Standard Summary Project Fiche

1  Basic Information
1.1  CRIS Number: 2003-004-995-03-25
1.2  Title: Equipment supply to the Slovak Customs Laboratory
1.3  Sector: Customs union
1.4  Location: Bratislava, Slovak Republic

2  Objectives
2.1  Overall Objective(s):
Complete the preparation of the Customs Directorate of the Slovak Republic for the administration of EU CAP and for tasks resulting from the excise administration.

2.2  Project purpose:
Facilitate the determination of origin authenticity of goods covered by the customs tariff chapters on agricultural products and tobacco – spirit, alcoholic beverages, wine, beer, tobacco, saccharose, and products thereof.
Support the detection of tax evasions and fraud in trade with agricultural commodities.

2.3  Accession Partnership (AP) and NPAA priority
Accession Partnership 2001
Customs union: "ensure sufficient resource allocation for the collection of excise duties by the customs administration and to ensure proper management of all aspects of Community policies managed by the customs authorities, and in particular with respect to the Common Agricultural Policy".

NPAA 2001
Chapter 25: Customs Union (medium-term priorities): to complete the Customs Laboratory and to finalise the first phase of its accreditation by the end of 2002, to prepare the customs administration for tasks resulting from the CAP of the EU by the end of 2004 and to prepare the customs administration for the full administration of all excise duties and completion of units of customs administration involved in the administration of excise duties by the end of 2004.

2.4  Contribution to National Development Plan: N/A
2.5  Cross Border Impact: N/A

3  Description
3.1  Background and justification:
The EU accession process and analysis of the Regular Report of the European Commission result in the need of the Slovak Customs to complete the Customs Laboratory to become an adequate and efficient workplace capable of accomplishing tasks ensuing from the implementation of the Acquis
In order to be able to determine the authenticity and correct origin of several agricultural products, the Customs laboratory of the Slovak Republic should be provided with the two following instruments:

1. **The Site Specific Natural Isotope Fractionation Studied by Nuclear Magnetic Resonance (SNIFT-NMR)**, which enables the identification of specific organic molecules providing the possibility of deep identification of the time and place of origin of agricultural products. An NMR spectrometer is a device for measurement of nuclear magnetic resonance, a method of measuring molecule nuclei. Each region has a unique composition of isotopes, which is transferred to the agricultural products. The NMR resonance of the molecules is influenced by the regional conditions. Having a sufficiently large database of the NMR spectra of a given agricultural commodity, it is possible to compare a measured spectrum with the database and so to identify the origin and other parameters of the agricultural commodity in question. This will allow to determine:
   - The origin of the type of product – what type of agricultural crop (e.g. fruit, sugar beet, cereals) is used for spirit production
   - The regional origin of goods – whether product was produced in the Slovak Republic, a EU member states or a third country
   - The technological origin of goods – e.g. whether spirit is produced by fermentation or synthetically.

In the Slovak Republic, there is currently no NMR. The closest laboratory is in Prague and there is practically no free capacity for the need of Slovak Customs.

2. **The Gas Chromatograph Isotope Ratio Mass Spectrometer (GC IR MS)** serves for identification of isotopes in the samples of the goods. The isotope distribution of the particular elements is determined by the regional factors. The second factor influencing the isotope distribution is the biological factor. The isotope mass spectrograph can be used mainly for:
   - Determination of the biological origin of the goods – authentication of natural spirit, natural aromatic substances, natural fruit juices, honey, etc.;
   - Determination of the regional origin of the goods – spirit, wine, fruit juices, vegetable oils, milk and dairy products.

The combination of the two instruments is the most reliable and secure method to determine authenticity and correct origin of several agricultural products. On the basis of an analysis conducted by the Slovak customs laboratory, the total number of samples to be analysed by NMR techniques and combination of Nuclear Magnetic Resonance (NMR) with Gas Chromatography – Isotopic Ratio Mass Spectrometry (GC/IRMS) is 2800 yearly (see Annex 5). This estimation includes only the analyses requested by Slovak Customs Administration. The total number of the NMR analysed samples may increase by samples requested by other State authorities.

