Annex 15

Ministry of Mines, Petroleum and Energy of the Republic of Côte d’Ivoire,
Strategic Development Plan 2011-2030 of the Republic of Cote d’Ivoire

PROJECT SHEETS

Annex to the Oil and Gas Sector Report

Ministry of Mines, Petroleum and Energy of the Republic of Côte d’Ivoire
This document, which is the **Annex** to the Oil and Gas Sector report, **presents all the technical Project Sheets** for the projects identified in the report. Project selection was based on the financial and technical capabilities of Côte d’Ivoire’s Government, the opportunities provided under ongoing and future partnerships as well as available resources.

**Implementation of these projects may require that feasibility studies be conducted in order to fine-tune the technical and financial details. Accordingly, the costs indicated in this document are estimates and as such, indicative in nature.**

This document consists of **47 projects** presented on the basis of the country’s Development Vision, issues, development policies and specific development objectives.

Each of these Project Sheets is defined by the following terminology (22 items):

<table>
<thead>
<tr>
<th>Project or micro Project Sheet number</th>
<th>A serial number for easy identification and handling of the Project Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the Project</td>
<td>Self-explanatory</td>
</tr>
<tr>
<td>Action code</td>
<td>The number that designates the policy action in relation to the issue, the development policy and corresponding objectives</td>
</tr>
<tr>
<td>1. Policy Focus</td>
<td>Relates to the development objective</td>
</tr>
<tr>
<td>2. Objective:</td>
<td>Why the project is being executed</td>
</tr>
<tr>
<td>3. Description of the situation:</td>
<td>Describes the current situation which in itself explains the grounds for drawing up such a project;</td>
</tr>
<tr>
<td>4. Costs of weaknesses:</td>
<td>Indicates where efforts are to be made</td>
</tr>
<tr>
<td>5. Project-related constraints:</td>
<td>What factors or aspects might impede the success of the project</td>
</tr>
<tr>
<td>6. Beneficiaries:</td>
<td>The section of the population for which the project is being implemented</td>
</tr>
<tr>
<td>7. Previous or ongoing actions:</td>
<td>Already undertaken or ongoing activities related to the project</td>
</tr>
<tr>
<td>8. Implementation strategies:</td>
<td>They combine all the technical, organizational and collaborative approaches and methods that will be used to implement actions;</td>
</tr>
<tr>
<td>9. Activities to be carried out:</td>
<td>Activities required to implement the project. Necessary action to be taken for the project to achieve given objectives</td>
</tr>
<tr>
<td>10. Progress markers (indicators):</td>
<td>Qualitative or quantitative benchmarks for monitoring the targeted outcome/objective</td>
</tr>
<tr>
<td>11. Implementation period:</td>
<td>The timeframe necessary to achieve the set objectives</td>
</tr>
<tr>
<td>12. Client/Contracting Authority:</td>
<td>Institution/corporation/individual investor ultimately responsible for implementation (‘owner’)</td>
</tr>
<tr>
<td>13. Project Manager:</td>
<td>Institution/operator in charge of practical implementation of the project</td>
</tr>
</tbody>
</table>
14. Partners: Actors/stakeholders with varying degrees of involvement in project implementation. They may participate by providing financial and/or material assistance, investments or expertise.

15. Estimated cost: The estimated cost of the project.

16. Expected contributions: Contributions in cash or kind by the project beneficiaries. In the case of external co-financing, the term describes the breakdown of the amount of local financing between the municipality ("commune") and the project beneficiaries.

17. Expected Gains: In projects where an economic pay-off is expected, the term refers to return on investments.

18. Impact on MDGs/Environment: Indicates how the project contributes to achieving the Millennium Development Goals (MDGs) and also public debate on the project and the project's potential negative effects on the environment.

19. Recurrent expenditure: Includes all recurrent expenditure needed to ensure normal operational functioning of the project.

The projects are presented under four (4) Strategic Areas of Activity (SAA), which are subdivided into Development Policies/Planning:

i. **UpStream** (Exploration-Production, Natural Gas);
ii. **MidStream** (Logistics, Refining);
iii. **DownStream** (Butane Gas);
iv. **Supportive Measures** (Institutional framework, capacity building and financial viability).

**Acronyms (English/French)**

- ECCAS/CEMAC: Economic and Monetary Community of Central African States
- ECOWAS/CEDEAO: Economic Community of West African States
- GNV: gas-powered vehicles
- DSTR: Downstream
- EXPLO: Exploration
- HC: Hydrocarbons
- IC/CI: Ivory Coast, Côte d'Ivoire
- LOG: Logistics
- LT: Long Term
- MSTR: Midstream
- MT: Medium Term
- NG: Natural Gas
- PROD: Production
- PSC or PSA/CPP: Production Sharing Contract or Agreement
- REF: Refining
- TD/AD: to be determined
- TPAV: Terminal pétrolier Abidjan-Vridi
- ST/CT: Short Term
- SUPP: Supportive Measures
- UPSTR: Upstream
### SUMMARY OF PROJECTS BY STRATEGIC AREA OF ACTIVITY (SAA)

<table>
<thead>
<tr>
<th>No</th>
<th>SAA</th>
<th>FORECASTS ACCORDING TO IDENTIFIED PROJECTS</th>
<th>Total (Millions USD)</th>
<th>State of Côte d’Ivoire Millions USD</th>
<th>Other sources of financing Millions USD</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>UpStream</td>
<td>Exploration</td>
<td>401.2</td>
<td>24.7</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Production</td>
<td>-</td>
<td>-</td>
<td>100.0</td>
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<tr>
<td></td>
<td></td>
<td>Natural Gas</td>
<td>-</td>
<td>2.3</td>
<td>97.7</td>
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<tr>
<td></td>
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<td>Overall UpStream</td>
<td>401.2</td>
<td>24.7</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>MidStream</td>
<td>Logistics</td>
<td>2 033.3</td>
<td>-</td>
<td>2 033.3</td>
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<tr>
<td></td>
<td></td>
<td>Refining</td>
<td>5 848.0</td>
<td>-</td>
<td>5 848.0</td>
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<tr>
<td></td>
<td></td>
<td>Total MidStream</td>
<td>7 881.3</td>
<td>-</td>
<td>7 881.3</td>
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<td></td>
<td></td>
<td></td>
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<td>3</td>
<td>DownStream/Butane Gas</td>
<td></td>
<td>612.2</td>
<td>-</td>
<td>612.2</td>
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<tr>
<td>4</td>
<td>Supportive Measures</td>
<td></td>
<td>185.8</td>
<td>185.8</td>
<td>100.0</td>
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<td></td>
<td>Grand Total</td>
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<td>9 080.5</td>
<td>210.5</td>
<td>1.7</td>
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<td>8 870.0</td>
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The projected cost of the development plan for the Hydrocarbons sector of the Ministry of Mining, Petroleum and Energy is estimated at CFAF 9.1 billions USD. The private sector is invited to bring in productive investments while the Government fulfils its governance role of establishing rules and regulations, ensuring their control, and promoting the sector.
# LIST OF PROJECTS

