Standard Summary Project Fiche

1. Basic Information
   1.1 CRIS Number: 2003-004-995-03-07
   1.2 Project Title: Strengthening the Surveillance and Control of Communicable Diseases in the Slovak Republic
   1.3 Sector: Social Policy and Employment
   1.4 Location: Bratislava, Slovak Republic

2. Objectives:
   2.1 Overall Objective(s)
   The overall objective of the project is to complete the implementation of the Acquis concerning the surveillance and control of communicable diseases (CD).

   2.2 Project Purpose:
   - Administrative and implementing structures concerning the epidemiological and laboratory control of CD upgraded and integrated into EU networks
   - Surveillance of CD strengthened.

   2.3 Accession Partnership and NPAA Priority
   The project reflects the AP 2001 priority of further action -
   "in the area of surveillance and control of communicable diseases and health monitoring and information."
   It is also in line with the 2001 National Programme for the Adoption of the Acquis, which defines the project priorities and actions in the public health section of chapter 13 on Social Policy and Employment -
   "In the area of public health this stage focuses on ........ directives on the network for the surveillance of communicable diseases."

2.4 Contribution to the National Plan: N/A

2.5 Cross Border Impact: N/A

3. Description:
   3.1 Background and Justification
   Surveillance of communicable diseases (epidemiological vigilance) has been introduced gradually since the 1960s in Slovakia, and the duty to control infectious diseases with subsequent anti-epidemic precautions has been supported in the respective legislation. The surveillance principles introduced have remained largely unchanged, although it is obvious today that communicable diseases could be controlled more effectively and perhaps at lower costs. However, the growing mobility of the Slovak population and other changes make a reassessment of the control of infectious diseases in Slovakia unavoidable. Disease control is to build on international co-operation. Harmony in working methods and in definitions of diseases must be reached. Any occurrence of serious and uncommon communicable diseases must be monitored, and the surveillance must be based on clear priorities and the pooling of highly effective data.
   Slovakia will join as soon as possible the network for surveillance of infectious diseases developed in the EU Member States and in associated countries. Epidemiological surveillance
could have been more effective, and pooling of epidemiological data more relevant, if it was aimed mainly at communicable diseases preferential in Slovakia, infectious diseases preventable by vaccination, and communicable diseases monitored within the international scope.

The priorities in the field of communicable diseases surveillance strengthening are the surveillance of infectious diseases preventable by vaccination, surveillance of salmonellosis and neuroinfections.

The Slovak public health policy is regulated by Act No. 272/1994 Coll. on the Health Protection of the People as amended by subsequent regulations, and by Act SR No. 277/1994 Coll. on Public Health Care, as amended by subsequent regulations. The first of the two laws regulates matters of health protection and of precautions against infectious diseases. The Ministry of Health of the Slovak Republic, which makes it obligatory to report all infectious diseases in Slovakia, has issued secondary legislation.

The surveillance of infections diseases is co-ordinated by the Chief Hygienist of the Slovak Republic and provided for by the:

- National Public Health Institute (NPHI)
- 36 regional Public Health Institutes (PHIs), and
- National Reference Centres (NRCs)

Data on infectious diseases are processed and stored in the National Register of communicable diseases at the Public Health Institute (PHI) in Banská Bystrica.

National Reference Centres are highly specialised sites providing complete epidemiological and laboratory surveillance of selected infectious diseases at the national level. They usually consist of epidemiological and laboratory parts. Epidemiological part of NRCs tightly cooperates with National Register of CD. NRCs acquire, process, analyse and evaluate epidemiological data about monitored infectious diseases. NRCs also process clinical material, carry out confirmative examination for microbiological laboratories. In addition to these activities, NRCs methodically coordinate these laboratories. Other duties of NRCs include proposing of measures to be taken in order to decrease the incidence of infections, as well as monitoring and evaluation of their effectiveness. They are established by the Ministry of Health as a compact part of the National Public Health Institute in Bratislava and in Public Health Institute in Banská Bystrica and Public Health Institute in Košice, which are funded by the state budget. Currently, all still must introduce modern fast diagnostic procedures and methodologies for detailed identification of micro-organisms. In the interests of exact and prompt diagnostics of infections and harmonisation of their working methods with the European ones, it is urgent to expand their instrumentation, material supplies, and personnel resources and to achieve a standard level via accreditation.

The proposed project is focused on upgrading the NRC for salmonellosis, NRC for influenza and influenza-like diseases, NRC for poliomyelitis, NRC for measles, mumps and rubella (MMR), NRC for meningococcal invasive diseases, NRC for resistance to antibiotics (all established at the National Public Health Institute of the SR, Bratislava), then NRC for diphtheria, which is established at the NPHI Košice, and NRC for pertussis and parapertussis established at the NPHI Banská Bystrica.

All NRCs mentioned above provide services to institutes of health throughout the Slovak Republic, namely by confirming laboratory results carried out in the field. The NRCs also provide professional consultation services.

Some of the NRCs mentioned herein cooperate widely on the international level. There is tight cooperation between NRC for influenza and European working group for influenza – EISS (European Influenza Surveillance Scheme). Representatives from NRC for influenza
take part in EISS meetings regularly twice a year. NRC for influenza also cooperates intensively with the WHO Centre for Influenza in Geneva, CDC (WHO Collaborating Centre) in Atlanta and the WHO Reference Laboratory for Europe (NIMR) in London.

NRC for meningococci is a member of EMGM (European Monitoring Group for Meningococci), which is coordinated by the Public Health Laboratory Service in London. There has been a long-term cooperation with the NRL for meningococcal infections in the Czech Republic.

NRC for poliomyelitis is a WHO Euro Polio Laboratory and cooperates with the WHO Regional Laboratory in Helsinki and with the National Institute of Public Health and the Environment in Bilthoven.

Three other NRCs, NRC for MMR, NRC for difteria, NRC for pertussis and parapertussis, are currently taking part in population immunity testing in frame of the project of the EC ESEN 2 (European Sero-Epidemiological Network 2), coordinated by PHLS London.

NRC for antibiotic resistance monitoring, established in 1994, presently concentrates on founding a national web anti-microbial resistance database system compatible with other Anti-microbial Resistance Systems supported by the European Commission.

Acute diseases of respiratory tract including influenza are reported regionally to the competent state healthcare institutions once a week, during an influenza epidemic also in shorter intervals. The systems functions reasonably well at the levels of public healthcare, of districts and regions, and at the international level. Improvements are needed at the level of primary healthcare, concerning mutual interconnection of the data systems, and with regard to the availability of information to the population.