The need to provide both instruments to the Slovak Customs Laboratory is justified by the need to ensure the effective implementation of the customs legislation applicable to import, export and transit of goods liable to excise, the administration of excise on
importation of spirit, beer, wine, and tobacco itself, as well as determination of origin of goods for preferential treatment.

The need to verify the authenticity and the origin of agricultural products results from the application of the EU CAP policy. Through the NMR and GC IR MS, it is possible to determine the genuine origin of the agricultural products and distinguish simulation of the genuine origin. It is applicable to a wide range of analytical matrix, such as spirit, wine, beer, fruit alcoholic beverages, fruit juice, fruit distillates, honey, vegetables oils, milk, saccharose, etc.

These instruments generate absolute proof in cases of violation of effective legal norms applicable to import of goods and administration of excise. They differentiate the genuine agricultural product from the false one, and thus contributing to prevent misuse of the export refunds policy in the field of agricultural products

So far, neither the Slovak Customs Administration, as an executive body of the state administration responsible for duties, customs quota, excise, and CAP, nor the other control institutions of the Slovak Republic, have these instruments. The Customs Laboratory of the Customs Directorate of the Slovak Republic was established in 1993 and since 1st September 2002 is an independent body within the Customs Administration. The accreditation process is on going. The new premises for the Laboratory will be made available by July 2004. The new building of the Customs Laboratory will enable adequate and stable working and operating conditions with continuous operation of both NMR and GC/IRMS equipment

The availability of both instruments will provide the technical infrastructure for all units of the customs administration involved in the fight against illegitimate import, export and transit of highly taxable and leisure goods, as well as against economic criminal activities in customs and tax frauds. The equipment would also be available to the Slovak Tax Administration.

3.2 Linked activities:

There are no linked projects in this field supported through foreign assistance.

3.3 Results:

**Result 1:** NMR Equipment and GC IR MS installed at the premises of the Customs Laboratory and operative.

**Result 2:** Staff of the Customs Directorate responsible for operating the supplied Equipment adequately trained.

3.4 Activities:

3.4.1 Supply of NMR Equipment and Related Technology.

This activity consists of four sub-activities:

1) The supply of NMR Spectrometer and its installation in the Customs Laboratory (€ 0.75 Million)

2) In addition to the NMR equipment itself, the related technologies will be installed. This goes for fermenting and distillation, and above all distillation facilities for multi-level distillation in order to achieve necessary purity of the analysed substance suitable for the measurement in NMR Spectrometer (€ 0.24 Million);
3) Supply and installation of the software including the spectrum library and database methodology (€ 0.25 Million);

4) Training of the operators provided by the manufacturer of the NMR spectrometer. This will include the assistance in development and validation of analytic methods. The training will be divided into two stages. First stage will take place at the premises of the supplier of NMR Spectrometer with the participation of operators from the Customs Laboratory – max. 2 staff members for at least 3 weeks. The second stage of training takes place after supply and installation of NMR Spectrometer in the Customs Laboratory. Trainers being the staff of the supplier. This stage takes place in two parts. First part immediately after installation of NMR Equipment for 2 weeks and the second part after six months for the duration of 1 week (€ 0.06 Million).

3.4.2 Supply of GC IR MS Equipment and Related Technology.

This activity consists of three sub-activities:

1) The supply of GC IR MS Equipment and its installation in the Customs Laboratory (€ 0.287 Million)

2) Accessories for GC IR MS (Elemental Analyzer, “Sulfur” Conversion Kit, Interface for linking an elemental analyzer to a isotope mass spectrometer, Compressor and other kit) (€ 0.066 Million);

3) Training of the operators provided by the manufacturer of the GC IR MS (5-day operator training course) This will include also the assistance in development and validation of analytic methods. (€ 0.018 Million);

3.5 Lessons learned: not applicable

4 Institutional Framework

The Ministry of Finance is the beneficiary institution. It will have the overall responsibility for the management and control of the project.

