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Annual Report on Support for Research Networking in Less Advanced Regions – Year 1



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Abstract

This is the first of a series of annual deliverables reporting on all of the activities that have been undertaken in the previous 12-months' period within NA4 to provide assistance to the development of research and education networking in less advanced regions and countries.

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0 Executive Summary

There is a significant disparity between different European countries and regions in the status and the development of research and education networking. Wide gaps, spanning over multiple dimensions - technical, financial, political - exist between countries in Europe. Narrowing this gap is of the utmost importance for achieving the European Union's political goal of equal opportunities for researchers throughout the European Research Area.

TERENA has been producing annual editions of the Compendium of National Research and Education Networks (NRENs) since the year 2000. The Compendium is a primary source of information about the status of research and education networking in Europe and neighbouring countries, and about its evolution over time. This information, together with information from other sources, has been a major input to the analysis of the Digital Divide between different parts of Europe carried out in the SERENATE project¹.

Through its NA4 activity, the GN2 project contributes to narrowing the Digital Divide in research and education networking in Europe, by:

- monitoring the status and the evolution of National Research and Education Networks in different European countries, and
- actively providing support to countries and regions where networking services for the research and education community are less advanced.

This is reflected in the two distinct but interrelated parts of NA4:

- a) The production of annual editions of the TERENA Compendium of National Research and Education Networks
- b) Assistance to the development of research and education networking in less advanced regions.

This report describes the activities carried out in part b) of activity NA4 during the first 12 months of the GN2 project, i.e. from the 1st of September 2004 until the 31st of August 2005. These development support activities focus on a number of selected countries. Assessments of the needs of research and education networking in two focus countries were carried out in the reporting period: Albania and Morocco. This report describes the methodology of work and the actions taken, as well as the major results and follow-up actions. Finally, the report highlights some plans for activities in the following period.

¹ SERENATE Report identifying issues related to geographic coverage of European research and education networking, Deliverable D.16, November 2003 <http://www.serenate.org>

1 Introduction

Networking Activity 4 (NA4) of the GN2 project consists of two parts:

- a) the TERENA Compendium of NRENs, and
- b) assistance to research and education networking in less advanced regions.

This chapter briefly highlights the rationale for part b) of NA4 and introduces its components.

There is a significant Digital Divide in Europe. The networking services available to researchers, teachers and students in some countries are far below the level that is common in other parts of Europe. Similar gaps even exist within a single country. Narrowing this gap is of the utmost importance for achieving the European Union's political objective of equal opportunities for researchers throughout the European Research Area.

With this particular activity, the GN2 project aims to contribute to narrowing the divide in the development of research and education networking that exists between the countries in and close to Europe that will be connected, directly or indirectly, to the GÉANT2 network.

The main components of the activity can be summarised in the following three points:

- Selection of a limited number of countries on which the development support activities will be focused in particular. The selection of focus countries is reviewed on an annual basis with assistance from an advisory panel.
- The assessments of the needs in each of the focus countries. This provides a basis for the various activities to assist in the development of research and education networking. The result of each Country Needs Assessment is laid down in a report that includes recommendations and that is made available to the relevant actors in the country as well as to the European Commission.
- The actual actions to support the development of research and education networking in less advanced regions. Those actions can take different forms, including technical and managerial workshops and consultancy.

The three components listed above can be seen as subsequent phases: theoretically the actual support actions would follow from the selection of focus countries and the assessment of their needs. However, it is neither advisable nor necessary to postpone the start of support actions until needs assessments have been carried out for a large number of countries. Where there is an obvious need and an opportunity to provide support, actions will be started already in the early part of the lifetime of the GN2 project.

The work in the activity to assist research and education networking in less-advanced regions is carried out by TERENA staff members and experts from NRENs as appropriate. These staff members are assisted by a Development Support Advisory Panel, which provides assistance in the selection of focus countries and the priority setting for needs assessments. The Panel advises on the actions to be undertaken, and acts as a quality control panel for the Country Needs Assessment reports and individual support actions. The members of the panel are appointed by the TERENA Executive Committee. The initial composition of the panel is:

- Claudia Battista, GARR
- Marko Bonač, ARNES
- Valentino Cavalli, TERENA
- Sabine Jaume-Rajaonia, RENATER
- Jorge Sanchez-Papaspiliou, GRNET.