The system should furthermore be improved by introducing an Early Warning System as a tool that allows timely and accurate dissemination of public health event information leading to effective intervention measures including investigative and containment activities. Timely recognition of outbreaks requires detecting these events before they develop into public health crisis. Prompt detection depends on careful monitoring by modern surveillance system and a thorough understanding of trends in incidence and distribution of known infectious agents. The ability to detect what is new, emerging or re-emerging depends on the capacity to identify and track the routine as well the unusual. To develop and implement rapid, effective prevention and control measures for epidemics, good surveillance system is needed to detect infectious diseases before they become widespread. A good national surveillance and appropriate laboratory support are critical to an effective defence against these threats.

In the Slovak Republic, the system is currently mainly based on fax messages that are exchanged regularly every Friday. They inform about an outbreak (diagnosis, locality of occurrence, number of cases, number of exposed persons, suspected transmission factor, anti-epidemic measures) and on sporadic diseases occurrence of highly contagious, clinically serious infections, selected neuro-infections including polio-like diseases, occurrence of diseases included in the Immunisation Programme, etc. The data in the Slovak Early Warning System flows from district to regional and then to national level to the NPHI where they are manually summarized. The Slovak Republic lacks an operating electronic Early Warning System compatible with the existing networks in the EU.

The system of collection and evaluation of data on communicable diseases changed from manual tabulation of individual notification cards to data collection system working on PC in 1991. Since then, the same computer platform is being used. Maintenance, support, further development of this system is not more effective, because the currently used system was de-
signed for the MS DOS environment. It is unable to run under Windows environment, and it has limited support for networking.

The existing central register does not allow the continuous analyses of reported data but only monthly and yearly analyses of epidemiological data on occurrence of infectious diseases in the Slovak Republic.

The manner of reporting and processing of data on influenza has been computerised since 1996, but the surveillance is not compliant with the requirements of the European working group for influenza EISS, of which Slovakia has been an associated member since 2001. A condition for admitting Slovakia as a full-fledged member of this network is making the existing system of data reporting and processing more effective and adapting it to the EU countries. The database of occurrence of influenza and influenza-like illnesses is at the NPHI in Bratislava.

3.2 Linked Activities

The Slovak Republic participates in the EU projects concerning influenza, meningococcal infections and immunity surveillance:

- European Influenza Surveillance Scheme (EISS)
- European Monitoring Group for Meningococci (EMGM)
- Slovakia also participates in WHO activities dealing with poliomyelitis eradication and elimination and control of diseases preventable by vaccination, and with the food borne diseases surveillance programme, network for harmonisation of surveillance of CD in Countries of Central, Eastern Europe. In this network also the Early Warning System involving member countries was created.

3.3 Results

3.3.1. Slovak monitoring system of CD harmonised with EU standards, Early Warning System (EWS) upgraded and staff trained.

Three new kinds of software programmes will be developed: CD National Register Programme, Influenza Surveillance Programme, and Early Warning System, compatible with the EU networks, i.e. Surveillance of Communicable Diseases Network, EISS and EWS, which, along with the technical equipment provided, will be assisting monitoring and surveillance of infectious diseases in Slovakia. The cardinal change of evidence and processing of information from manual to modern electronic system will raise the capacity and speed of data transfer and thereby also the speed of application of adequate measures. Underreporting will be reduced. The implementation of new technologies will request higher quality and structure of input data, possible change of the methodology of input data processing, eventually presentation of new standard definitions of infections according to appropriate Decision EP and Council. Therefore we expect training of responsible workers at NIPH and later final seminar for employees of all PHIs. The workers will acquire the skills to use the developed software programmes, to apply new practises and methodology (verification), data processing and evaluating with equivalent reactions (response) according to EU standards.

The Ministry of Health has already prepared a draft National Preparedness Plan for Outbreak Management, which should be adopted in the forthcoming months. The Plan
describes the management of unusual serious events, including the structure, responsibility and the activities of the co-ordination committee. The Plan covers the EWS (according to the Commission Decision 2000/57/EC of 22nd December 1999 on the Early Warning and Response System for the prevention and control of communicable diseases under Decision 2119/98/EC of the European Parliament and of the Council) and a system of implementation and evaluation of epidemiological measures.

3.3.2. National Reference Centres (NRC) network extended, existing NRC strengthened, and Laboratory Assurance Quality System in NRC implemented.
One new NRC for arboviral infections will be established and together with eight selected NRCs will be equipped with missing laboratory equipment, which is necessary to achieve the standards applicable in the NRCs of EU member countries. By mastering the methodology, procedures and guidelines, and by obtaining an accreditation from the SNAS (Slovak National Accreditation System), the NRCs will comply with the requirements for integration into existing EU networks.

3.3.3. External quality assurance system in clinical microbiology laboratories implemented
Standard procedures will be created for external control of quality of work of clinical microbiological laboratories by superior NRCs. This will involve co-operation with international experts, testing on pilot projects, and eventually implementing a methodology of external control.

3.4 Activities
The project will be implemented in the framework of one Twinning Arrangement, one service contract and two supply contracts covering the following activities.

3.4.1. Harmonisation and upgrading of monitoring system of CD and EWS

1. Software specification and training of the staff
A working group will be established at the recipient institution, composed of representatives of NPHI, PHIs and MoH. Its members will include also two short-term experts contracted as a pool of short-term experts. The group will be coordinated by the PAA together with a representative of the NPHI. The working group will define the conditions, outputs, inputs, and functionality of the special software for three target applications: Early Warning System, Infectious Diseases National Register, and Influenza Surveillance. In co-operation with PAA and two international experts mentioned, six employees from PHIs (two for each application) will pass a short-term temporary study visit at corresponding workplaces for Early Warning System and/or a national register of communicable diseases and influenza surveillance in some of the EU member countries. The objective of the study visit is to obtain professional knowledge and experience of monitoring, control, system of processing and evaluation of information reported on occurrence of infectious diseases in the EU states, and possibilities of modification and implementation of such systems in Slovak conditions in the framework of integration to the relevant EU structures. Slovak specialists benefit greatly from experience abroad, as it is currently their only option for observing EU surveillance systems in practice. This experience is a great contribution to effective and rational implementation of these systems.
2. System provisions for monitoring programmes

The specified requirements for software for Early Warning System, National Register and Influenza Surveillance will serve as the basis on which a qualified software development house will create the required software and train the users. The software development team will be contracted under the service component of the project.