<table>
<thead>
<tr>
<th>SAA/Strategic Axes</th>
<th>Project Sheet No.</th>
<th>Name of Project</th>
<th>Costs</th>
<th>Proposed implementation period</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td></td>
<td>Total Cost (Million CFAF)</td>
<td>CI's share</td>
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<td></td>
<td></td>
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<td>Million CFAF</td>
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<tr>
<td>SAA N°1: UpStream/Exploration</td>
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<tr>
<td>1</td>
<td>Explorations Block CI-12</td>
<td>6,300 [*]</td>
<td>315</td>
<td>5,985</td>
</tr>
<tr>
<td>2</td>
<td>Explorations Block CI-24</td>
<td>8,500 [*]</td>
<td>850</td>
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<tr>
<td>3</td>
<td>Explorations Block CI-100</td>
<td>17,750 [*]</td>
<td>888</td>
<td>16,863</td>
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<td>Explorations Block CI-10</td>
<td>22,000 [*]</td>
<td>1,100</td>
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<td>5</td>
<td>Explorations Block CI-102</td>
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<td>Explorations Block CI-103</td>
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<td>998</td>
<td>18,9530</td>
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<td>Explorations Block CI-105</td>
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<td>27,788</td>
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<td>9</td>
<td>Explorations Block CI-110 / CI-111</td>
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<td>315</td>
<td>5,985</td>
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<td>10</td>
<td>Explorations Block CI-202</td>
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<td>1,125</td>
<td>21,375</td>
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<td>11</td>
<td>Explorations Block CI-205</td>
<td>12,500 [*]</td>
<td>1,250</td>
<td>11,250</td>
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<td>12</td>
<td>Explorations Block CI-206</td>
<td>12,500 [*]</td>
<td>1,250</td>
<td>11,250</td>
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<td>13</td>
<td>Explorations Block CI-401</td>
<td>24,000 [*]</td>
<td>1,200</td>
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<td><strong>Sub Total SAA N°2: MidStream/Logistics</strong></td>
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<td>200,600</td>
<td>12,343</td>
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[*]: Studies/Surveys  
A/D: To be determined
<table>
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<tr>
<th>SAA/ Strategic Axes</th>
<th>Project Sheet no.</th>
<th>Name of Project</th>
<th>Costs</th>
<th>Proposed implementation period</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAA N°1: UpStream/Production</td>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Development Baobab field phases II &amp; half</td>
<td>250,000</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Development Baobab field phase III</td>
<td>1,000,000</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Development Espoir field phase III</td>
<td>200,000</td>
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</tr>
<tr>
<td>17</td>
<td></td>
<td>Development CI-01</td>
<td>140,000</td>
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<tr>
<td>18</td>
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<td>Development CI-27</td>
<td>262,500</td>
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<tr>
<td>19</td>
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<td>Development CI-202</td>
<td>82,600</td>
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<tr>
<td><strong>Sub Total SAA 1: UpStream / Production</strong></td>
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<td></td>
<td><strong>1,935,000</strong></td>
<td>-</td>
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<tr>
<td>SAA N°1: UpStream/ Natural Gas</td>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
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<td>20</td>
<td></td>
<td>Construction and operation of Eastern pipeline</td>
<td>32,500</td>
<td>A/D</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>Connection to the West African Gas Pipeline (WAGP)</td>
<td>317,500</td>
<td>A/D</td>
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<tr>
<td>22</td>
<td></td>
<td>Buyback of existing land-based pipelines</td>
<td>A/D</td>
<td></td>
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<tr>
<td>23</td>
<td></td>
<td>Installation of a floating natural gas terminal – FRSU in Abidjan</td>
<td>225,000</td>
<td>A/D</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>Natural Gas Vehicles Project (NGV)</td>
<td>700</td>
<td>A/D</td>
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<tr>
<td>25</td>
<td></td>
<td>Portable Gas Distribution Pilot Project</td>
<td>5,000</td>
<td>A/D</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>Extension of the distribution network in the Yopougon industrial area</td>
<td>3,700</td>
<td>A/D</td>
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<tr>
<td>27</td>
<td></td>
<td>Extension of the distribution network in the Koumassi Industrial area</td>
<td>5,000</td>
<td>A/D</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td>Pilot distribution project in residential and services sectors</td>
<td>15,000</td>
<td>A/D</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td>Installation of a high capacity natural gas processing and LPG extraction unit</td>
<td>10,000</td>
<td>A/D</td>
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<td><strong>Sub Total SAA 1: UpStream / Natural Gas</strong></td>
<td></td>
<td></td>
<td><strong>614,400</strong></td>
<td>14,400</td>
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<tr>
<td><strong>Total SAA 1: UpStream</strong></td>
<td></td>
<td></td>
<td><strong>2,750,100</strong></td>
<td><strong>26,743</strong></td>
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A/D: To be determined
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<tr>
<th>SAA/Strategic Axes</th>
<th>Project Sheet no.</th>
<th>Name of Project</th>
<th>Costs</th>
<th>Proposed implementation period</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total Cost (Million CFAF)</td>
<td>CI's share</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Million CFAF</td>
<td>%</td>
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<td>SAA N°2: MidStream/Logistics</td>
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<td></td>
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</tr>
<tr>
<td>30</td>
<td></td>
<td>De-ballasting Station</td>
<td>A/D</td>
<td>A/D</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>Storage Terminal: 1st phase</td>
<td>363,550</td>
<td>363,550</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>Construction of spheres, filling centre and 12 &quot; butane line</td>
<td>29,100</td>
<td>29,100</td>
</tr>
<tr>
<td>33</td>
<td></td>
<td>Pipeline upcountry to Bouaké-Ferké</td>
<td>90,000</td>
<td>90,000</td>
</tr>
<tr>
<td>34</td>
<td></td>
<td>Pooling of resources to control fire outbreaks</td>
<td>7,000</td>
<td>7,000</td>
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<tr>
<td>35</td>
<td></td>
<td>Storage Terminal: 2nd phase (extension to 2,000,000)</td>
<td>125,000</td>
<td>125,000</td>
</tr>
<tr>
<td>36</td>
<td></td>
<td>Increase in storage in Abidjan</td>
<td>65,000</td>
<td>65,000</td>
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<tr>
<td>37</td>
<td></td>
<td>Storage Terminal at Yakro</td>
<td>53,000</td>
<td>53,000</td>
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<td>38</td>
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<td>Construction of a depot at Ferké</td>
<td>57,500</td>
<td>57,500</td>
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<td>39</td>
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<td>Construction of a depot at San Pedro</td>
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<td>100,000</td>
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<td>40</td>
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<td>Laboratory for petroleum products</td>
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<td>41</td>
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<td>Abidjan-Yakro-Ferké Butane Pipeline</td>
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<tr>
<td><strong>Sub Total SAA N°2: MidStream/Logistics</strong></td>
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<td></td>
<td><strong>1,016,650</strong></td>
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A/D: To be determined
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<tr>
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<th>Project Sheet No.</th>
<th>Name of project</th>
<th>Costs</th>
<th>Proposed implementation period</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Million CFAF)</td>
<td>Million CFAF</td>
</tr>
<tr>
<td>SAA N°2: MidStream/Refinery</td>
<td></td>
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<td></td>
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<tr>
<td>42</td>
<td></td>
<td>Adaptation of the refinery equipment to fuel standards</td>
<td>147,000</td>
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<tr>
<td>43</td>
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<td>Increase in conversion level to improve diesel oil production</td>
<td>147,000</td>
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<td>44</td>
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<td>Increase in refining capacity (10 million tons)</td>
<td>2,630,000</td>
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<td>Sub Total SAA N°2: MidStream/Refinery</td>
<td>2,924,000</td>
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<td>Total SAA N°2: MidStream</td>
<td>3,940,650</td>
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<td>SAA N°3: DownStream/Butane Gas</td>
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<td>Total SAA N°3: DownStream</td>
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<td>46</td>
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<td>Reform of the legal and contractual framework of the hydrocarbons sector</td>
<td>600</td>
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<td>Payment of State debt to SIR</td>
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<td>Total SAA N°4: Supportive measures</td>
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<td>Total Hydrocarbons (SAA 1, SAA 2, SAA 3, SAA 4)</td>
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PROJECT SHEETS RELATIVE TO
STRATEGIC AREA OF ACTIVITY NO 1:
UPSTREAM
PROJECT SHEET n° 1

<table>
<thead>
<tr>
<th>Project</th>
<th>Exploration of Block CI-12</th>
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<tbody>
<tr>
<td>Action code</td>
<td>HC_UPSTR/EXPL/O/CT_1</td>
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1. **Focus:** Intensify research and exploration activities in the sedimentary basin of Côte d’Ivoire.

2. **Objective:** Increase local production in a maximum period of seven (7) years.

3. **Description of the situation:** Block CI-12 which covers a surface area of 1062 km², is located in offshore shallow waters between (0 and 1500 m) west of Côte d’Ivoire. The field was awarded to YAM’S PETROLEUM LLC (Operator) and PETROCI on 22 May, 2006. The Memorandum of Association was not signed until 3rd August, 2006. To date, contractual works stemming from the PSC are at the initial exploration phase.

4. **Cost of risks (weaknesses):** The operator should be contacted to ascertain possible risks relating to the project.

5. **Project-related constraints**
   - Reprocessing of 2D/3D seismic lines: Locating land strips and navigational data on 3D seismic lines
   - Drillings: Drilling rigs must be secured without delay so as to meet implementation schedules for planned drilling work.

6. **Beneficiaries:** YAM’S PETROLEUM, PETROCI

7. **Previous or ongoing actions:**

   - **Commitments for the 1st phase:** 3 years
     - Purchase and reprocessing of existing 2D and 3D seismic lines
     - Get new seismic data if necessary

   - **Commitments honored:**
     2006: Geological and geophysical surveys
     2009: Laboratory analyses awarded to PETROCI (DCAR)
     2010: Acquisition of 2123 km of 2D seismic lines and 520 km³ of 3D

   - **Ongoing commitments:** 2011: reprocessing of 2123 km of seismic 2D and 520 km³ of 3D.