The Ministry of Finance will delegate the responsibility for carrying out the project to the Customs Laboratory of the Slovak Customs Directorate. The Customs Laboratory is located in Bratislava.

The 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 Ministry of Finance and the Customs Administration – Customs Laboratory of the SR Customs Directorate. The EC Delegation will be invited to participate as observer. The Steering Committee will meet once a month or more frequently as needed.
5  Detailed Budget (€ Million)

<table>
<thead>
<tr>
<th>Component</th>
<th>Phare Support</th>
<th>National Co-financing*</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment Support</td>
<td>Institution Building</td>
<td>(=I+IB)</td>
</tr>
<tr>
<td>NMR Supply</td>
<td>0.920</td>
<td>0.060</td>
<td>0.980</td>
</tr>
<tr>
<td>GC IR MS Supply</td>
<td>0.252</td>
<td>0.018</td>
<td>0.270</td>
</tr>
<tr>
<td>Total</td>
<td>1.172</td>
<td>0.078</td>
<td>1.25</td>
</tr>
</tbody>
</table>

*) In line with the Slovak Government’s decision dated 9 February 2000, all Phare funded projects including an investment component will be co-financed from the State Budget. The co-financing of the investment component will be ensured with a minimum contribution of 25 percent. National co-financing of the Investment component (equipment) will be included into the 2004 state budget.

6  Implementation Arrangements

6.1  Implementing Agency

**PAO:** Director of CFCU - Mrs. Silvia Czuczorova  
Address: Radlinského 32, Bratislava 813 18, Slovak Republic  
Telephone: +421 2 57262707  
Fax: +421 2 57262727  
e-mail: cfcusczuczorova@mfsr.sk

**Beneficiary organisation:**  
The Customs Directorate of the SR and Ministry of Finance of the SR will be responsible for implementation and co-ordination of project activities.

**Customs Directorate of the Slovak Republic**  
Contact Person: Ing. Jozef Gönczöl  
Deputy Director General  
Address: Mierová 23, Bratislava 815 11  
Tel: +421 2 4827 3191  
Fax: +421 2 4342 1879  
e-mail: jgonczol@colnasprava.sk

6.2  Twinning: N/A

6.3  Non-standard aspects

The project will be implemented according to the rules of the Practical Guide for Phare, ISPA and SAPARD contracting procedures.

6.4  Contracts

6.4.1. Supply of the NMR Equipment (supply contract with service component) including accessories and software - 1.3 M€ (including co-financing from the Slovak Government)
6.4.2 Supply of the GC IR MS Equipment (supply contract with service component) including the accessories and software - 0.371 M€ (including co-financing from the Slovak Government)

Implementation Schedule

7.1 Start of tendering: 1st Quarter of 2004
7.2 Start of project activity: 3rd Quarter 2004
7.3 Project completion: 1st Quarter of 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: N/A

10 Rates of return: N/A

11 Investment criteria:

11.1 Catalytic effect:
The Phare contribution will act as a catalyst supporting accession-driven actions in the field of customs co-operation. Without the Phare support, objectives in these areas would be achieved at a much later stage.

11.2 Co-financing
The Government will contribute with at least 25 percent of the investment component of the project.

11.3 Additionality
The Phare intervention does not displace other financiers.

11.4 Project readiness and Size
The project is mature for implementation.

11.5 Sustainability
Relevant policies and regulations of the Government ensure that all equipment funded under the scheme will comply with the European Union norms and standards. Governmental funding of the operation and maintenance of the laboratory are ensured.