With respect to the parameters of the new software and its applicability and use at individual workplaces of the NPHI, purchase and installation of 50 computers with accessories is envisaged within this component plus connection thereof to the Internet within the SR, which will be co-financed by the state budget and the supply component of the present project. Thereby all 36 PHIs will be equipped, as well as 9 NRCs, 2 servers - one for NPHI (EWS, Influenza) and another for PHI B.Bystrica (National register of CD) 3 for analysis of statewide data for each software. The specification of hardware and type of Internet connection will be done by Technical assistance per requirements of Slovak partners. Thereby an operating electronic network will have been built, which will enable immediate interactive exchange of all relevant information on unusual epidemiological events. The system will provide improved, prompt and easy access to the analyses to all end users.

3. Pilot projects and full systems roll-out

To eliminate deficiencies before a nationwide implementation of the new systems, pilot projects will be performed at selected regional PHIs under the leadership of the working group established. The selected pilot sites will be: Trencín, Martin, Banská Bystrica, Rimavská Sobota, Košice. All detected shortcomings will be removed before the new software including technical equipment will be introduced at all 37 PHIs in Slovakia. Subsequently, representatives of all 37 PHIs will be trained in using and working with all three new software products. The headquarters for the co-ordination of monitoring and analysis of data reported nationwide for the Early Warning System and influenza surveillance will be the NPHI. For the CD National Register, it will be the PHI Banská Bystrica.

4. Harmonisation and integration of selected EU networks

The Slovak systems will be integrated into the European Early Warning System (EWS). The co-operation is based on participation of PHIs employees, who are experts on certain disease, in the working groups e.g. for monitoring of meningococci (EMGM) or surveillance of influenza (EISS). The co-operation is being continued and a new co-operation with more networks will be gradually introduced. These will include the European Antimicrobial Resistance Surveillance System (EARSS), European project for the surveillance of vaccine preventable diseases (EUVAC), and the European surveillance network for the enteric infections (ENTERNET).

MEANS

One Twinning arrangement:

The Pre-Accession Adviser (PAA) (24 months) should fulfil the following criteria:

- Must have proven team leading experience in working with international teams and several years of experience in managing similar projects
- Will come from a PHI or an equivalent institution
- Will perform professional and managerial supervision over the entire project
- Special expertise in the area of surveillance of infectious diseases, an epidemiologist
- University education in relevant field: medical doctor
- At least 10 years of experience in surveillance of infectious diseases
- Excellent knowledge of English and good communication skills
The PAA should:

- recommend the most suitable specialised institutions and facilities in EU member states (according to activities 3.4.1.1. and 3.4.2.2.) and ensure temporary study visits for selected professional employees of PHIs and NRCs
- coordinate and professionally participate in a working group, which task will be specification of requested software
- coordinate partial tasks of the project, sequence their realisation, to control and help with realisation of pilots projects
- in coordination with TA, who will create SW, to develop and provide training for PHIs’ workers. Training will focus on utilisation of new programmes, application of new methods and procedures, new quality of input data and data processing and evaluation according to the newest EU knowledge and implementation of EU rules in the field of CD
- help perform tasks connected with cooperation with EU networks for CD surveillance
- deal in specification and identification of acquire laboratory equipment and instruments according requirements of Slovak specialists
- participate in developing of original methodology of external quality control assurance for NRCs
- assist the PHI staff in developing a Disease Priority Setting exercise for surveillance of CD
- assist in implementing the Preparedness Plan for Outbreak Management in line with best practices in the EU.

Two short-term experts (each for assignments totalling 2 work/months) are required who should meet the following criteria:

Short-term epidemiologist/expert for surveillance of communicable diseases -

- Must have experience in providing similar interactive web nets for collection and analysis of CD epidemiological data.
- We require him/her to be an expert in the area of the surveillance of communicable diseases, epidemiologist.
- He/she will be member of working group for software specification and will help with organisation of short-term temporary study visit of Slovak experts.
- He/she will come from the PHI or an equivalent institution
- He/she should have min. 5 years of the relevant working experience in the field of Early Warning System, or Infectious Diseases National Register or Influenza Surveillance.
- Excellent knowledge of English and good communication skills

Short-term expert for the collection and analysis of CD epidemiological data:

- He/she must have experience in technical providing of similar interactive web nets for collection and analysis of CD epidemiological data, knowledge in bio statistics are advantage.
- He/she will be member of working group for software specification and will help with organisation of short-term temporary fellowship of Slovak experts
- He/she should have min. 5 years of the relevant working experience in the field of Early Warning System, or Infectious Diseases National Register or Influenza Surveillance
- Excellent knowledge of English and good communication skills

CVs of available short-term experts should be submitted with the background documentation for selection of a PAA.
Service Contract

The TA will be selected with the purpose of developing the required software and training of competent staff designated for use thereof. At the same time, the TA will participate in specifying the necessary hardware and type of Internet connection for a functional application of the software developed.

Supply

Fifty PCs with complete equipment will be purchased as per the specification given in Annex 7.

3.4.2. National Reference Centres (NRC) network extended, existing NRC strengthened, and Laboratory Assurance Quality System in NRC implemented.

1. Equipping the selected centres with laboratory equipment

Nine selected NRCs will be completed and equipped with special laboratory equipment and, subsequently, a selected supplier will train selected staff for use thereof.

2. Training of relevant staff

Since each NRC is a highly specialised workplace for particular diagnosis, we envisage a cooperation with three international experts from corresponding institutions (NRC EU Notified Bodies). This will ensure transfer of knowledge and experience from the practice of EU member countries, which will be supported by short-term study visit of selected 4 Slovak members of NRC staff abroad (for example, two-week study visits in quality control, EQAS) and two-months advanced Virology Training Diagnosis in a EU Reference laboratory (PHLS, INVS). The staff will be trained in the most progressive detection methods, which allow rapid laboratory detection of infectious agents. They will also be taught methods of analysis and control of statewide laboratory results and to control a high-quality professional environment in the given field.