The detailed objectives and the method of work of the NA4 activity have been described in great detail in deliverable DN.4.0.2, which was written at the end of 2004 and submitted to the European Commission early in 2005. The activities carried out in the first year of the GN2 project have followed the methodology described in that deliverable and are reported in the current document.

A web space providing information and updates about the progress of the activity is available at <http://www.terena.nl/development-support/>.

2 The Process and the Role of the Advisory Panel

2.1 Selection of Focus Countries

At the beginning of the project, based on the advice of the Development Support Advisory Panel, an initial long-list of beneficiary countries was defined², which includes a subset of the countries represented in the GN2 project, as well as all SEEREN and EUMEDCONNECT beneficiary countries. A number of countries from the long-list were selected to be the focus of specific activities and the subject of a Country Needs Assessment.

The short-list created by this selection process is reviewed annually. The selection and the annual review are based on the following criteria (dimensions):

- **How wide is the gap** between the status of research and education networking in the relevant country and in other European countries? This includes technical, managerial and funding parameters.
- **What is the user demand** in the relevant country?
- Do any specific **opportunities** present themselves in the form of events, projects or circumstances that offer good chances for success and high impact of an initiative for a particular country at a specific moment?

In the first year, Albania and Morocco were considered to have the highest priority in terms of needs and opportunity and were selected for a Country Needs Assessment.

2.2 Country Needs Assessment

International support on its own is not sufficient to make any substantial impact on the development of research and education networking in the less advanced regions in and around Europe. The responsibility for that development lies with the national stakeholders, and it is from there that the main policy impetus and the

² Provided in this document as 4Appendix A

majority of the necessary resources have to come. The primary output of a Country Needs Assessment is therefore the recommendations to these stakeholders within the country, including the government, funding bodies for research and education, the management of universities and other research and education institutions, and the management of regional, metropolitan and national research networking organisations.

There are several important objectives in carrying out Country Needs Assessments:

- Within the context of the NA4, the Country Needs Assessments provide a basis for the various activities to assist in the development of research and education networking in less advanced regions.
- The responsibility for the development of research and education networking lies ultimately with the national stakeholders. A very important objective of the Country Needs Assessments is therefore to provide recommendations to these national stakeholders on the policies that they should develop and the actions that they should take to narrow the Digital Divide in research networking between their country and the rest of Europe.
- The European Commission is also an important stakeholder. Specifically, as a consequence of the EU enlargement, countries in areas like the Balkans and the Mediterranean basin find themselves closer than ever to the borders of Europe and, as a consequence, any technical and organisational advice and recommendations provided by the European Commission carry much weight in such countries. The European Commission is therefore in an excellent position to influence, directly and indirectly, the development of research and education networking in many regions. The reports on the Country Needs Assessments are made available to the Commission, on a confidential basis, to assist them in the development of their policies.
- Finally, the Country Needs Assessments provide an opportunity to develop in-depth insight in the status of research and education networking in a particular country and to share the relevant information with the wider European research and education networking community as a mirror for other countries.

Two Country Needs Assessments have been carried out in 2005: Albania and Morocco. The work carried out for, and the results of, these Country Needs Assessments are described in chapter 3.

2.3 Forms of Assistance

One of the goals of the Country Needs Assessments is to provide a basis for specific actions in the context of the GN2 project to support the development of research and education networking. These support actions are meant to provide actual assistance to the persons and the organisations that are responsible for providing research and education networking infrastructure and services at the local and the national level in the focus countries.

The situation in research and education networking in different countries is very different. The total set of actions for development support to be undertaken in the GN2 project will therefore be a mixture of actions addressing problems that are common to a relatively large number of countries, and actions that focus particularly on the specific situation of perhaps only one or two countries. Some development support actions may even be targeted at individual countries. On the other hand, it is expected that, for example, training and information dissemination on technical subjects or on general policy issues (like, for instance, Acceptable Use(r) Policies) will be interesting for many countries in a specific region. In general, technical, managerial and policy workshops are potentially interesting for several countries at a time.