11.6 Compliance with state aids provisions: N/A

11.7 Contribution to National Development Plan: N/A

12 Conditionality and sequencing

- Reconstruction of the building which will accommodate the Customs Laboratory (paid from national resources) completed by July 2004 – Actual delivery of the equipment after completion of the above mentioned restructuring works.
The most important stages of the project:

- Detailed technical specification for the equipment and related technology completed: 4th Quarter 2003;
- Launch of the tendering for the supply of the Equipment: 1st Quarter 2004;
- Supply of the equipment: 3rd Quarter 2004
- Training completed: 1st Quarter 2005
- End of project: 1st Quarter 2005

**ANNEXES TO PROJECT FICHE**

1. Logical framework matrix in standard format (compulsory)
2. Detailed implementation chart (compulsory)
3. Contracting and disbursement schedule by quarter for full duration of programme (including disbursement period) (compulsory)
4. Annex: Brief technical specifications and price estimates
5. Analysis of needs for NMR and GC IR MS analytical techniques for use in the Slovak Customs laboratory
## LOGFRAME PLANNING MATRIX FOR PROJECT

**Programme number:** 2003-004-995-03-25  
**Contracting period expires:** 30.11.2005  
**Disbursement period expires:** 30.11.2006  
**Total budget (MEUR):** 1.671 including co-financing from the Slovak Government  
**Phare budget (MEUR):** 1.25

### Overall objective
- Complete the preparation of the Customs Directorate for the administration of EU CAP and the excise administration

### Project purpose
- Determination of origin authenticity of goods (agricultural products, tobacco, spirit, alcoholic beverages, wine, beer, saccharose and products thereof)
- Efficient detection of tax evasions and subsidise frauds

### Results
1. NMR Equipment and GC IR MS installed at the premises of the Customs Laboratory and operational.
2. Staff of the Customs Directorate responsible for manipulation with supplied equipment adequately trained

### Activities
1. Procure and install NMR Spectrometer, accessories, SW and spectra library, and train operators;
2. Procure and install GC IR MS, accessories, SW and spectra library, and training of operators and train operators

### Objectively verifiable indicators

<table>
<thead>
<tr>
<th>Activities</th>
<th>Means</th>
<th>Costs specification (€ Million)</th>
<th>Assumptions</th>
</tr>
</thead>
</table>
| 1. Supply contract (NMR) total: MEUR 1.3  
1.1. NMR device MEUR 0.750  
1.2. Related technology MEUR 0.240  
1.3. Software and libraries MEUR 0.250  
1.4. Training MEUR 0.06  
2. Supply contract (GCIR) total MEUR 0.371  
2.1. GC IR MS device MEUR 0.287  
2.2. Related technology MEUR 0.066  
2.3. Training MEUR 0.018 | Adequately qualified staff available for the operation of the supplied equipment

### Preconditions:
- Delivery of the equipment possible only after completion of the premises for the new Laboratory
Annex 2

Equipment for the Slovak Customs Laboratory

**Detailed implementation chart**

<table>
<thead>
<tr>
<th>Supplies of equipment</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>D D D T T T T T T T T</td>
<td>D D D T T T T T T T T T</td>
<td>1 1 1 1 1 1 1 1 1 1 1</td>
<td>1 1 1 1 1 1 1 1 1 1 1</td>
</tr>
</tbody>
</table>

D:  Design
T:  Tendering and Contracting
I:  Implementation
### Project Title: Equipment for the Slovak Customs Laboratory

**Contracting and disbursement schedule (€ Million) (including Slovak co-financing)**

<table>
<thead>
<tr>
<th>Year</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disbursed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annex 4

Equipment for the Slovak Customs Laboratory - Summary Technical Specifications

I. SNIFT – NMR:

The supply consists of three parts:

1. Digital nuclear magnetic spectrometer
2. Accessories
3. Evaluation software and library of NMR spectra

Their basic technical specifications are:

1. Digital nuclear magnetic spectrometer

- Magnet 500 MHz; (€ 0.22 Million)
- OneBay spectrometer; 1 (€ 0.33 Million)
- Control system with digital acquisition and communication computer, digital synthetiser, digital temperature control, digitally controlled fully linear amplifier, digital control of magnet functions; (€ 0.11 Million)
- Autosampler; (€ 0.07 Million)
- Operation software; Workstation, monitor and printer (€ 0.02 Million)