3. Passing the accreditation process

Due to fact that the NRC have to lead, check and be supervisors for other laboratories of clinical microbiology in the given area, they must pass an accreditation process, which will result in granting of an accreditation by the SNAS (Slovak National Accreditation System). The accreditation process is passed by confirming the equivalence of the existing system of quality in given laboratory to generally accepted standards. Parameters must be met in the areas of the laboratory equipment, space, professional staff and methods used. All fees connected with the process of accreditation will be funded by the state budget in the framework of co-financing.

MEANS

Under same Twinning arrangement as described under 3.4.1 will provide at least three short-term experts for two months assignments. They should fulfill the following criteria:

- Specialisation respectively in the fields of -
  - Clinical virology
  - Clinical bacteriology and
  - Good laboratory praxis and EQAS in clinical microbiological laboratories
- He/she will come from the PHI, NRC EU Notified Bodies the best
- He/she should have university education
- He/she should have min. 10 years of the relevant working experience
- Excellent knowledge of English and good communication skills
Supply
Special laboratory equipment will be purchased to support all selected NRCs as per the specification given in Annex 6

3.4.3 External quality assurance system in clinical microbiology laboratories implementation

1. Developing standard methodological procedures for external quality assurance

The goal is to unify methods used in microbiological laboratories, to ascertain the professionalism, and to achieve validity of the laboratory results.
Slovakia presently lacks a standard methodological procedure of external quality assurance at clinical microbiological laboratories in relation to superior NRCs. International experts, along with local ones, will participate in developing an original methodology of external control.

2. Pilot project of external quality assurance

After developing the original methodology of control, the same will be implemented and tested through testing panels at selected pilot workplaces in PHIs Prešov, Banská Bystrica, Košice and laboratories of clinical microbiology in Nitra and Trnava

MEANS
The same Twinning arrangement as in paragraph 3.4.2

3.5 Lessons learned:
There have been no OMAS assessments of the Phare measures linked to the proposed project. Implementation and co-ordination structures reflect practices that have been successfully applied by the Slovak National Public Health Institute. Adequate human resource policies are in place to ensure that trained staff can be retained for the intended assignments in the long term.

4. Institutional Framework:
The Ministry of Health (MoH) is the beneficiary institution and will assume overall responsibility for the management and control of the project. The MoH is the direct superior of the National Public Health Institute (NPHI), which is the prime recipient of the assistance.
The central workplace (NPHI) is located in Bratislava. Its Section of Epidemiology and Clinical microbiology of the National Public Health Institute, Trnavská 52, 82645 Bratislava, is the professional sponsor of the project. The NPHI has a nationwide scope of action and ensures supervision over the activity of 36 regional PHIs.
The implementation of component 1 of the project will be done at all PHIs, and that of components 2 and 3 at nine selected National Reference Centres (NRC). NRCs perform their activity as parts of PHIs.
Monitoring of and supervision over the progress and development of the entire project will be provided by a steering committee, which will include representatives of the MH, and NPHI. The EC Delegation will be invited to participate as observers. The SC will meet once a month or more frequently as needed.

We ensure, that necessary office space, equipment and personnel are available at the recipient and beneficiary institutions before the launch of the project.
In line with the Slovak Government’s decision dated 9 February 2000, all Phare funded projects will be co-financed from the State Budget. The co-financing of the investment component will be assured with a minimum contribution of 25%. National co-financing of the Investment component (equipment) will be included into the 2004 State budget. Additional national co-financing of about €0.3 million will cover costs including internet connection, accreditation fees, licences, and travel costs of Slovak participants during their study visits.

6. Implementation Arrangements:
6.1 Implementing Agency

<table>
<thead>
<tr>
<th>PAO: Director of CFCU - Mrs. Silvia Czuczorova</th>
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<tbody>
<tr>
<td>Address: Radlinského 32 Telephone: +421 2 57262 707</td>
</tr>
<tr>
<td>813 18 Bratislava Fax: +421 2 57262 727</td>
</tr>
<tr>
<td>Slovak Republic e-mail: <a href="mailto:cfcuschuczorova@mfsr.sk">cfcuschuczorova@mfsr.sk</a></td>
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6.2 Twinning

The institutional twinning partner will be the Ministry of Health of the Slovak Republic, which will assume overall responsibility for the project. The Ministry of Health will cooperate in project implementation with other institutions, in particular with the National Public Health Institute, which will be the recipient institution and will be responsible for professional aspects of the entire project. The PAA will be deployed at the office of the Ministry of Health and short-term seconded officials will be deployed at the office of the NPHI Bratislava and selected other locations.

The PAA will be deployed at the office of the Ministry of Health SR

- **Contact person:** Mrs. Zuzana Škublová
  - **Address:** Ministry of Health SR, Limbova 2, 837 52 Bratislava, Slovak Republic
  - **Tel.:** +421 5 937 3268, **fax:** +421 547 77 465, **e-mail:** poradca@health.gov.sk

Short-term seconded officials will be deployed at the office of the NPHI Bratislava

- **Contact person:** E. Máderová, M.D
  - **Address:** Sections of Epidemiology and Clinical microbiology, Trnavská 52, 82645 Bratislava, Slovak Republic
  - **Tel.:** +421 244455177, **fax:** +421 244372641, **e-mail:** maderova@szusr.sk

6.3 Non-standard aspects

*PRAG rules and the rules of the Twinning Manual will be strictly followed.*

6.4 Contracts

The project will be implemented with the following contracts:
1 Twinning covenant: € 0.51 million
1 TA € 0.5 million
1 Supply contract – hardware: € 0.214 million (Slovak co-financing included)
1 Supply contract – equipment: € 0.51 million (Slovak co-financing included)

7. Implementation Schedule

7.1. Call for proposals: 2nd Q 2003
7.2. Start of tendering: 1st Q 2004
7.3. Start of project activities: 1st Q 2004
7.4. Project Completion: 4th Q 2005

8. Equal Opportunity

Equal opportunity principles and practices in ensuring equitable gender participation in the project will be guaranteed, particularly as regards to selection of trainers and trainees for the training programme, where a balanced distribution of positions/places will be sought.

9. Environment:

The project has no relevant environmental effects.

10. Rates of Return

A rates of return analysis has not been undertaken because of the difficulty of expressing the project’s benefits in terms of either personal income or value added.

11. Investment Criteria

11.1 Catalytic effect:

The investment component of the Phare contribution will act as a catalyst for a Accession-driven priority action. Without Phare support the relevant Acquis elements would be implemented later.

11.2 Co-financing

The Government will contribute with at least 25 percent of total project costs.