8. **Implementation strategies:** Exchange information on 2011 activity program and monitor geological and geophysical surveys (G&G) carried out by the operator.
9. Activities to be implemented:

<table>
<thead>
<tr>
<th>2nd phase: 2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ 2012-2014: 3D seismic acquisition covering 200 Km³</td>
</tr>
<tr>
<td>▪ 2012-2014: 01 exploration drilling (minimum depth of 1500 m).</td>
</tr>
<tr>
<td>▪ 2012-2014: Transfer of 25% of the initial area.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3rd phase: 2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ 2014 - 2016: Transfer of 25% of the initial area.</td>
</tr>
<tr>
<td>▪ 2014 - 2016: 01 exploration drilling (minimum depth of 1500 m).</td>
</tr>
</tbody>
</table>

10. Progress markers (indicators):

| 2012-2014: Requested Report on seismic surveys |
| Environmental and Social Impact Report (EIES) |
| Report on acquisition of new 3D seismic data |
| 2012-2014: Reports on drilling of exploratory wells |
| 2014-2016: Reports on drilling of exploratory wells |

11. Implementation period: Exploration periods

| 1st phase: 3 years (22 May, 2006 - 21 May, 2012) with an extension of 36 months |
| 2nd phase: 2 years (22 May, 2012 – 21 May, 2014) |
| 3rd phase: 2 years (22 May, 2014 – 21 May, 2016) |

12. Contracting authority: YAM’S PETROLEUM, PETROCI

13. Project Manager: YAM’S PETROLEUM Operator

14. Partners: YAM’S PETROLEUM (85%), PETROCI (15%)

15. Projected costs: CFAF 6,300 million (Survey USD 2,600,000 covering the three periods)

| 1st phase | USD 600,000 |
| 2nd phase | USD 6,000,000 |
| 3rd phase | USD 6,000,000 |

16. Expected contributions

CI Government (PETROCI): USD 630,000, representing 5 %
PETROCI has been increased to 10% by the other partner
Other partner: USD 11,970,000, representing 95%

17. Expected gains: appraisal is continuing

18. Impact on MDGs/ Environment: to be determined.

19. Financing of recurrent expenses: to be determined.
1. **Focus**: Intensify research and exploration activities in the sedimentary basin of Côte d’Ivoire.

2. **Objective**: Increase local production over a maximum period of five (5) years.

3. **Description of the situation**: Block CI-24 covering an area of 589.96 km², is situated in deep waters (from 0 to 1,000 m) to the east of Côte d’Ivoire. It was awarded to EDISON INTERNATIONAL (Operator) and PETROCI on 09 September, 2004. To date, contractual works stemming from the PSC are at the third exploration phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related Constraints**

   - Acquisitions of 2D/3D seismic lines: Weather conditions (wind movements) are disruptive during the first three quarters in our coastal area; there are a lot of idle periods and therefore additional costs in seismic data acquisition.
   - Drillings: Drilling rigs must be secured without delay so as to meet implementation schedules for projected drilling work.

6. **Beneficiaries**: EDISON INTERNATIONAL, KUFPEC OIL, SVENSKA, PETROCI

7. **Previous or ongoing actions**: Commitments

   **1st phase Commitments: 2 years**
   - Purchase and reprocess existing 2D and 3D seismic lines
   - Acquisition of at least 1,000 km of 2D seismic lines and 150 km² of 3D seismic lines
   - Geological and geophysical studies
   - Transfer 25% of the initial area in the demarcated region at the end of the first phase

   **Obligations fulfilled:**
   - 2004-2005: Reprocessing of 2D seismic data covering 1500 km.
   - 2005: Reprocessing 3D seismic data covering an area of 300 Km²
   - 2005: New 2D seismic data covering 1066 Km obtained
   - 2005-2006: New 3D seismic data covering an area of 203 Km² obtained
   - 2004- 2006: Geological and geophysical surveys

   **Obligations of the 2nd optional phase: 1 year**
   - One (1) exploration drilling to a minimum depth of 2500m or 200 meters below the top level of the Albian
   - Transfer of 25% of the initial area in the demarcated region at the end of the first exploration period
**Obligations fulfilled:**

- 2007: Drilling of Ariès-1 well
- 2008: Reprocessing PSDM covering an area of 270 km²
- 2009: Transfer of 197.04 km², making 25% of the initial surface area of 787 km²

**Obligations in the 3rd optional phase:** 2 years

- Acquisition of new 3D seismic data covering 150 km²
- One (1) exploration drilling to a minimum depth of 2500m or 200 meters below the top level of the Albian

**Obligations fulfilled:**

- 2010: Drilling of Virgo-1X well, gas discovery reported to the Government on 15 October, 2010
- 2011: Notification of “An application for an evaluation Area”

**Current obligations:**

- 2011: Survey of the Area under evaluation

**8. Implementation strategies:**

Share information on 2011 program of activities and follow-up on geological and geophysical surveys (G&G) carried out by the operator.

**9. Activities to be carried out:**

- **3rd optional phase:** 2 years
  - Acquisition of new 3D seismic data covering 150 km²
  - One (1) exploration drilling with a minimum depth of 2500m or 200 meters below the top level of the Albian

**10. Progress markers (indicators):**

- 2005: Report on requested review of Seismic surveys; ESI Report; Report on new 2D seismic data acquisition covering 1066 Km; Weekly reports on seismic acquisition; Copy of survey reports and summarized geological reports
- 2005-2006: Report on new 3D seismic data acquisition covering an area of 203 Km²; Weekly reports on seismic data acquisition
- 2007: Daily reports on drilling activities in the Ariès 1 well; Drilling reports on exploration in Ariès 1 well; copy of reports on the installation and completion of each of the drillings as well as the entire borehole logging
- 2010: Drilling reports on the Virgo-1X exploration well; Copy of installation and completion reports on each of the drillings as well as the entire logging; and also a typical portion of core samples and materials removed from each well including samples of fluids produced during production tests.
11. **Period of implementation**
   - 1st phase: 2 years (09 September 2004 – 08 March, 2007) with an extension of 06 months
   - 2nd optional phase: 1 year (09 March, 2007 – 08 January, 2009) with an extension of 10 months
   - 3rd optional phase: 2 years (09 January, 2009 – 08 January, 2011)

12. **Contracting authority:** EDISON INTERNATIONAL, KUFPEC OIL, SVENSKA, PETROCI

13. **Project Manager:** EDISON INTERNATIONAL Operator

14. **Partners:** EDISON INTERNATIONAL (36.25%), KUFPEC OIL (33.75%), SVENSKA (20%), PETROCI (10%)

15. **Projected costs:** CAF 8,500 million (Survey: USD 17,000,000 covering the 3 periods)
   
   Before any operation, the operator should obtain an authorization to evaluate the Virgo prospect.

<table>
<thead>
<tr>
<th>Phase</th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>2,500,000</td>
</tr>
<tr>
<td>2nd optional phase</td>
<td>7,000,000</td>
</tr>
<tr>
<td>3rd optional phase</td>
<td>7,500,000</td>
</tr>
</tbody>
</table>

16. **Expected Contributions**
   - IC Government (PETROCI): USD 1,700,000 or 10%
   - Other partners: USD 15,300,000 or 90%
     - EDISON INTERNATIONAL (36.25%)
     - KUFPEC OIL (33.75%)
     - SVENSKA (20%)

17. **Expected gains:** appraisal is continuing

18. **Impact on MDGs/ Environment:** to be determined.

19. **Financing recurrent expenditure:** to be determined.
1. **Focus**: Intensify research and exploration activities in the sedimentary basin of Côte d’Ivoire.

2. **Objective**: Increase local production over a maximum period of seven (7) years.

3. **Description of the situation**: Block CI-100 covering a surface area of 1908 km², is located in deep waters (1800 to 3000 m) east of Côte d’Ivoire and it is right next to the Ghanaian border. It was awarded to YAM’S PETROLEUM LLC (Operator) and PETROCI on 23 January, 2006. In 2010, after signing an agreement with YAM’S Petroleum, TOTAL Exploration Production Côte d’Ivoire became the operator of Block CI-100. To date, contractual works stemming from the PSC are at the initial exploration phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**
   - **2D/3D seismic acquisitions**:
     - Weather conditions (winds) are disruptive during the first three quarters on the coastal area, resulting in a lot of idle periods, thus creating cost overruns for seismic data acquisition.
     - Delays in getting official approval from General Directorate of Hydrocarbons (DGH), who must sign seismic acquisition requests
   - **Drillings**:
     - Drilling rigs must be secured without delay in order to meet implementation schedules for projected drilling work.

