment. OAI reviewed eight change cases which included evaluating how the changes were logged, assessed, authorized prior to implementation and reviewed against planned outcomes following implementation. UNV used an online ticketing system in which the whole process was tracked and documented. No reportable issues were identified.

2.2 Identity and access management	Satisfactory

OAI reviewed the identity and access management related processes and noted that UNV has a well-defined and documented matrix of access rights and user profiles. Also, access to ICT systems were monitored, logged and reported properly. No reportable issues were identified.

2.3 Business continuity management	Satisfactory

Issue 4   Business continuity plan not finalized

Business continuity management is the process by which an organization prepares for the potential occurrence of an incident that could jeopardize its core mission and long-term viability. The disaster recovery plan, which is a core subset of the business continuity plan, should address the recovery of information technology components to support restoring operations critical to the resumption of business, including regaining access to data, communications, workspace, and other business processes after a disaster.

UNV did not have a finalized and approved business continuity plan. Although the development of a business continuity plan began in 2012, at the time of the audit, the plan was still in draft form. Nevertheless, to address the disaster risks, the UNV ICT Section had developed and tested an ICT disaster recovery plan to recover main

ICT services and local business applications. In the absence of an approved business continuity plan, critical ICT systems were identified based on the UNV ICT Section's understanding with certain input from the business units.

The lack of a business continuity plan and the limited input to the development of the disaster recovery plan prevents UNV from ensuring that all risks have been considered, all critical systems have been identified, and appropriate recovery measures and plans have been put in place. Thus, the ability of UNV to recover and resume operations cannot be assured, should a disaster occur.

Priority	Medium (Important)
Recommendation 5: UNV should improve its disaster/emergency preparedness by finalizing the business continuity plan.	
Management comments and action plan: __√__ Agreed ____ Disagreed UNV will finalize the corporate business continuity plan in 2014.	

2.4 ICT project management	**Satisfactory**

The only active project during the audit period was the UNV portal that includes knowledge and document management. The project was managed in accordance with the full project management cycle methodology - project initiation, planning, execution and closure. No reportable issues were identified.

2.5 Information security management	**Satisfactory**

The UNV ICT Section manages the protection of information assets, establishes and oversees information security practices that assure that information is protected from improper access or modification. OAI noted that UNV information security was managed autonomously from UNDP and that the UNDP Information Security Section was not overseeing and monitoring information security. The network security management at the Office is neither part of the Managed Security Services nor is the security configuration reviewed and approved by the UNDP Information Security Section. This lack of oversight may lead to inconsistencies between UNDP security policies and those implemented by UNV. Any potential inconsistencies would be addressed through Recommendations 1 and 2 of this report.

ANNEX   Definitions of audit terms - ratings and priorities

A.   AUDIT RATINGS

In providing the auditors' assessment, the Internal Audit Services of UNDP, UNFPA, UNICEF and WFP use the following harmonized audit rating definitions. UNDP/OAI assesses the Country Office or audited HQ unit as a whole as well as the specific audit areas within the Country Office/HQ unit.

- **Satisfactory**
Internal controls, governance and risk management processes were adequately established and functioning well. No issues were identified that would significantly affect the achievement of the objectives of the audited entity. *(While all UNDP offices strive at continuously enhancing their controls, governance and risk management, it is expected that this top rating will only be achieved by a limited number of business units.)*

- **Partially Satisfactory**
Internal controls, governance and risk management processes were generally established and functioning, but needed improvement. One or several issues were identified that may negatively affect the achievement of the objectives of the audited entity. *(A partially satisfactory rating describes an overall acceptable situation with a need for improvement in specific areas. It is expected that the majority of business units will fall into this rating category.)*

- **Unsatisfactory**
Internal controls, governance and risk management processes were either not established or not functioning well. The issues were such that the achievement of the overall objectives of the audited entity could be seriously compromised. *(Given the environment UNDP operates in, it is unavoidable that a small number of business units with serious challenges will fall into this category.)*

B.   PRIORITIES OF AUDIT RECOMMENDATIONS

The audit recommendations are categorized according to priority, as a further guide to UNDP management in addressing the issues. The following categories are used:

- **High (Critical)**
Prompt action is required to ensure that UNDP is not exposed to high risks. Failure to take action could result in major negative consequences for UNDP and may affect the organization at the global level.

- **Medium (Important)**
Action is required to ensure that UNDP is not exposed to significant risks. Failure to take action could result in negative consequences for UNDP.

- **Low**
Action is desirable and should result in enhanced control or better value for money. Low priority recommendations, if any, are dealt with by the audit team directly with the Office management, either during the exit meeting or through a separate memo subsequent to the fieldwork. Therefore, low priority recommendations are not included in this report.