11.3 Additionality

The Phare intervention does not displace other financiers.

11.4 Project readiness and Size

All preparatory work has been completed and the project is ready for implementation.

11.5 Sustainability

Relevant policies and regulations of the Slovak Government ensure that all activities funded under the scheme will yield results that comply with the European Union norms and standards. Governmental funding of the operation and maintenance of the project is ensured.

11.6 Compliance with state aids provisions

All actions will be carried out in line with the relevant stipulations of the Europe Agreement.

11.7 Contribution to National Development Plan: N/A

12. Conditionality and Sequencing
The project implementation will include the following milestones:

- Study visits of 4 Slovak experts in a EU Member State
- Software and hardware specification prepared by the working group
- Hardware purchase
- Software development and training of relevant user’s staff
- Running of the pilot projects
- Study visit of nine Slovak experts from NRC in respective workplaces abroad
- Purchasing of laboratory equipment for selected centres
- Training of the NRC staff to use special laboratory equipment
- Development of external quality control methods
- Accreditation process
- Pilot projects concerning EQAS.
ANNEXES TO PROJECT FICHE

1. Logical framework matrix in standard format
2. Detailed implementation chart
3. Contracting and disbursement schedule by quarter for full duration of programme (including disbursement period)
4. List of relevant Laws and Regulations
5. Institutional and legislative framework of surveillance of communicable diseases in the Slovak Republic
6. Laboratory equipment for nine National Reference Centres.
7. Specification of hardware equipment and basic software required.
**LOGFRAME PLANNING MATRIX**

**Strengthening of Communicable Diseases Surveillance and Control in the Slovak Republic**

<table>
<thead>
<tr>
<th>Overall objective:</th>
<th>Objectively verifiable indicators</th>
<th>Sources of Verification</th>
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<tr>
<th>Project purpose:</th>
<th>Objectively verifiable indicators</th>
<th>Sources of Verification</th>
<th>Assumptions</th>
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</table>
| Administrative and implementing structures concerning the Epidemiological and Laboratory control of CD upgraded and surveillance of CD strengthened. | The CD detection and response rate increased | ▪ Annual reports published in Bulletin of the Chief Hygienist of the Slovak Republic and on internet site of National Public Health Institute of the Slovak Republic  
▪ Evaluation reports on quality control results | The structure of public health service will remain stable |
<table>
<thead>
<tr>
<th>Results:</th>
<th>Objectively verifiable indicators</th>
<th>Sources of Verification</th>
<th>Assumptions</th>
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<tbody>
<tr>
<td>1 Slovak monitoring system of CD harmonised with EU, <em>Early Warning System</em> upgraded and staff trained.</td>
<td>Frequency of reports monitoring CD provided in real time  Receiving information up-to-dated  Expedition of the data transfer increased  Immediate access to monitored information</td>
<td>• Weekly, monthly and yearly analyses of infectious diseases occurrence including Influenza</td>
<td>Access to database of relevant information of communicable diseases  Co-operation with other subjects, providing relevant information about CD  Positive approach of institutions, representing relevant EU networks, towards Slovak integration ambitions</td>
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<td>2. National Reference Centres (NRC) network extended, existing NRC strengthened, and <em>Laboratory Assurance Quality System</em> in NRC implemented.</td>
<td>Data verification increased  Number of underreporting increased</td>
<td>NRCs Reports  monitoring</td>
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<td>3. External quality assurance system in clinical microbiology laboratories implemented</td>
<td>Proportion of 96 clinical microbiology laboratories involved in External Quality Assurance System (EQAS)</td>
<td>• Final reports on performed quality evaluation published in Bulletin of the Chief Hygienist of the Slovak Republic and on internet site of National Public Health Institute of the Slovak Republic</td>
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<td>Activities:</td>
<td>Specification of means</td>
<td>Specification of expenses</td>
<td>Assumptions</td>
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| 1. Harmonisation and upgrading of monitoring system of CD and EWS  
  1.1 Software specification and training of the staff  
  1.2. Systematic provisions for monitoring programmes  
  1.3. Pilot projects and implementations of the entire system at an international level  
  1.4. Harmonisation and integration of selected EU networks  
  2. National Reference Centres (NRC) network completed, existing NRC strengthened, and Laboratory Assurance Quality System in NRC implemented.  
  2.1. Equipping the selected centres with laboratory equipment  
  2.2. Training of relevant staff  
  2.3. Passing the accreditation process  
  2.4. Interconnection to the EU networks  
  3. External quality assurance system in clinical microbiology laboratories implementation  
  3.1. Developing standard methodological procedures for external quality assurance  
  3.2. Pilot project of external quality assurance | One Twinning arrangement:  
  One Pre-Accession Adviser (PAA) and two short-term experts  
  training, study visit  
  Service Contract: The TA will be selected with the purpose of developing the required software and training of competent staff  
  Supply  
  Fifty PCs with complete equipment  
  The same Twinning covenant as above mentioned:  
  Three short-term experts  
  Supply  
  Special laboratory equipment  
  The same contracts as in paragraph 2. | 0.51 MEUR  
  0.5 MEUR  
  0.214 MEUR (SK co-financing included) | • Adequate staff available  
  • NRC adequate equipped in time  
  • No unexpected special requirements of SNAS  
  • Capacity of SNAS to perform the accreditation |

**Preconditions:**  
Slovak experts and relevant workers timely available for project implementation
## Time Implementation Chart

**Strengthening of the Surveillance and Control of Communicable Diseases in the Slovak Republic**

<table>
<thead>
<tr>
<th>Project Component</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Q</td>
<td>2nd Q</td>
<td>3rd Q</td>
</tr>
<tr>
<td><strong>Twinning</strong></td>
<td></td>
<td></td>
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<tr>
<td>Study visits of 4 Slovak experts on respective workplaces in a EU MS</td>
<td></td>
<td></td>
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<tr>
<td>Software specification prepared by the working group</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software development</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Software training of relevant staff</td>
<td></td>
<td></td>
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<tr>
<td>Running of the pilot projects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study visit concerning 4 local experts from NRC in respective workplaces abroad</td>
<td></td>
<td></td>
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<tr>
<td>Training of the NRC staff to use special laboratory equipment</td>
<td></td>
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<tr>
<td>Accreditation process</td>
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<tr>
<td>Pilot projects concerning EQAS</td>
<td></td>
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<tr>
<td>Development of EQ methods</td>
<td></td>
<td></td>
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<tr>
<td><strong>Investment</strong></td>
<td></td>
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<tr>
<td>Purchase of hardware</td>
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<tr>
<td>Purchase of laboratory equipment for selected centres</td>
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</tbody>
</table>
### Cumulative Contracting and Disbursement Schedule