6. **Beneficiaries**: TOTAL, YAM’S PETROLEUM, PETROCI

7. **Previous or ongoing actions**:
   - **Obligations in the 1st phase**: 3 years
     - Purchase and interpretation of 848 km of old existing and more recent seismic survey data
     - Acquisition of 3D seismic data covering an area of 150 km²
   - **Obligations fulfilled**:
     - 2008: 2D seismic data acquisition over 150 Km
     - 2009: 3D seismic data acquisition over an area of 350 Km²
   - **Current obligations**:
     - 2011: Acquisition of new 3D seismic data covering an area of 1145 km²

8. **Implementation strategies**: Exchange information on the 2011 activity program and follow-up on geological and geophysical surveys (G&G) carried out by the operator.
9. Activities to be carried out:

**2nd phase:** 2 years
- 2011-2012: 3D seismic acquisition over n 350 Km² area
- 2012: 1 exploration drilling (with a minimum depth below ground of 1 500 m).
- 2012: Transfer of 25% of the initial surface area.

**3rd phase:** 2 years
- G&G Surveys
- 1 exploration drilling (with a minimum depth below ground of 1 500 m).

10. Progress Markers (indicator):
- 2011: Report on requested seismic survey work; Environmental and Social Impact Report; Report on acquisition of new 3D seismic data (1 145 km²)
- 2012: Drilling Reports of exploration wells

11. Period of implementation
- 1st phase: 3 years (23 January 2006 - 22 January 2012) with an extension of 36 months
- 2nd phase: 2 years (22 January 2012 – 21 January 2014)
- 3rd phase: 2 years (22 January 2014 – 21 January 2016)

12. Contracting Authority: TOTAL, YAM’S PETROLEUM, PETROCI

13. Project Manager: TOTAL Operator

14. Partners: TOTAL (60%), YAM’S PETROLEUM (25%), PETROCI (15%)

15. Projected Costs: CFAF 17,750 million (Studies: USD 35,500,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>USD 2,000,000</td>
</tr>
<tr>
<td>2nd phase</td>
<td>USD 18,500,000</td>
</tr>
<tr>
<td>3rd phase</td>
<td>USD 15,000,000</td>
</tr>
</tbody>
</table>

16. Expected Contributions
- CI Government (PETROCI): USD 1,775,000, representing 5 %
- PETROCI’s share I has been increased to 10% by the other partner
- Other partners: USD 33,725,000, equivalent to 95%
  - TOTAL (60%),
  - YAM’S PETROLEUM (25%),

17. Expected Gains: assessment is continuing

18. Impact on MDGs / Environment: to be determined.
19. Financing recurrent expenditure: to be determined.
PROJECT SHEET n° 4

<table>
<thead>
<tr>
<th>Project</th>
<th>Exploration of Block CI-101</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Code</td>
<td>HC_UPST/EXPLO/CT_4</td>
</tr>
</tbody>
</table>

1. **Focus**: Intensify research and exploration activities in the sedimentary basin of Côte d’Ivoire

2. **Objective**: Increase local production in a maximum period of six and a half (6 ½.) years.

3. **Description of the situation**: Block CI-101 covering a surface area of 2398 km², is located in deep waters (500 to 3,000 m) east of Côte d’Ivoire. It was awarded to VANCO (Operator) and PETROCI, on 30 September 2005. To date, contractual works stemming from the PSC are in the second exploration phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**
   - **2D/3D seismic acquisitions**: Weather conditions (winds) are disruptive during the first three quarters on the coastal area, resulting in a lot of idle periods, thus adding costs for the acquisition of seismic data.
   - **Drillings**: Drilling rigs must be secured without delay in order to meet implementation schedules for planned drillings.

6. **Beneficiaries**: VANCO, LUKOIL, PETROCI

7. **Previous or ongoing actions**:

   **Obligations under the 1st phase**: 3 years
   - Acquisition and reprocessing of existing 2D seismic data (2533km)
   - Acquisition of 2D seismic data covering 500 km
   - Acquisition of 3D seismic data covering an area of 400km²
   - Transfer of 25% of the initial surface area

   **Obligations fulfilled**:
   - 2005: Purchase and reprocessing of existing 2D seismic data for 2533 km; 2D seismic acquisition covering 500 km; 3D seismic acquisition covering an area of 400 km²
   - 2010: Transfer of 627.89 km², or 25% of the initial surface area of 3205 km²

   **2nd phase**: 2 years
   - Acquisition of 3D seismic data covering an area of 500 km²
   - One (01) exploratory drilling to a minimum depth of 2500m
   - Transfer of 25% of the initial surface area

   **Obligations fulfilled**:
   - 2010: 3D seismic acquisition over 500 km³ area
**Current obligations:**

- 2012: One (01) exploratory drilling to a minimum depth of 2500m; Transfer of 25% of the initial surface area.

**8. Implementation strategies:** Share information on the 2011 activities program and follow-up on geological and geophysical surveys (G&G) carried out by the operator.

**9. Activities to be carried out:**

<table>
<thead>
<tr>
<th>3rd phase</th>
<th>One and half years (1½)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One (01) exploratory drilling to a minimum depth of 2500 m</td>
</tr>
</tbody>
</table>

**10. Progress markers (indicator):**

- 2006: Report on requested Seismic Survey work; Environmental Impact Study Report; Report on acquisition and processing of 3D seismic data.
- 2012: Exploratory Drilling Report

**11. Period of Implementation: Exploration periods:**

- 1st phase: 3 years (30 September 2005 - 30 September 2008)
- 2nd phase: 2 years (30 September 2008 – 30 September 2011) with a 12 months extension
- 3rd phase: 1½ years (30 September 2011- 30 March 2012)

**12. Contracting authority: **VANCO, LUKOIL, PETROCI

**13. Project Manager: **VANCO Operator

**14. Partners: **VANCO (28.34%), LUKOIL (56.66%), PETROCI (15%)

**15. Projected Costs: **CFAF 22,000 million (Studies: USD 44,000,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>USD 4,000,000</td>
</tr>
<tr>
<td>2nd phase</td>
<td>USD 20,000,000</td>
</tr>
<tr>
<td>3rd phase</td>
<td>USD 20,000,000</td>
</tr>
</tbody>
</table>

**16. Expected contributions**

- CI Government (PETROCI): USD 2,200,000, or 5%
- PETROCI’s contribution has been increased to 10% by the other partner
- Other partner: USD 41,800,000, or 95%
  - VANCO (28.34%),
  - LUKOIL (56.66%)

**17. Expected Gains:** appraisal is continuing

**18. Impact on MDGs/ Environment:** to be determined.

**19. Financing of recurrent expenditure:** to be determined.
PROJECT SHEET n° 5

<table>
<thead>
<tr>
<th>Project</th>
<th>Exploration of Block CI-102</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Code</td>
<td>HC_UPSTR/EXPLO/CT_5</td>
</tr>
</tbody>
</table>

1. **Focus**: Intensification of research and exploration in the sedimentary basin of Côte d’Ivoire.

2. **Objective**: Increase in local production within a maximum period of 5 ½ years.

3. **Description of the situation**: Block CI-102 covering an area of 861 km², is located in deep waters (0 to 1,000 m) east of Côte d’Ivoire. It was awarded to EDISON INTERNATIONAL (Operator) and PETROCI on 09 December 2007. To date, contractual works stemming from the PSC are at the second exploration phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**:
   
   * **Case** of renunciation or termination of the PSC
     - In the event of contract expiration or termination, or of renunciation, the original documents and samples relating to the oil operations including magnetic recording tapes will be handed over to the Ivorian government, whether or not said government makes a request to that effect.

   * **2D/3D seismic acquisitions**:
     - Weather conditions (wind movements) are disruptive during the first three quarters on the coastal area, resulting in a lot of idle periods, and thus additional costs for the acquisition of seismic data.

   * **Drillings**:
     - Drilling rigs must be secured without delay to meet implementation schedules for planned drillings.

6. **Beneficiaries**: EDISON INTERNATIONAL, KUFPEC OIL, SVENSKA, PETROCI

7. **Previous or ongoing actions**:

   **Obligations during the 1st phase**: 3 years
   - Acquisition and reprocessing of existing 2D and 3D seismic data
   - Acquisition of 3D seismic data covering an area of 150 km² (optional)
   - Geological and geophysical surveys (including PSDM Surveys)
   - Optional: one (1) exploratory drilling down to a minimum depth of 2500m or 200 meters below the top of the Albian
   - Transfer of 25% of the initial surface area of the demarcated area

   **Obligations fulfilled**:

   2008 -2009: Purchase and reprocessing of existing 3D seismic data over 617 km².
   2008 -2009: Geological and geophysical surveys; (including PSDM Surveys); PSDM surveys in the black hole zone.
2009-2010: Biostratigraphical surveys of a field (A-6X, C1-9X et D1-1X)
2010: Modeling surveys of the oil system

**Current obligations:**
Transfer of 25% of the initial surface of the delimited region
Notification on entry into the second period?