The development support actions can take many different forms. A very preliminary and non-exhaustive list of possible examples is:

- Technical workshops on specific operational aspects of advanced network technologies
- Managerial workshops, addressing the management of research and education networks and their relations with government, funding bodies, connected institutions, end-users and telecommunications operators
- Consultancy to research and education networking organisations in less advanced countries, including, for example, the development of business plans
- Secondment of staff members from research and education networking organisations in less advanced regions with more advanced NRENs and universities.

3 Country Needs Assessments in Year 1

The Country Needs Assessment of Albania started in March 2005 and was completed with a report produced during the summer and distributed to key decision-makers in Albania and to the European Commission in August 2005. A GN2 team of experts visited Albania on 26 and 27 May 2005³.

The Country Needs Assessment of Morocco started in April 2005 and was completed with a report produced during the summer and distributed to key decision-makers in Morocco late September 2005. The report was submitted to the European Commission in November 2005. A GN2 team of experts visited Morocco between the 20th and the 22nd of June 2005⁴.

The TERENA Compendium of NRENs was the first source of information about the status of the NRENs in Albania and Morocco. This input was complemented by additional information provided by members of the Development Support Advisory Panel and by representatives of the networking organisations in Albania (INIMA, the Institute of Informatics and Applied Mathematics of the Academy of Sciences) and Morocco (MARWAN, the department in charge of university networks in the Centre National pour la Recherche Scientifique et Technique - CNRST). For this purpose, conference calls were held on 14 March with members of INIMA and on 15 March with the director of MARWAN in order to discuss their priorities, the opportunities for the Country Needs Assessment and subsequent actions that could have a significant impact on the development of research and education networking in the countries concerned, and in order to understand the type of expertise required from the team of experts assisting TERENA in this work.

Right from the start it became apparent that the main priorities for Albania would be to establish an Albanian NREN, to get funding for international and local connectivity, and to obtain technical consultancy. These actions would have to be co-ordinated at the organisational and political level and at the level of directors of university departments and other institutions. In practice, it was not possible to involve politicians in the Country Needs Assessment, because parliamentary elections were taking place at that time, leading to the establishment of a new government in the summer of 2005. Politicians were invited to participate in the user/policy workshop, which was organised towards the end of 2005 as a follow-up to the Country Needs Assessment.

During the first part of the Moroccan Country Needs Assessment, the main opportunities/priorities identified for Morocco were to ensure that the NREN differentiates itself from commercial Internet Service Providers, also by providing advanced services like IPv6 and multicast, and to provide content services online.

³ The programme of the visit is attached as Appendix C

⁴ The programme of the visit is attached as Appendix D

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During the Country Needs Assessments and in particular during the preparations of the visits to Albania and Morocco, TERENA staff members developed a standard template questionnaire – provided in Appendix B – which was used to complement the Compendium of NRENs with additional detailed information about the status of research and education networking in the country such as, for instance, information about other existing networks or institutions that are not connected to the NREN. This questionnaire was submitted to INIMA and MARWAN in April 2005. The result was extremely helpful in refining the priorities on the basis of a better understanding of the situation in the countries concerned.

3.1 Albania

The Albanian report was produced during the summer, and was distributed to key decision-makers in Albania and to the European Commission in August 2005. The content of the report is outlined in the following sections of this chapter.

3.1.1 Summary of the Report

3.1.1.1 *Research and Education Networking in Albania*

There are 11 public universities in Albania, of which 6 located in Tirana (these count approximately half of the country's student population). The Academy of Sciences supports research in the country. It has 14 institutes, including INIMA, the Institute for Informatics and Applied Mathematics, which has an official mandate to operate the “state network” and can be considered an established reference for international collaboration, having been involved in the EU-funded projects SEEREN, SEE-GRID, SEEFIRE and recently in SEEREN2.

Research institutions include approximately 40 R&D departments belonging to various ministries.

There is no national academic network connecting universities and research and education institutions in Albania. The level of ICT in universities is also very low compared to the standard of other more advanced countries, including neighbouring countries such as, for instance, the Former Yugoslav Republic of Macedonia, and Serbia and Montenegro. In particular, only a few institutes in Tirana have computer laboratories, which are (partially) interconnected via Ethernet-based local-area networks. There is no inter-university connectivity. Each institution has a separate connection to the Internet via commercial Internet Service Providers.