**Strengthening of the Surveillance and Control of Communicable Diseases in the Slovak Republic**

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th></th>
<th>2005</th>
<th></th>
<th>2006</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracted</td>
<td>0.5</td>
<td>1.0</td>
<td>1.55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disbursed</td>
<td>0.2</td>
<td>0.4</td>
<td>0.7</td>
<td>1.0</td>
<td>1.2</td>
<td>1.4</td>
</tr>
</tbody>
</table>
List of relevant Laws and Regulations

- Decision N° 2119/98/EC of the European Parliament and of the Council of 24 September 1998 setting up a network for the epidemiological surveillance and control of communicable diseases in the Community
INSTITUTIONAL AND LEGISLATIVE FRAMEWORK OF SURVEILLANCE OF COMMUNICABLE DISEASES IN THE SLOVAK REPUBLIC

Surveillance (epidemiological vigilance) of communicable diseases had been introduced gradually since the 60’s in Slovakia, and the duty of control of infectious diseases with subsequent anti-epidemic precautions had support in respective legislative regulations. The surveillance introduced has not been in principle changing due to the isolation of the SR from the Western European countries, although it is obvious today that the control of communicable diseases could be carried more effectively and perhaps at lower financial expenses. As a result of transformation changes in the society, namely in health sector (e.g. the option of choosing a GP, establishment of health insurance) along with increased migration of population, and change of social and economic conditions in society, re-evaluation of established control of infectious diseases in Slovakia is required, particularly from the standpoint of international co-operation and early signalling of occurrence of serious and uncommon communicable diseases. It is necessary to reach the harmony in working methods, and in definitions of diseases, and integration of Slovakia into the international network for surveillance of infectious diseases with the purpose of their early identification and signalling in the international scope. The surveillance must be based on national priorities and pooling of minimal amount of highly effective data.

Legislation

The aims of the National Public Health Policy at the area of public health are legislatively regulated by the Act of the Parliament of the SR No. 272/1994 Coll. on the Health Protection of the People as amended by subsequent regulations, and by the Act of the Parliament of the SR No. 277/1994 Coll. on Public Health Care, as amended by subsequent regulations. The rights and duties of the State administration organs, municipalities, and other legal entities and physical persons are being regulated by the Act of the Parliament of the SR on the Health Protection of the People. This act regulates not only the precautions on health protection but also the precautions in prevention of infectious diseases. This law was extended by respective implementation regulations of the Ministry of Health of the Slovak Republic including regulations in protection of health from communicable diseases. Surveillance and control of infectious diseases are legislatively regulated by the Decree of the Ministry of Health of the SR (MoH SR) No. 54/2000, by which the decree of the MoH SR No. 79/1997 on Measures for the Prevention of Communicable Diseases is amended and supplemented, and also by the Decree of the MoH SR No. 109/1995 on Hygienic Requirements for the Operation of Health Care Facilities. In addition to the above, the surveillance and control of infectious diseases preventable by vaccination is regulated by the Document of the MoH SR No. HE-2122/1990 – Immunizing Programme of the SR, and by the Instruction of the MoH SR No. 1729/99-10 on Vaccination and Control of Vaccination in the SR.

Under the legislation, it is obligatory to report all infectious diseases in Slovakia. The data reported are processed and stored centrally in the National Register of CD at the Public Health Institute (PHI) Banská Bystrica. Acute diseases of respiratory tract including influenza are reported by GPs regionally to pertinent State Healthcare Institution once a
week; during influenza epidemic also in shorter intervals. Data on influenza and influenza-like illnesses are nationwide processed at the NPHI SR. Angina, conjunctivitis, enterobiasis, staphylococcal catarrhal disease, stomatitis, and sexual diseases except for syphilis, gonorrhea, chancroid, lymphogranuloma venerum, and HIV infections, unless nosocomial infections are involved, are to be reported during large-scale occurrence. In addition to the above mentioned reporting, the following diseases or suspected diseases are to be reported immediately to State Healthcare Institutions personally, by phone, fax or e-mail: poliomyelitis including acute flacid paralysis, measles, meningococcal meningitis, cholera, plague, and other life-threatening infections, quickly spreading infections, and outbreaks.

**Implementation of legislation**

Surveillance of infections diseases is coordinated by the Chief Hygienist of the SR and provided for by the National Public Health Institute of the SR, by 36 regional Public Health Institutes (PHIs). Section of epidemiology and section of clinical microbiology of the NPHI are responsible for epidemiological and laboratory surveillance of CD in the Slovak republic. Section of epidemiology collects and analyses data on occurrence and distribution of CD. Section of clinical microbiology concludes National Reference Centres for selected infectious diseases, which are prioritised from the point of their seriousness, elimination, or eradication.

Shortcomings have been observed in the implementation of obligations imposed by legislation upon natural persons and legal entities, particularly in the field of early reporting of communicable diseases with emphasis on epidemics and unusual, serious and quickly spreading communicable diseases, which shortcomings may be the cause of the high price for late implementation of anti-epidemical measures. Information system of infectious diseases at the level of Public Healthcare, of districts and regions, and at the international level is functional, however, it is necessary to support this system at the level of Primary Healthcare, and to improve their mutual interconnection. Support is also required for improvement of availability of information to the population.

**Strengthening of legislation implementation**

In general, the surveillance of infectious diseases is compatible with the EU member states and with associated countries of Central and Eastern Europe. However, in comparison with the EU member states, the surveillance implemented is more demanding for institutional and personal support, which means that it is also financially more costly.

Priority in the SR at this stage should be the support of co-operation and coordination in the framework of the European Region, and improvement of prevention and control concerning early warning and reactions. Slovakia, as an associated country, should be, as soon as possible, integrated into the network for surveillance of infectious diseases developed in the EU member states and in associated countries. It seems that epidemiological surveillance could have been more effective, and pooling of epidemiological data more relevant, if it was aimed mainly at communicable diseases preferential in Slovakia, infectious diseases preventable by vaccination, and communicable diseases monitored within the international scope.
The Early Warning System

The Early Warning System is a tool that allows timely and accurate dissemination of public health event information leading to effective intervention measures including investigative and containment activities.