8. **Implementation strategies:** Sharing information on 2011 activities program and following-up on geological and geophysical surveys (G&G) carried out by the operator.

9. **Activities to be carried out:**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Duration</th>
<th>Details</th>
</tr>
</thead>
</table>
| 2nd phase      | 2 years   | - One (1) exploration drilling down to a minimum depth of 2500m or 200 meters below the top level of the Albian  
                 |           | - Transfer of 25% of the initial area.                                   |
| 3rd phase      | 2 years   | - Two (2) exploratory drillings up to a minimum depth of 2500m or 200 meters below the top level of the Albian   |

10. **Progress markers (indicators):**

   - 2,000-2010: Biostratigraphical surveys report on A-6X, C1-9X and D1-1X fields
   - 2008-2009: Geological and geophysical studies
   - 2010: Survey report on Oil System modeling

11. **Implementation period**

   Exploration periods:
   - 1st phase: 2 years (09 December 2007 - 08 December 2010) with a 12 month extension period
   - 2nd optional phase: 2 ½ years (09 December 2010 – 08 June, 2012)
   - 3rd optional phase: 2 years (09 June 2012 – June 2014)

12. **Contracting authority:** EDISON INTERNATIONAL, KUFPEC OIL, SVENSKA, PETROCI

13. **Project Manager:** EDISON INTERNATIONAL Operator

14. **Partners:** EDISON INTERNATIONAL (31.5%), TULLOW OIL (31.5%), KUFPEC (27%), PETROCI (10%)

15. **Projected Costs:** CFAF 12,750 million (Surveys: USD 25,500,000 to cover the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>USD 1,500,000 firm (USD 8,000,000 optional)</td>
</tr>
<tr>
<td>2nd optional phase</td>
<td>USD 8,000,000</td>
</tr>
<tr>
<td>3rd optional phase</td>
<td>USD 16,000,000</td>
</tr>
</tbody>
</table>
16. **Expected contributions**
   - IC Government (PETROCI): USD 2,550,000, or 10%
     PETROC’s share has been increased to 10% by the other partners
   - Other partners: USD 22,950,000, or 90%
     - EDISON INTERNATIONAL (31.5%),
     - TULLOW OIL (31.5%),
     - KUFPEC (27%),

17. **Expected gains**: appraisal is continuing

18. **Impact on MDGs/Environment**: to be determined.

19. **Financing of recurrent expenditure**: to be determined.
1. **Focus**: Intensification of research and exploration in the sedimentary basin of Côte d’Ivoire.

2. **Objective**: Increase in local production within a maximum period of 5 years.

3. **Description of the situation**: Block CI-103 covering an area of 1883.67 km² is located in deep waters (500 to 3,000 m) to the east of Côte d’Ivoire. It was awarded to TULLOW OIL (Operator) and PETROCI on 05 April 2007. To date, contractual works stemming from the PSC are at the second exploration phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**
   
   **2D/3D seismic acquisitions**:
   - The Weather conditions (winds) are disruptive during the first three quarters on the coastal area, resulting in a lot of idle periods and thus creating additional costs for the acquisition of seismic data.

   **Drillings**:
   - Drilling rigs must be secured without delay in order to meet implementation schedules for planned drillings.

6. **Beneficiaries**: TULLOW OIL, ANADARKO, PETROCI

7. **Previous or ongoing actions**:

   **Obligations during the 1st phase**: 1½ years
   - Acquisition and reprocessing of existing 2D and 3D seismic data
   - Acquisition of 3D seismic data covering an area of 600 km²
   - Geological and geophysical surveys (including PSDM Surveys)
   - Transfer of 25% of the initial surface area

   **Obligations fulfilled**:
   
   2007: Purchase and Reprocessing of existing 3D seismic data over an area of 917 km²
   - Acquisition of 3D seismic data covering an area of 600 km²
   - PSDM Reprocessing of 3D seismic data covering an area of 600 km²

   2007 - 2010: Geological and geophysical surveys

   2010: Transfer of 25% of the initial surface area of 2511.56 km², or 627.89 km²
**2nd phase**: 2 years  
- Acquisition of 3D seismic data covering an area of 400 km²  
- One (01) exploratory drilling down to a minimum depth of 2500m or 200 meters below the top level of the Albian.  
- Transfer of 25% of the initial surface area

**Obligations fulfilled:**

2010: 3D seismic acquisition of an area measuring 1100 km²  
: Processing of 2200 km² of PSTM and PSDM

**Current obligations:**

2012: One (01) exploratory drilling down to a minimum depth of 2500m  
Transfer of 25% of the initial surface area

8. **Implementation strategies:**
Sharing information on 2011 activities program and following-up on geological and geophysical surveys (G&G) carried out by the operator.

9. **Activities to be carried out:**

3rd phase: 1½ years  
- One (01) exploratory drilling down to a minimum depth of 2500m or 200 meters below the top level of the Albian.

10. **Progress markers (indicators):**
2007: Report on the application to undertake seismic surveys;  
Environmental Impact Report ((EIES));  
Report on acquisition and processing of 3D seismic data  
2010: Report on the application to undertake seismic surveys  
Report on acquisition and processing of 3D seismic data

11. **Period of implementation**
Exploration periods:  
1st phase: 1½ years (05 April 2007 - 04 October 2009) with a 12-month extension period  
2nd optional phase: 2 years (05 October 2009 – 04 October 2011)  
3rd optional phase: 1½ years (04 October 2011 - April 2013)

12. **Contracting authority:** TULLOW OIL, ANADARKO, PETROCI

13. **Project Manager:** TULLOW OIL Operator

14. **Partners:** TULLOW OIL (45%), ANADARKO (40%), PETROCI (15%)
15. **Projected Costs**: CFAF 19,950 million (Studies: USD 39,900,000 to cover the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>USD 6,400,000</td>
</tr>
<tr>
<td>2nd phase</td>
<td>USD 18,500,000</td>
</tr>
<tr>
<td>3rd phase</td>
<td>USD 15,000,000</td>
</tr>
</tbody>
</table>

16. **Expected contributions**
   - IC Government (PETROCI): USD 1,995,000, or 5%
     - PETROCI’s share has been increased to 10% by the other partners
   - Other partners: USD 37,905,000, or 95%
     - TULLOW OIL (45%),
     - ANADARKO (40%),

17. **Expected Gains**: appraisal is continuing

18. **Impact on MDGs/Environment**: to be determined.

19. **Financing of recurrent expenditure**: to be determined.
# PROJECT SHEET n° 7

<table>
<thead>
<tr>
<th>Project</th>
<th>Exploration of Block CI-104</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action Code</strong></td>
<td><strong>HC_UPSTR/EXPLO/CT_7</strong></td>
</tr>
</tbody>
</table>

1. **Focus**: Intensification of research and exploration in the sedimentary basin of Côte d’Ivoire

2. **Objective**: Increase in local production within a maximum period of seven (7) years.

3. **Description of the situation**: Block CI-104 covering an area of 1092 km² is located in shallow waters offshore (0 to 200 m) west of Côte d’Ivoire. It was awarded to YAM’S PETROLEUM LLC (Operator) and PETROCI, on 22 May 2006. The Memorandum of Association was signed only on 3 August 2006. To date, contractual works stemming from the PSC are at the first exploration phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**
   - Reprocessing 2D/3D seismic data:
     - Locating land strips and navigational data for 3D seismic data
   - Drillings:
     - Drilling rigs must be secured without delay to meet implementation schedules for planned drillings.