There is no organisation representing the NREN in Albania. Some years ago a managerial and a technical board were formed with the mandate to create the Academic Network of Albania (ANA). But no progress has been made in the creation of the NREN since then, and in practice neither of these boards is still functioning.

3.1.1.2 Recommendations

The Country Needs Assessment was carried out by TERENA staff with the assistance of Vasilis Maglaris from the National Technical University of Athens and Enzo Valente from the Italian National Research and Education Network organisation GARR.

The report written by the GN2 team of experts gives two specific recommendations, in addition to the general advice to make sure that the Albanian government gives higher priority to the Information Society and to research and education networking.

The first recommendation is to promote the creation of the NREN, by helping research and education institutions in the country to reach consensus on one institution representing the whole community

The second recommendation is to promote the creation of a national network backbone for research and education.

More in detail, the recommendations say:

Recommendation 1. Decision makers of research and education institutions and the government officials responsible for research and education policies in Albania must collaborate towards the creation of one single entity representing the totality of the research and education community, which should eventually become the Albanian NREN.

This single entity does not need to be a separate legal entity from the beginning, but requires stability of funding to support adequate dedicated resources at the managerial, organisational and operational level.

Such an entity is essential for representation of Albania at the international level and its future participation in regional or pan-European networking projects.

Recommendation 2. Decision makers of research and education institutions, the government officials responsible for research and education policies in Albania and the (future) NREN need to work towards interconnecting all research and education institutions in the country via a single network, managed and operated by the NREN.

A number of options may be available and need further investigation, though the following is recommended:

Follow examples of neighbouring countries and facilitate the acquisition of (dark) fibre for usage by the (future) NREN, either from the telecom operator or from alternative fibre suppliers.

3.1.1.3 Follow-up Action

The specific follow-up action from the Albanian Country Needs Assessment was to organise a user/policy workshop in Albania, gathering all relevant actors, university directors, politicians, advanced research users and telecom operators in an international event aimed at consensus building and fostering the establishment of the NREN.

Not long after the reporting period, on 1 December 2005, this workshop was held in Tirana. The goals of the workshop, which was attended by approximately 30 people representing the most important universities and research institutions in the country, were to communicate the recommendations from the Country Needs Assessment to stakeholders of research and education networking in Albania, to raise awareness about the role and importance of having an operational NREN, to reach consensus about the need to interconnect all R&E institutes in the country and in particular, to (re)start a dialogue aimed at creating an action plan for the reform of the managerial and technical boards of ANA.

3.2 Morocco

The Moroccan report was produced during the summer, and was distributed to key decision-makers in Morocco late September 2005. The report was submitted to the European Commission in November 2005. The content of the report is outlined in the following sections of this chapter.

3.2.1 Summary of the Report

3.2.1.1 Research and Education Networking in Morocco

In Morocco there are 15 public universities (84 institutions) and 13 research centres, four of which belong to universities, plus 55 public institutions of higher-education, which are not part of the universities and are not financed by the Ministry of the Higher Education (they are financed by other ministries, such as Agriculture, etc.), as well as 77 private institutions of higher education.

MARWAN is a department of the CNRST in charge of the national backbone. Currently, the MARWAN2 network is based on a Layer-3 MPLS VPN and is fully managed by Maroc Telecom.

As of 13 July 2005, 28 requests to connect to MARWAN2 had been received from major universities, out of which 19 connections (15 at 2 Mb/s and 4 at 34 Mb/s) were already operational.

The annual budget of CNRST for the MARWAN2 network in 2005 is approximately 200,000 euro, including external connectivity and equipment.

In 2004, the Moroccan government invested about 2 million euro to allow universities to upgrade their campus networks. All universities chose for interconnection of institutions by optical fibre (for those close to each other) and by wireless links. To date, most universities have built or upgraded their campus LAN; only a few universities have not been able to do so yet.

The types of services and application support that users are requesting in Morocco include applications that are specific for researchers, such as videoconferencing, digital libraries and content production. At the network service level, IPv6 and multicast were needed by the second half of 2005. Unfortunately there was no guarantee that Maroc Telecom would be able to provide such services.

Advanced users in Moroccan universities are involved in Grid applications, particularly in such disciplines as High Energy Physics (HEP), biochemistry, astronomy, meteorology, seismology. HEP looks like the most developed discipline with four universities collaborating in the ATLAS project at CERN and with the University Hassan II in Casablanca being a Tier-3 node.