Timely recognition of outbreaks requires early warning system to detect these events before they develop into public health crisis. Prompt detection depends on careful monitoring by modern surveillance system and a thorough understanding of trends in incidence and distribution of known infectious agents. The ability to detect what is new, emerging or re-emerging depends on the capacity to identify and track the routine as well the unusual. To develop and implement rapid, effective prevention and control measures for epidemics, good surveillance system is needed to detect infectious diseases before they become widespread. A good national surveillance and appropriate laboratory support are critical to an effective defence against these threats. They are the most important tools for determining which infectious diseases are emerging, or causing serious public health problems.

National EWSs are pillars to international alert and response. In the Slovak Republic, the system is performed by fax messages regularly each Friday. Content of the messages: Outbreaks basic information: diagnosis, locality of occurrence, number of cases, number of exposed persons, suspected transmission factor, anti-epidemic measures Sporadic diseases occurrence of highly contagious, clinically serious infections, selected neuroinfections including Polio-like diseases, occurrence of diseases included in the Immunisation Programme, etc.

National Reference Centres

National Reference Centres are highly specialised sites providing complete epidemiological and laboratory surveillance of infectious diseases at the national level. They usually consist of epidemiological and laboratory parts. They are established particularly on the basis of the National Public Health Institute (NPHI) in Bratislava and in Public Health Institute (PHI) in Banska Bystrica and PHI Košice, which are funded by the state budget. More NRCs are established on the basis of ÚPKM and on the basis of departments of clinical microbiology at certain healthcare institutions, which are funded by health insurance companies.

In former Czechoslovakia, the laboratory surveillance of most of infectious diseases was coordinated by the NRCs at the SZÚ in Prague. After the split of Czechoslovakia, the MH SR started to build NRCs for the most important diseases in Slovakia. Hitherto, 18 National Reference Centres have been established. Some of them are involved in activities of international importance in the framework of programmes and projects of state healthcare organisations and recently also of the EU.
LABORATORY EQUIPMENT FOR 9 NATIONAL REFERENCE CENTRES

1. **2x Portable Liquid Nitrogen Storage Containers /Dewar flasks/:**
   TOTAL approx. 5000 EUR per item
   PURPOSE: For long-term storage and easy retrieval of microbial samples with minimal LN$_2$ usage. These Portable Cryopreservation vessels have optional roller bases for easy of mobility.
   PARAMETERS:
   - LN$_2$ capacity 80 l
   - Neck Diameter 152 mm
   - Multiply sized containers are available to provide rack/kanister storage 180-3.500 vials /2ml /
   LABORATORY: NRC for meningococci

2. **4x Class II Microbial Safety Cabinets:**
   TOTAL approx. 50000 EUR per item
   PURPOSE: Class II offer safety for user, the research material and the environment. manipulation involving high-risk microorganisms can be performed safely.
   PARAMETERS:
   - Outside Dimension 1485x1290x790 mm, Laminar DownflowM/sec +/- 0.4
   - Key- switch with function selection and lock
   - Monitoring of all safety functions
   - Electronically controlled air-speed
   - Stainless steel interior
   - Prefilter with stainless steel drip tray
   - Double exhaust HEPA- filter to meet BS 5726
   - UV armature with hour counter
   - Bunsen burners
   LABORATORY: NRC for salmonellosis, NRC for poliomyelitis, NRC for influenza, NRC for Arbovirus and Haemorrhagic Fever

3. **6x Microbial Incubators :**
   TOTAL approx. 15000 EUR per item
   PURPOSE: Basic equipment for cultivation of microorganisms.
   PARAMETERS:
   - The working chamber volumes range are: 131 liter, 233 liter,
   - Working Temperature up +5 C to 70$^\circ$ C
   - Heating-up times to 37$^\circ$ C 41, 71,
   - Power consumption kW 0.47, 0.57
   - Precision temperature control is ensured by a microprocessor-based controller with a large display
   - Incubation designed with perforated shelves made of corossion resistant stainless stell For holding samples and culture containers. The innercasing is also made of corossion-resistant stainless steel
   LABORATORY: NRC for poliomyelitis, NRC for influenza, NRC for meningococci, NRC for MMR, NRC for diphtheria, NRC for salmonelloses
4. **1x Pulsed-Field Electrophoresis /PFGE/**  
**TOTAL approx. 3700 EUR**  
**PURPOSE:** Equipment is used for Microbial-Strain-Typing in Molecular Epidemiology. Pulsed-field electrophoresis resolves DNA by alternating the electric field between spatially pairs of electrodes, causing DNA molecules as large as several megabases to reorient and move at different speeds through the pores in an agarose gel.  
**PARAMETERS:**  
- The equipment have CHEV/Clamped Homogenous Electrical Field/system combine experience in PFGE with improvements in related technology, programmable autonomously controlled electrodes. Separation of chromosomal-size DNA can be achieved in almost half time, without sacrificing resolution. Angle electrophoresis from 90-120°.  
- For the DNA Damage and Repair Studies  
- Chromosome Rearrangements  
- Large Protein Separation  
**LABORATORY:** NRC for menigococci

5. **1x Microtiter AM 80 Automatic inoculator:**  
**TOTAL approx. 6200 EUR**  
**PURPOSE:** For inoculation of microbial suspension to the microplate  
**LABORATORY:** NRC for menigococci

6. **3x Votex**  
**TOTAL approx. 1800 EUR per item**  
**PURPOSE:** For mixing of bacterial suspension  
- 1x manual mixing contents of test tubes or small flasks  
**LABORATORY:** NRC for poliomyelitis, NRC for menigococci, NRC for salmonelloses

7. **5x Freezer, 200 liter -20 C:**  
**TOTAL approx. 4500 EUR per item**  
**PURPOSE:** For the storage of the bacterial strains, enzymes etc.  
**LABORATORY:** NRC for poliomyelitis, NRC for influenza, NRC for menigococci, NRC for MMR, NRC for salmonelloses

8. **5x Refrigerator 350 l:**  
**TOTAL approx. 2500 EUR per item**  
**PURPOSE:** For the storage of biological materials, cultivation medium, etc.  
**LABORATORY:** NRC for poliomyelitis, NRC for diphtheria, NRC for menigococci, NRC for MMR, NRC for salmonelloses

9. **1x Low-speed centrifuge:**  
**TOTAL approx. 3700 EUR**  
**PURPOSE:** For cell spinning after trypsinisation the cell culture  
**PARAMETERS:**  
- Non-refrigerated  
- Swinging out rotor  
- Angle 7 x 15 ml, 2451 x g  
- Angle 1 x 50 ml, 2451 x g  
- Speed RPM input in increments of 10  
- Centrifugation chamber of stainless steels  
- Running time t/min
LABORATORY: Cell bank

10. 1x Water bath:
   TOTAL approx. 1000 EUR
   PURPOSE: Water bath apparatus is for heating of cell culture growth media and other reagents at 37°C and for inactivation Fetal Calf Serum at 56°C. These conditions are important for the standardization of quality of cell cultures.
   PARAMETERS:
   - Working temperature range 0 to 100°C
   - Temperature stability 0,1°C
   - Filling volume 10-15 Lit.