6. **Beneficiaries**: YAM’S PETROLEUM, PETROCI

7. **Previous or ongoing actions**:
   - **Obligations during the 1st phase**: 3 years.
     - Purchase and reprocessing of existing 2D and 3D seismic data
     - Acquisition of new seismic systems where necessary
   
   **Obligations fulfilled**:
   - 2006: Geological and geophysical surveys
   - 2010: Acquisition of 1339 km of 2D seismic and 3D seismic data covering 561 km²
   
   **Current obligations**:
   - 2011: Reprocessing of 1339 km of 2D seismic data and of 561 km² of 3D seismic data

8. **Implementation strategies**:
   - Sharing information on 2011 activities program and following-up on geological and geophysical surveys (G&G) carried out by the operator.
9. Activities to be carried out:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Duration</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>2 years</td>
<td>- 2012-2014: 01 exploration drilling (minimum depth level 1500 m).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2012-2014: Transfer of 25% of the initial surface area.</td>
</tr>
<tr>
<td>3rd</td>
<td>2 years</td>
<td>- 2014 - 2016: Transfer of 25% of the initial surface area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2014 - 2016: 01 exploration drilling (minimum depth level 1500 m)</td>
</tr>
</tbody>
</table>

10. Progress markers (indicators):

- 2012-2014: Report on the application to undertake seismic surveys
  - Environmental Impact Study Report ((EIES);
  - Report on acquisition of new 3D seismic data
- 2012-2014: Drilling Report on exploration wells
- 2014-2016: Drilling Report on exploration wells

11. Periods of implementation

Exploratory periods:
- 1st phase: 3 years (22 May 2006 - 21 May 2012) with an extension of 36 months
- 2nd phase: 2 years (22 May 2012 – 21 Myi 2014)
- 3rd phase: 2 years (22 May 2014 – 21 May 2016)

12. Contracting authority: YAM’S PETROLEUM, PETROCI

13. Project Manager: YAM’S PETROLEUM Operator

14. Partners: YAM’S PETROLEUM (85%), PETROCI (15%)

15. Projected Costs: FCFA 6 300 millions (Studies: USD 12,600,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>USD 600,000</td>
</tr>
<tr>
<td>2nd</td>
<td>USD 6,000,000</td>
</tr>
<tr>
<td>3rd</td>
<td>USD 6,000,000</td>
</tr>
</tbody>
</table>

16. Expected contributions

- CI Government (PETROCI): USD 630,000, or 5%
  - PETROCI’s share has been increased to 10% by the other partner
- Other partner: USD 11,970,000, or 95%
  - YAM’S PETROLEUM (85%)

17. Expected Gains: appraisal is continuing

18. Impact on MDGs/ Environment: to be determined.

19. Financing of recurrent expenditure: to be determined.
1. **Focus**: Intensification of research and exploration in the sedimentary basin of Côte d'Ivoire

2. **Objective**: Increase in local production within a maximum period of seven (7) years.

3. **Description of the situation**: Block CI-105 covering an area of 1 551.4 km², is located offshore in shallow waters (0 to 200 m) west of Côte d'Ivoire. It was awarded to Al Thani (Operator) and PETROCI, on 17 March 2006. In August 2009, after signing an agreement with Al Thani, ANADARKO Petroleum Corporation (APC) became the operator of Block CI-10. To date, contractual works stemming from the PSC are at the second exploration phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**
   
   **Drillings**:
   - Drilling rigs must be secured without delay to meet implementation schedules for planned drillings.

6. **Beneficiaries**: ANADARKO, THANI, TULLOW, PETROCI

7. **Previous or ongoing actions**:

   **Obligations of the 1st phase**: 3.75 years
   - Purchase and reprocessing of existing 2D and 3D seismic data
   - Acquisition of 1,000 km of 2D seismic data
   - Drilling of an exploratory well
   - Transfer of 25% of the initial surface area.

   **Obligations fulfilled**:
   
   2006: Geological and geophysical surveys
   2007: Reprocessing of 3D seismic lines covering 1 103 km²
   2008: Acquisition of 2D seismic lines covering 1194 km
   2009: Drilling of the South Grand Lahou-1X exploratory well. Transfer of 25% of the initial surface area of 2070 km²

   **Obligations under the 2nd phase**: 2 years
   - Acquisition of 3D seismic data covering 500 km²
   - Transfer of 25% of the initial surface area.
   - Drilling of one (1) exploratory well
Obligations fulfilled:
2010: Acquisition of 3D seismic covering an area of 1171 km²
- PSDM Reprocessing
- Pre-drilling survey of South Grand Lahou-1X

Current obligations:
2011: Drilling of one (1) exploratory well

8. Implementation strategies: Sharing information on 2011 activities program and following-up on geological and geophysical surveys (G&G) carried out by the operator.

9. Activities to be carried out:

3rd phase: 2 years
- 2011-2013: 02 exploration drillings

10. Progress markers (indicators):
2011-2013: Report on the application to undertake seismic surveys
- Environmental Impact Report ((EIES);
- Report on new 3D seismic data acquisition
2011-2013: Drilling Report on exploration wells
2011-2013: Drilling Report on exploration wells

11. Period of implementation
Exploration Periods:
- 1st phase: 3.75 years (17 March, 2006 -15 October 2009) with an extension of 24 months
- 2nd phase: 2 years (16 October 2009 - 15 October 2011)
- 3rd phase: 2 years (16 October 2011 - 15 October 2013)

12. Contracting authority: ANADARKO, THANI, TULLOW, PETROCI

13. Project Manager: ANADARKO Operator

14. Partners: ANADARKO (50%), THANI (12.632%), TULLOW (22.368%), PETROCI (15%)

15. Projected Costs: CFAF 29,250 (Studies: USD 58,500,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>USD 18,500,000</td>
</tr>
<tr>
<td>2nd</td>
<td>USD 15,000,000</td>
</tr>
<tr>
<td>3rd</td>
<td>USD 25,000,000</td>
</tr>
</tbody>
</table>

16. Expected contributions
- IC Government (PETROCI): USD 2,925,000, or 5 % (PETROCI share has been increased to 10%)
- Other partners: USD 5,575,000, or 95% (ANADARKO (50%), THANI (12.632%), TULLOW (22.368%))

17. Expected Gains: appraisal is continuing

18. Impact on MDGs/ Environment: to be determined.

19. Financing of recurrent expenditure: to be determined
1. **Focus**: Intensification of research and exploration in the sedimentary basin of Côte d’Ivoire

2. **Objective**: Increase in local production within a maximum period of seven (7) years.

3. **Description of the situation**: Blocks CI-110 and CI-111 covering an area of 1 557 km² and 2103 km² respectively are located offshore (0 to 1,000 m for CI-110 and 0 to 500m for CI-111) to the west of Côte d’Ivoire. They were awarded to YAM’S PETROLEUM LLC (Operator) and PETROCI on 23 January 2006. To date, contractual works stemming from the PSC are at the first exploratory phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**

   **2D/3D seismic acquisitions**:
   - The Weather conditions (winds) are disruptive during the first three quarters of the year on the coastal area, resulting in a lot of idle periods, and thus adding costs for the acquisition of seismic data.
   - Timelines for approval/signature by DGH of seismic acquisition survey requests.

   **Drillings**: Drilling rigs must be secured without delay to meet implementation schedules for planned drillings.

6. **Beneficiaries**: YAM’S PETROLEUM, PETROCI

7. **Previous or ongoing actions**:

   **Obligations during the 1st phase**: 3 years
   - Purchase and reprocessing of existing seismic data
   - Acquisition of new seismic systems where necessary

   **Obligations fulfilled**:
   - 2008: Purchase and reprocessing of 2D and 3D seismic data

   **Current obligations**:
   - 2011: Acquisition of new 3D seismic data

8. **Implementation strategies**:
   Exchanging information on 2011 activities program and following-up on geological and geophysical surveys (G&G) carried out by the operator.
9. Activities to be carried:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Duration</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd phase</td>
<td>2 years</td>
<td>- 2012-2014: 3D seismic acquisition covering 200 Km²</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2012-2014: One (1) exploratory drilling (minimum depth of 1500m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2012-2014: Transfer of 25% of the initial surface area.</td>
</tr>
<tr>
<td>3rd phase</td>
<td>2 years</td>
<td>- 2014 - 2016: Transfer of 25% of the initial surface area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2014 - 2016: One (1) exploratory drilling (minimum depth of 1500m)</td>
</tr>
</tbody>
</table>

10. Progress markers (indicators):

- 2012-2014: Report on the application to undertake seismic surveys
  - Environmental Impact Report (EIES);
  - Report on acquisition of new 3D seismic data
- 2012-2014: Drilling Report on the exploration field
- 2014-2016: Drilling Report on exploration field

11. Period of implementation

Exploration periods:
- 1st phase: 3 years (23 January 2006 - 22 January 2012) with a 36-month extension
- 2nd phase: 2 years (22 January 2012 – 21 January 2014)
- 3rd phase: 2 years (22 January 2014 – 21 January 2016)

12. Contracting authority: YAM’S PETROLEUM, PETROCI

13. Project Manager: YAM’S PETROLEUM Operator

14. Partners: YAM’S PETROLEUM (85%), PETROCI (15%)

15. Projected costs: CFAF 6,300 million (Studies: USD 12,600,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>USD 600,000</td>
</tr>
<tr>
<td>2nd phase</td>
<td>USD 6,000,000</td>
</tr>
<tr>
<td>3rd phase</td>
<td>USD 6,000,000</td>
</tr>
</tbody>
</table>

16. Expected contributions

- IC Gov’t (PETROCI): USD 630,000, or 5% (PETROCI’s share has been increased to 10% by the other partner)
- Other partner: USD 11,970,000, or 95% (YAM’S PETROLEUM (85%))

17. Expected Gains: appraisal is continuing

18. Impact on MDGs/ Environment: to be determined.

19. Financing of recurrent expenditure: to be determined
1. **Focus**: Intensification of research and exploration in the sedimentary basin of Côte d’Ivoire

2. **Objective**: Increase in local production within a maximum period of six (6) years

3. **Description of the situation**: Block CI-202 covering an area of 675 km², is located in deep waters (0 to 200 m) to the east of Côte d’Ivoire. It was awarded to C&L NATURAL RESOURCES (Operator) and PETROCI on 10 May 2006. In December 2010, Rialto concluded an agreement with the shareholders of CLNR to increase its equity capital to 85%. To date, contractual works stemming from the PSC are at the first exploratory phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**

   **2D/3D seismic Acquisitions**:
   - Weather conditions (winds) are disruptive during the first three quarters on the coastal area, resulting in a lot of idle periods, and thus adding costs for the acquisition of seismic data.