There is significant support for Grids in the country. A government investment that originally targeted building a large supercomputing centre in Casablanca was recently converted to support for the implementation of a distributed Grid infrastructure in the whole country.

3.2.1.2 Recommendations

The Country Needs Assessment was carried out by TERENA staff with the assistance of Dany Vandromme from the French National Research and Education Network organisation RENATER and Enzo Valente from GARR. The report by the GN2 team of experts makes the following recommendations:

Recommendation 1. Those funding research and education networking in Morocco should understand that this is not the same as the Internet and that there is a clear need for the NREN to have control of the network. The network infrastructure currently provided by the Telecom operator to MARWAN does not allow users to obtain the advanced services they require and therefore is not sustainable. MARWAN should aim accessing lower level transport technology, in order to be able to deliver IPv6, Multicast and Grids services. Eventually, MARWAN should look at the opportunity to acquire dark fibre.

Recommendation 2. The heads of academic and research institutes and departments should encourage the introduction and use of advanced network services and applications such as videoconference, Grid and Authentication Authorisation Infrastructures in order to allow their institutions to participate and compete in the global research community. MARWAN will need to develop expertise and provide advice and support to existing initiatives like the development of a Tier2 High Energy Physics Grid node in Casablanca.

Recommendation 3. MARWAN needs to have stable funding and sufficient, well trained, staff to meet the challenges of the foreseeable future.

3.2.1.3 *Follow-up Action*

No specific action targeting Morocco was set up as an immediate follow-up from the Moroccan Country Needs Assessment. However, it was explicitly agreed that the GN2 project should facilitate participation of the Moroccan research and education community in ongoing developments and projects taking place in Europe, encourage and support participation in knowledge transfer events being organised in Europe by TERENA, GN2, the EUMEDCONNECT project and individual NRENS.

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4 Plans for Activities in Year 2

As a follow-up to the Albanian Country Needs Assessment a policy workshop was organised by TERENA and INIMA, to take place on 1 December 2005, shortly after the period officially covered by this document.

In the summer of 2005 the Development Support Advisory Panel recommended that Malta, Bulgaria and Romania should be the highest-priority countries for NA4 support in the second year of the GN2 project.

A request for information was sent in July to the NRENs in Romania (both RoEduNet and RNC), Bulgaria and Malta. By September 2005 detailed information in response to this request was received from all countries. Additional discussions concerning the strategic goals of the NREN in each of the countries concerned are ongoing at the time of writing this report. In particular, the political background and the timing of possible actions are being investigated.

Specific actions targeting some of these countries will not need to wait until a Country Needs Assessment will be formally concluded. At the time of writing the feasibility is being investigated of specific training events, including a training workshop aimed at one specific country covering the establishment and operation of Computer Security Incident Response Teams, and a short, introductory CAMP (Campus Architectural Middleware Planning) workshop specifically for one or two countries with a limited number of participants so that the event can be interactive and can be tuned real-time to the knowledge level of the participants. If and when these plans will actually be implemented will be decided later, on the basis of in-depth discussions with the relevant NRENs.

Talks are ongoing with participants in the EUMEDCONNECT project to see if the synergy between that project and the NA4 activity in the GN2 project can be used to organise a policy workshop focusing on Mediterranean countries. The idea is that such a workshop should be able to support the EUMEDCONNECT project and specifically to advocate the need to continue the network after the end of the project. The timing of the workshop will depend on the continuation of the EUMEDCONNECT project itself.

Appendix A Long-list of Beneficiary Countries

This appendix contains the long-list of beneficiary countries as identified in September 2004, based on the advice of the Development Support Advisory Panel. This list, which is subject to revision, is the basis for the priority setting in the development support actions. For the sake of clarity the list is broken down into three sub-lists: countries where the NREN is a partner in the GN2 project, countries where the NREN is a partner in the SEEREN project, and countries where the NREN is a partner in the EUMEDCONNECT project. The number (04) next to a country means that updated information about that country is available in the TERENA Compendium 2004. The number (03) means that information is available in the Compendium 2003 but not in the 2004 edition. No number means that no information is available from the TERENA Compendium.