2. Accessories (sample preparation technology)

- Battery of 6 distillation units (6x500 W); (€ 0.144 Million)
- Circulate cooler for the distillation unit (4000 W); (€ 0.029 Million)
- Titrator Karl - Fischer 1 (€ 0.017 Million)
- Automatic densitometer (€ 0.024 Million)
- Centrifuge for sample sedimentation (€ 0.012 Million)
- Analytical balance (€ 0.014 Million)

3. Evaluation software and library of NMR spectra

- Evaluation software compatible with the operation software of the NMR spectrometer enabling identification of the measured NMR spectra with the spectra in the database (library); (€ 0.05 Million)

- Database (library) of the standard isotope values of the food and food complements of different locations enabling determination of origin of the samples. 2 The priority items are alcohol, alcoholic beverages, wine, sugar, fruit juices, tobacco. Data carrier: compact discs. (€ 0.2 Million)

---

1 This is not a brand name
2 Using the evaluation SW
II. GC IR MS:

The supply consists of two parts:

1. *Gas chromatography and Isotope Ratio Mass Spectrometer*
2. *Accessories*

Their basic technical specifications are:

1. *Gas chromatography:*
   - Gas chromatograph (€ 0,076 Million)
   - On-Column Injector (€ 0,006 Million )
   - FID – Flame Ionization Detector (€ 0,008 Million)
   - Autosampler (€ 0,027 Million)
   - Spare Kit for GC (€ 0,005 Million)
   - Isotope Ratio Mass Spectrometer (€ 0,144 Million)
   - H/D Collector System (€ 0,012 Million)
   - Differential Pumping Module (€ 0,009 Million)

2. *Accessories*
   - Elemental Analyzer (€ 0,043 Million)
   - “Sulfur” Conversion Kit (€ 0,006 Million)
   - Interface for linking an elemental analyzer to isotope mass spectrometer (€ 0,013 Million)
   - Compressor (€ 0,003 Million)
   - Other Spare Kit (€ 0,01 Million)
Annex 5

Analysis of needs for NMR and GC IR MS analytical techniques for use in the Slovak Customs laboratory

<table>
<thead>
<tr>
<th>Matrix</th>
<th>Utilisation appropriateness of NMR</th>
<th>Utilisation appropriateness of GC IRMS</th>
<th>Needs of Customs Laboratory</th>
<th>Estimated number of samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Wine</td>
<td>++</td>
<td>+</td>
<td>1.1, 1.2</td>
<td>600</td>
</tr>
<tr>
<td>2 True distillation products</td>
<td>+</td>
<td>+</td>
<td>2.1</td>
<td>450</td>
</tr>
<tr>
<td>3 Spirit</td>
<td>++</td>
<td>+</td>
<td>3.1, 3.2</td>
<td>450</td>
</tr>
<tr>
<td>4 Honey</td>
<td>-</td>
<td>++</td>
<td>4.1, 4.2</td>
<td>40</td>
</tr>
<tr>
<td>5 Vegetable oils</td>
<td>++</td>
<td>+</td>
<td>5.1, 5.2</td>
<td>10</td>
</tr>
<tr>
<td>6 Fruit juices</td>
<td>+</td>
<td>+</td>
<td>6.1, 6.2, 6.3, 6.4, 6.5</td>
<td>400</td>
</tr>
<tr>
<td>7 Sugar</td>
<td>+</td>
<td>+</td>
<td>7.1, 7.2</td>
<td>600</td>
</tr>
<tr>
<td>8 Other commodities</td>
<td>+++</td>
<td>+</td>
<td>8.1, 8.2, 8.3, 8.4, 8.5, 8.6</td>
<td>250</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td><strong>2800</strong></td>
</tr>
</tbody>
</table>