   **Drillings**: Drilling rigs must be secured without delay to meet implementation schedules for planned drillings.

6. **Beneficiaries**: C&L NATURAL RESOURCES, PETROCI

7. **Previous or ongoing actions**:

   **Obligations of the Special Zone G**: 1 ½
   - Reprocessing and interpretation of existing seismic data
   - CVO analyses, mapping, sequential and seismic stratigraphic surveys
   - Economic studies of development scenarios
   - Development Plan

   **NB**: If the discovery is not commercially viable, zone G ceases to exist

   **Obligations during the 1st phase**: 3 years
   - Purchase and reprocessing of existing 2D and 3D seismic data
   - Acquisition of 3D seismic data covering an area of 500 km²
   - Geological and geophysical works (G&G)
   - Two (2) exploration drillings up to a minimum depth of 2500m including one (1) optional
   - Transfer of 25% of the initial surface area
Obligations fulfilled:
2010: Reprocessing of 3D seismic data covering an area of 300 Km²;
- Geological and geophysical work (G&G)

Current obligations:
- 2011: Reprocessing and interpretation of existing 3D seismic data and their integration into geological data
- : Acquisition of 3D seismic data covering 2790 km²
- : Preparations and drilling program
- 2012: Exploration and appraisal drilling campaign

8. Implementation strategies:
Exchanging information on 2011 activities program and following-up on geological and geophysical studies (G&G) carried out by the operator.

9. Activities to be carried out:

<table>
<thead>
<tr>
<th>2nd phase: 1½ years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition of 3D seismic data covering 300 km²</td>
</tr>
<tr>
<td>One (1) exploration drilling down to a minimum depth of 2500m</td>
</tr>
<tr>
<td>Transfer of 25% of the initial surface area of the demarcated region</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3rd phase: 1½ years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition of new 3D seismic data covering 200 km²</td>
</tr>
<tr>
<td>One (1) exploration drilling down to a minimum depth of 2500m</td>
</tr>
</tbody>
</table>


11. Implementation period:

Period of the Special Zone G: 1 ½ years (10 May 2006 – 10 November 2007)
At the time of contract signature, obligations referring to the Special Zone « G » applied only to the Gazelle field. An amendment granted by the Ministry of Mines and Energy (DGH) changed the status of the license, and made it an exploration license.

Exploration periods:
1st phase: 3 years (10 May 2006 – 10 May 2012) with an extension of 36 months
2nd phase: 1½ years (10 May 2012 – 10 November 2013)
3rd phase: 1½ years (10 November 2013 – 10 May 2015)

12. Contracting authority: C&L NATURAL RESOURCES, PETROCI

13. Project Manager: C&L NATURAL RESOURCES Operator

14. Partners: C&L NATURAL RESOURCES (85%), PETROCI (15%)
15. **Projected costs:** FCFA 22, 500 millions (surveys: USD 45,000,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Cost (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>15,000,000 (USD 15,000,000 optional)</td>
</tr>
<tr>
<td>2nd phase</td>
<td>15,000,000</td>
</tr>
<tr>
<td>3rd phase</td>
<td>15,000,000</td>
</tr>
</tbody>
</table>

16. **Expected Contributions**
   - CI Government (PETROCI): 2 250,000 or 5% (PETROCI’s share has been increased to 10% by the other partners)
   - Other partners: USD 42,750,000 or 95 % (C&L NATURAL RESOURCES (85%))

17. **Expected Gains:** appraisal is continuing
18. **Impact on MDGs/ Environment:** to be determined.
19. **Financing of recurrent expenditure:** to be determined
PROJECT SHEET n° 11

<table>
<thead>
<tr>
<th>Project:</th>
<th>Exploration of Block CI-205</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Code</td>
<td>HC_UPSTR/EXPLO/CT_11</td>
</tr>
</tbody>
</table>

1. **Focus:** Intensification of research and exploration in the sedimentary basin of Côte d’Ivoire

2. **Objective:** Increase in local production within a maximum period of seven (7) years

3. **Description of the situation:** Block CI-205 covering an area of 1922 km², is located in deep waters (2,000 to 3,000 m) to the west of Côte d’Ivoire. From 2001 to 20 July 2005, the operator of the block was ORANTO; then it signed an agreement with LUKOIL, which has now become the new operator on block CI-205. The contractual works stemming from the PSC are at the second exploratory phase.

4. **Cost of risks (weaknesses):** Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**
   
   **2D/3D seismic Acquisitions:**
   - Weather conditions (winds) are disruptive during the first three quarters on the coastal area, resulting in a lot of idle periods and thus adding costs for the acquisition of seismic data.
   - Timelines for approval/signature by the DGH of seismic acquisition applications.

   **Drillings:**
   - Drilling rigs must be secured without delay to meet implementation schedules for planned drillings

6. **Beneficiaries:** LUKOIL, PETROCI

7. **Previous or ongoing actions:**

   **Obligations during the 1st phase:** 2 years
   - Acquisition and interpretation of 3D seismic data covering at least 860 km²
   - Geological Modeling and geochemical analyses
   - Transfer of 25% of the surface area

   **Obligations fulfilled:**
   - 2003: Acquisition and interpretation 3D seismic data covering 860 km²
   - Geological Modeling and geochemical analyses
   - 2009: Transfer of 25% of the initial 2617.32 km² surface area, i.e. 639.83 km²

   **2nd phase:** 2 ½ years
   - 01 exploration drilling (minimum depth 1500 m).
   - Transfer of 25% of the surface area
Current obligations:
2008-2012: 01 exploration drilling (minimum depth of 1500 m).

8. Implementation strategies:
Sharing information on 2011 program of activities and following-up on geological and geophysical studies (G&G) carried out by the operator.

9. Activities to be carried out:

<table>
<thead>
<tr>
<th>3rd phase: 2 ½ years</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 exploration drilling (minimum depth 1500 m).</td>
</tr>
</tbody>
</table>

10. Progress markers (indicators):
2011: Report on the application to undertake seismic surveys
   Environmental Impact Study Report ((EIES); Report on acquisition of new 3D seismic data (1100 km²)

11. Period of implementation
   Exploration periods:
   1st phase: 2 years (20 July 2001 - 22 January 2008) with multiple extensions (4 years)
   2nd phase: 2 ½ years (22 January 2008 – 31 July 2012) with a 12 months extension and another 12 month extension in 2011 for reasons of force majeure.
   3rd phase: 2 ½ years (31 July 2011 – 31 December 2013)

12. Contracting authority: LUKOIL, ORANTO, PETROCI
13. Project Manager: Operator LUKOIL
14. Partners: LUKOIL (63%), ORANTO (27%), PETROCI (10%)

15. Projected Costs: CFA 12,500 (Studies: USD 25,000,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>USD 5,000,000</td>
</tr>
<tr>
<td>2nd phase</td>
<td>USD 10,000,000</td>
</tr>
<tr>
<td>3rd phase</td>
<td>USD 10,000,000</td>
</tr>
</tbody>
</table>

16. Expected contributions
   - IC Government (PETROCI): USD 2,500,000, or 10%
     PETROCI’s share has been increased to 10% by the operator
   - Other partners: USD 22,500,000, or 90%
     - LUKOIL (63%),
     - ORANTO (27%).