LABORATORY: Cell bank

11. 2x Cell culture incubator:
    TOTAL approx 5000 EUR per item
    PURPOSE: For in vitro cell culture incubation at 37°C. Standardisation of optimal temperature is important for the quality of cell cultures used in the virological investigation.
    PARAMETERS:
    - Temperature range 0 to 99.9°C
    - Chamber volume 300 – 600 Lit.
      - Microprocessor control system
      - Temperature control
      - Independent safety overtemperature protection
      - Stainless steel chamber interior and shelves
      - Horizontal air flow

LABORATORY: Cell bank, NRC for poliomyelitis

12. 1x Deep Freezer:
    TOTAL approx. 2500 EUR
    PURPOSE: For storage of the vials with prepared cells for freezing in liquid nitrogen and storage of Fetal Calf Serum and other cell culture reagents.
    PARAMETERS:
    - Chamber volume 80 – 100 Lit.
    - Temperature range -85°C
    - Temperature control system

LABORATORY: Cell bank

13. 1x Hot Air Sterilizer:
    TOTAL approx. 4000 EUR
    PURPOSE: For sterilization and drying of laboratories glass.
    PARAMETERS:
    - Interior volume 400 – 700 Lit.
    - Temperature up to 300°C
14. **1x Vapour Sterilizer (Autoclav):**

**TOTAL approx. 45000 EUR**

**PURPOSE:** All infectious materials and their fluids should finally be decontaminated by autoclaving for fear of contamination of the working environment.

**PARAMETERS:**
- Interior volume 400 – 700 Lit.
- Temperature control system

**LABORATORY:** Cell bank

15. **1x Apparatus For Ultra Clean Water Production:**

**TOTAL approx. 3700 EUR**

**PURPOSE:** All infectious materials and their fluids should finally be decontaminated by autoclaving for fear of contamination of the working environment.

**PARAMETERS:**
- Conductivity below 2 uS/cm
- Production 30 – 40 l/hour

**LABORATORY:** Cell bank

16. **1x Vertical deep freezer 300 l:**

**TOTAL approx. 11100 EUR**

**PURPOSE:** For cold storage of microbial samples, monoclonal antibody, media, reagents, etc.

**PARAMETERS:**
- Acid resistant steel-freezer chamber in high thickness stainless steel.
- Working temperature -80 C, range -60 to -80 C, with accuracy +/- 1 C,
  - electronic
  - thermoregulation with acoustic alarm at -68 C.
  - Safety key-lock

**LABORATORY:** NRC for meningococci

17. **1x Shaker:**

**TOTAL approx. 1700 EUR**

**PURPOSE:** For shaking of bacterial suspension

**PARAMETERS:**
- Table shaking with heating air.
  - Temperature max 60 C, 30,5 x 42 cm, rpm 25-400

**LABORATORY:** NRC for meningococci

18. **1x Thermostat Ecoline with transparent wall:**

**TOTAL approx. 1900 EUR**

**PARAMETERS:**
- Temperature range 20-100C
  - +/- 0,02C
  - LCD display for real temperature, wall from polycarbonate, Variopumpe

**LABORATORY:** NRC for meningococci

19. **High speed centrifuge - for sample preparation up to 14 000 rpm**

**TOTAL approx. 1800 EUR**

**LABORATORY:** NRC for MMR
20. **Cooled centrifuge for 4l suspension**
   TOTAL approx. 10 000 EUR
   LABORATORY: NRC for menigococci

21. **1x CO2 incubator with temperature 37° C for cells growth (220 l)**
   TOTAL approx. 10 000 EUR
   LABORATORY: NRC for influenza

   **2x CO2 incubator with temperature 35° C for virus growth (60 l)**
   TOTAL approx. 13 400 EUR per item
   LABORATORY: NRC for influenza, NRC for poliomyelitis

22. **2x PCR apparaturs - thermocycler, elektrophoresis**
   TOTAL approx. 13 000 EUR per item
   PURPOSE: for molecular diagnostic methods
   LABORATORY: NRC for influenza, NRC for Arbovirus and Haemorrhagic Fever
SPECIFICATION OF HARDWARE EQUIPMENT AND SOFTWARE REQUIRED.

Workstation, **50 pc (estimated price: 2500 EUR per pc)**
- Intel based P4 workstation, min 2 GHz
- min 256 MB RAM
- min 40 GB HDD
- FDD
- CD ROM or DVD
- LAN adapter 100 MB
- Keyboard, mouse
- monitor min 17”
- UPS + SW management
- laser printer
- Windows XP Professional OS

**Server**, 2 pc (estimated price: 8500 EUR per pc)
- min Intel based P4, min 2 GHz, RACK mount
- min 512 MB RAM
- min 4 x 38 GB SCSI HDD RAID 5
- FDD
- CD or DVD RW
- LAN adapter 100 MB
- Keyboard, mouse
- monitor 17”
- laser printer with duplex printing
- UPS RACK mount + SW management
- Backup device RACK mount + SW management
- Windows 2000 Advanced server + CAS (client licenses)

**Software**

For workstation (estimated price: 250 EUR per workstation)
- Database environment for local data processing (like MS Access, …)
- Client data communication software (like MS Outlook, Lotus Notes, …)
- General desktop SW (like MS Office, …)

For Server (estimated price: 4500 EUR)
- Database environment for data processing + CAS (like Oracle, MS SQL Server, …)
- Data communication software (like MS Exchange, Lotus Notes, …)
- System management SW (like MS SMS, TNG, …)

Application development software (estimated price: 50.500 EUR)