GN2 Project Participants

This sub-list contains countries where the NREN is a partner in the GN2 project. Whenever that NREN is also involved in the SEEREN or EUMEDCONNECT project, this is indicated with a (SEE) or (MED) respectively.

- Bulgaria (04) (SEE)
- Cyprus (04) (MED)
- Estonia (04)
- Latvia (04)
- Lithuania (04)
- Malta (04) (MED)
- Romania (04)
- Turkey (04) (MED)

SEEREN Countries not in GN2

- Albania (04)
- Bosnia and Herzegovina (04)
- FYRoMacedonia (03)
- Moldova (04)
- Serbia and Montenegro (04)

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EUMEDCONNECT Countries not in GN2

This list contains countries connected to GÉANT through EUMEDCONNECT as of December 2005; Jordan (04) will be connected at a later stage:

- Algeria (04)
- Morocco (04)
- Tunisia
- Egypt (03)
- Syrian Arab Republic (04)
- Lebanon (04)
- Palestinian Authority

Appendix B Request for Information for Country Support

The aim of this document is to help in identifying the major issues, challenges and opportunities for the development of research and education networking in the country concerned.

This is an internal document that will be used as a tool for gathering detailed information needed to prepare the visit, and preparation of fact sheet that will be used in the following phases of providing support to the country:

- the information collected can be used during the visit as a piece of information that can be distributed during or before discussion with the decision makers in the country;
- the information collected before and during the visit will be used as input to the analysis of findings and, as a consequence, to the information section of a report containing recommendations for national and international stakeholders of the NREN as well as for planning the subsequent support actions to be provided by GN2.

The questions in this document are meant to complement the information provided in response to the questionnaire of TERENA Compendium of European Research Networking – TSec(05)003. Therefore the following request for information follows the structure of the Compendium questionnaire.

We would like you to provide as much detailed answers to the questions below in writing. Please provide your answers in a free textual format. We are aware of the difficulty to respond to some of these questions and therefore we would expect to follow up with you in a telephone conversation that should take place at the latest two weeks before the actual visit.

Section 1: Customer Basis and "Market Share"

Section one: "Users/clients" of the compendium provides information on types of institutions connected by the NREN, the absolute and relative number of connected institutions, the bandwidth of connected institutions and connection policies.

In addition, we would like to know, in as much detail as possible, some basic information about universities and other higher-education institutions (name, location, student population) and, for each of these institutions, if they are connected to the NREN or not, and if yes: with which access capacity.

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Are secondary schools, primary schools, hospitals, libraries, etc. connected to the Internet? If yes, are they connected via the NREN or via commercial ISPs? if not, are there plans to connect these categories? are there plans to involve the NREN in servicing these groups?

Section 2: Network Capacity

The Compendium provides information about international and national backbone.

In addition, we would like to know the capacity and the type of connectivity (optical fibre, leased lines, wireless, etc.) available on the Metropolitan Area Network and the campus networks or the access capacity of the institutions listed in section 1 above.

Can you provide us with a map that shows the NREN topology with the capacity and technology of the links?

This section of the Compendium mentions also the percentage of dark fibre owned or leased by the NREN. In addition can you please provide us with some information about available or planned dark fibre plants (or plans?) that might potentially be acquired by the NREN in the future (please mention at least route, length and ownership)?

Section 3: Network Traffic, Traffic Load, Congestion

If possible provide us with some indications of the network traffic for the institutions concerned. We would like to get information about bottlenecks for the institutions - where they are and why (lack of money or technology, not enough workstations for students, etc.)

Section 4: Staff and Funding

Section four of the compendium gives indications about resources of the NREN, the staff the budget, sources of funding, etc. we would like you to expand on that and tell us the implications for the management and organisation of the NREN.

You might want to provide us with information like, is the staff/budget adequate to provide the required services, are there any needs to hire more personnel, or change the organisation/management structure etc.

We would like some more information about the legal form and the management of the NREN. Can you please provide an organisational chart of the people working in your organisation showing their functions and/or responsibilities? Which organisation employs them? Who appoints the manager(s)? Is there some sort of Board, Management Board, Supervisory Board etc. of the NREN that is supervising the manager(s)? Who are on this Board? Who appoints the members of that Board?