The total number of samples to be analysed by NMR techniques and combination of Nuclear Magnetic Resonance (NMR) with Gas Chromatography – Isotopic Ratio Mass Spectrometry (GC/IRMS) is 2800 yearly. In this estimate only the analyses requested by Slovak Customs Administration are given. The total number of the NMR analysed samples may increase by samples requested by needs of other State authorities. Such as the samples from the above listed matrices analysed for the needs of the Criminal Laboratory, and the State Veterinary and Food Inspection services. The new building of the Customs Laboratory will enable adequate and stable working and operating conditions with continuous operation of both NMR and GC/IRMS equipment.

Detailed description of items

1. Wine

1.1 Authentication of wines

The best method is use of combination of both GC/IRMS and SNIF- NMR

1.2 Determination of geographical origin of wines

SNIF- NMR is dominant analysis method here. Since 1991 the EU has created a database of wine authenticity using this method.
2. True distillation products

2.1 Authentication of true fruit distillates

The best method is use of combination of both GC/IRMS and SNIFT NMR

3. Spirit

3.1 Determination of the spirit origin (natural or synthetic)

Both the methods are suitable for reliable determination the origin of pure spirit. However only the NMR can identify the mixture of natural and synthetic spirit. Use of GC/IRMS has problems with accuracy.

3.2 Determination of origin of natural spirit made from sugar (beet, cane, etc.)

Both the methods are suitable for determination of origin of natural spirit made from sugar

4. Honey

4.1 Authentication of honey origin

GC/IRMS is dominant analysis method here.

4.2 Determination of honey falsification method

GC/IRMS is dominant analysis method here.

5. Vegetable oils

5.1 Authentication of vegetable oils

Both the methods are equivalent

5.2 Determination of geographical origin of olive oil

SNIF- NMR is dominant analysis method here

6. Fruit juices

6.1 Authentication of fruit juices

SNIF- NMR is dominant analysis method here

6.2 Determination of addition of beet or cane sugar to fruit juices

The best method is use of combination of both GC/IRMS and SNIF- NMR
6.3 Determination of addition of citric acid to fruit juices

GC/IRMS is dominant analysis method here

6.4 Determination of water origin in fruit juices

GC/IRMS is dominant analysis method here

6.5 Determination of carbohydrate presence coming from addition of fruit juices

SNIF- NMR is dominant analysis method here.

7. Sugar

7.1 Sugar authentication

Both the methods are equivalent

7.2 Determination of geographical origin of sugar

The best method is use of combination of both GC/IRMS and SNIF- NMR

8. Other commodities

8.1 Authentication of natural vanillin

The NMR method is dominant.

8.2 Determination of origin of milk and milk products

The best method is use of combination of both GC/IRMS and NMR

8.3 Geographic origin of butter and cheeses

The best method is use of combination of both GC/IRMS and NMR

8.4 Determination of geographic origin of coffee

The best method is use of combination of both GC/IRMS and NMR

8.5 Aromatic substances (food or cosmetics)

The best method is use of combination of both GC/IRMS and NMR

8.6 Organic compounds (the chapters 29 and 39 of harmonised system, INN products)

The NMR method is dominant (practically the only one used). The isotope method is not relevant. NMR method can be combined with GC/MS and IR eventually with GC/IRMS.
Conclusions

The following positive impacts are expected:

- Prevention of falsification of food products;
- Proper assessment and collection of customs debt
- Proper assessment and collection of excise duties;
- Protection of EU common customs space from penetration of falsified food to EU common market;
- Regulation and proper implementation of Common Agricultural Policy on territory of the Slovak Republic as EU member state;
- Determination of origin of goods in order to distinguish the subsidies;

In the time of the supply of the NMR equipment Slovak Republic will be already a member of EU. The creation of the professional technical facilities will enable the revealing of breaking of the EU legal norms and it will increase:

- the protection of common internal EU market,
- protection of manufacturer of true products
- collection of duties according the valid EU legal norms.