From which sources comes the funding for:

- international connectivity?
- the national research networking backbone network?
- local networks at campuses/institutions?

Can you give an indication of the available annual budgets for each of these network components?

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What is the annual budget of the NREN? What are the sources of income and how much does each of these sources contribute to the income? What are the main expenditure items and what is the expenditure for each of these main items?

Section 5: Services Provided or Planned, Network Technologies Used, and Research Interests

The Compendium provides data about technology used in the backbone, can you please mention the highest priority network services (maximum four) that you plan to deploy in the coming 12-24 months? Do you have already the required expertise in house to deploy such services or do you need to specifically recruit/train personnel?

Section 6: Basic Information: Size and Legal Form

We are interested in more details concerning the relationship between your organisation and the government. Could you please tell us who the counterparts of the NREN in the government are? For instance, which ministries/departments are responsible for policies/funding of research and education networking? Who are the persons from such counterparts you are directly in contact with? Do they support you in the appropriate way?

Other Information

Does your government have an "Information Society" policy (possibly under another name)? Is connecting universities resp. other institutes for higher education resp. research institutes resp. schools resp. libraries, museums etc. to the Internet part of that policy? Which Ministry or other government entity is responsible for that general Information Society policy?

We would like to know the situation of the internal telecommunication market in your country. What is the name of the incumbent? Does it operate in a monopoly regime? Is the market liberalised or not? When it is expected to be liberalised? Are there alternative operators for voice communication and or data communication? Which one?

Which commercial ISPs (if any) are providing or may provide connectivity to R&E institutions in your country? Are there any other, non-commercial, organisations providing such services. If yes, do you collaborate with them? Can you tell us how?

Can you please mention a few important projects/ international collaboration (existing or planned) in any scientific discipline in your country that would benefit from better networking infrastructure and services in your country?

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Appendix C Albanian Meeting Schedule and Contact Details

26 May 2005

10:00 Meeting with Prof. Dr. Shezai Rrokaj, Rector of the University of Tirana

12:00 Meeting with Prof. Përparim Hoxha, Rector of the Polytechnic University of Tirana and

13.00 Meeting with Ylli Popa, Chairman of the Academy of Sciences and the Vice Chairman Farudin Hoxha

14.00 Meeting with Dule Dervishi, Executive Director of the Albanian Telecommunications Regulatory Authority

27 May 2005

10.00 Meeting with the Deputy Dean of the Faculty of Economy of the University of Tirana, Fatmir Mema and Bashkim Ruseti, Head of department of informatics and faculty of economy

13.00 Meeting with Llukan Puka, Dean of Faculty of Natural Sciences and Gezim Karapici, Dean of Faculty of Electric Engineering

14.00 Meeting with technical board of ANA:

- Gudar Beqirai, INIMA
- Neki Frasheri, INIMA
- Prof. Betim Cico, Head of Computer Engineering Section of the Polytechnic University of Tirana, Faculty of Electrical Engineering
- Prof. Eqerem Arkaxhiu, Head of Computer Sciences Dept. University of Tirana, Faculty of Natural Sciences

16.00 Closing meeting with INIMA staff

Appendix D Moroccan Meeting Schedule

Monday 20 June 2005

- 08:30 : Meeting with the staff of MARWAN
- 10:00 : Meeting with the representatives of the Agence Nationale de Réglementation des Télécoms (ANRT)
- 11:00 : Meeting with the Secretary General of the Département de l'enseignement supérieur
- 13:00 : business lunch with the director of the Ecole Nationale Supérieure d'Informatique et d'Analyse des Systèmes (ENSIAS) and the director of the Institut Nationale des Postes et Télécommunications (INPT)
- 15:00 : Meeting with the Director and researchers of ENSIAS
- 16:00 : Meeting with the rector of the University Mohamed V – Souissi and with users and researchers
- 17:30 : Meeting with the Director and researchers of the INPT

Tuesday 21 June 2005

- 11:00 : Meeting with the rector, users and researchers of the University Hassan 2 – Casablanca
- 12:30 : business lunch with the rector of the University Hassan II - Casablanca
- 15:30 : Meeting with the Director of the Techno Park – Casablanca

Wednesday 22 June 2005

- 08:30 : Meeting with the Director of CNRST
- 10:00 : Meeting with the MARWAN staff