17. Expected Gains: appraisal is continuing
18. Impact on MDGs/ Environment: to be determined.
19. Financing of recurrent expenditure: to be determined
PROJECT SHEET n° 12

<table>
<thead>
<tr>
<th>Action Code</th>
<th>Exploration of Block CI-206</th>
</tr>
</thead>
</table>

1. **Focus**: Intensification of research and exploration in the sedimentary basin of Côte d’Ivoire

2. **Objective**: Increase in local production within a maximum period of seven (7) years

3. **Description of the situation**: Block CI-205 covering an area of 1771.19 km², is located in deep waters (1800 to 3,000 m) to the west of Côte d’Ivoire. It was awarded to ORANTO (Operator) and PETROCI. To date, the contractual works stemming from the PSC are at the second exploratory phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**
   
   **2D/3D seismic Acquisitions**:
   - Weather conditions (winds) are disruptive during the first three quarters on the coastal area, resulting in a lot of idle periods, thus creating additional costs for the acquisition of seismic data.
   - Timelines for approval/signature by the DGH of seismic acquisition applications.

   **Drillings**:
   - Drilling rigs must be secured without delay to meet implementation schedules for planned drillings

6. **Beneficiaries**: ORANTO, PETROCI

7. **Previous or ongoing Actions**:

   **Obligations during the 1st phase**: 2 years
   - Acquisition and interpretation of 3D seismic data covering an area of 1100 km²
   - Geological Modeling and geochemical analysis
   - Transfer of 25% of the surface area

   **Obligations fulfilled**:
   2003: Acquisition of 3D seismic data covering an area of 1100 km²
   - Geological Modeling and geochemical analysis

   **2nd phase**: 2 ½ years
   - 01 exploration drilling (minimum depth 1500 m).
   - Transfer of 25% of the surface area

   **Current obligations**:
   2008-2012: 01 exploration drilling (minimum depth of 1500 m).
Implementation strategies:
Sharing information on 2011 program of activities and following-up on geological and geophysical studies (G&G) carried out by the operator.

8. Activities to be carried out:

**3rd phase:** 2 ½ years
- 01 exploration drilling (minimum depth 1500 m).

9. Progress markers (indicators):
2011: Report on the application to undertake seismic surveys
Environmental Impact Study Report ((EIES); Report on acquisition of new 3D seismic data (1100 km²)

10. Period of implementation
Exploration periods:
1st phase: 2 years (20 July 2001 - 22 January 2008) with an extension of 48 months
2nd phase: 2 ½ years (22 January 2008 – 31 January 2012) with an initial extension period of 24 months and a second extension period of 12 months
3rd phase: 2 ½ years (01 January 2012 – 01 July 2014)

11. Contracting Authority: ORANTO, PETROCI
12. Project Manager: ORANTO Operator
13. Partners: ORANTO (90%), PETROCI (10%)
14. Projected Costs: CFAF 12,500 (Studies: USD 25,000,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>USD 5,000,000</td>
</tr>
<tr>
<td>2nd</td>
<td>USD 10,000,000</td>
</tr>
<tr>
<td>3rd</td>
<td>USD 10,000,000</td>
</tr>
</tbody>
</table>

15. Expected contributions
- CI Government (PETROCI): USD 2,500,000, or 10 %
  PETROCI’s share has been increased to 10% by the operator
- Other Partners: USD 22,500,000, or 90%
  a. ORANTO (90%).

16. Expected Gains: appraisal is continuing
17. Impact on MDGs/ Environment: to be determined.
  Financing of recurrent expenditure: to be determined
1. **Focus**: Intensification of research and exploration in the sedimentary basin of Côte d’Ivoire

2. **Objective**: Increase in local production within a maximum period of 6 ½ years

3. **Description of the situation**:
   Block CI-401 covering an area of 925 km², is located in deep waters (500 to 3,000 m) to the east of Côte d’Ivoire. It was awarded to VANCO (Operator) and PETROCI on 30 September, 2005. To date, the contractual works stemming from the PSC are at the third exploratory phase.

4. **Cost of risks (weaknesses)**: Contact the operator to ascertain possible project-related risks.

5. **Project-related constraints**
   **2D/3D seismic Acquisitions**:
   - Weather conditions (winds) are disruptive during the first three quarters on the coastal area, resulting in a lot of idle periods, thus creating additional costs for the acquisition of seismic data.
   **Drillings**:
   - Drilling rigs must be secured without delay in order to meet implementation schedules for planned drillings.

6. **Beneficiaries**: VANCO, LUKOIL, PETROCI

7. **Previous or ongoing actions**:
   **Obligations during the 1st phase: 3 years**
   - Purchase and reprocessing of existing 2D seismic lines (486 km)
   - Acquisition of 2D seismic data covering 1500 km
   - Acquisition of 3D seismic data covering 600km²
   - Transfer of 25% of the surface area

   **Obligations fulfilled**:
   2005: Purchase and reprocessing of existing 2D seismic data covering 2533 km
   2D seismic acquisition covering 500 km
   3D seismic acquisition covering an area of 400 km²
   2010: Transfer of 25% or 627.89 km² of the initial 1239 km² surface area,
2nd phase: 2 years
- Acquisition of 3D seismic data covering 150 km²
- One (01) exploration drilling down to a minimum depth of 2500m
- Transfer of 25% of the initial surface

Obligations fulfilled:
2010: 3D seismic acquisition covering 500 km²
2010: Drilling of Orca-1X well,

Current obligations:
2012: One (01) exploration drilling down to a minimum depth of 2500m
        Transfer of 25% of the initial surface area

8. Implementation strategies:
Sharing information on 2011 program of activities and following-up on geological and geophysical studies (G&G) carried out by the operator.

9. Activities to be carried out:
3rd phase: 1 ½ years
- One (01) exploration drilling down to a minimum depth of 2500m

10. Progress Markers (indicators):
2006: Report on the application to undertake seismic surveys
      Environmental Impact Study Report (EIES);
      Report on acquisition of new 3D seismic data
2009: Report on the application to undertake seismic surveys
      Report on acquisition and processing of 3D seismic data
2012: Report on exploration drilling

11. Implementation period
      Exploration periods:
      2nd phase: 2 years (30 June 2008 – 30 June 2011) with a 12-month extension
      3rd phase: 1 ½ years (30 June 2011- 30 July 2012)

12. Contracting authority: VANCO, LUKOIL, PETROCI

13. Project Manager: Operator VANCO

14. Partners: VANCO (28,34%), LUKOIL (56,66%), PETROCI (15%)
15. Projected costs: CFAF 24,000 million (survey: USD 48,000,000 covering the 3 periods)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st phase</td>
<td>USD 8,000,000</td>
</tr>
<tr>
<td>2nd phase</td>
<td>USD 20,000,000</td>
</tr>
<tr>
<td>3rd phase</td>
<td>USD 20,000,000</td>
</tr>
</tbody>
</table>

16. Expected contributions
   - CI Government (PETROCI): USD 2,400,000 or 5% (PETROCI’s share has been increased to 10% by the other partners)
   - Other partners: USD 45,600,000, i.e. 95% (VANCO (28.34%), LUKOIL (56.66%))

17. Expected Gains: appraisal is continuing

18. Impact on MDGs/ Environment: to be determined.

19. Financing of recurrent expenditure: to be specified
1. Focus: Attain, by 2015, a domestic daily production of 200,000 b/d in crude oil and 250 million cubic feet of natural gas.

2. Objective
   - Maintain current field production and ensure a long operational life span.
   - Take action on the different wells in the field that have been damaged by silting with a view to rehabilitating them and bringing them back into production.
   - Gain greater knowledge of the causes of failure of the previous well to better design drilling and the completion of phase III, the most important phase in terms of investment and work volume.

3. Description of the situation (situational analysis)
   - **Phase I:** The Baobab field was developed initially with ten (10) production wells and three (3) with water injection in the course of 2005. These wells were fitted with expandable sand-filters (Expendable Sand Screen, ESS) in order to stop sand from entering as the reservoir was not much consolidated. Unfortunately, the ESS failed to work in five (5) wells out of the ten (10) producing wells. Four (4) of the damaged wells were in the south portion of the field, a fault zone.
   - **Phase II:** In 2008, in order to remedy the fall in production due to the closure of the wells, a second development phase was carried out involving drilling of four (4) new producing wells. These wells were fitted (completed) this time around with the Open Hole Gravel pack (OHGP), a system consisting of a perforated tube (screen) and processed sands (gravel) installed between the tube and the sides of the well. On account of a fracture, there was incomplete installation of “gravel” on two (2) of these wells. It was confirmed afterwards that these two wells were “problem wells”.

4. Cost of risks (weaknesses):
   - Technical risks related to operations;
   - High economic risks, social and environmental risks to be considered.

5. Project-related constraints:
   - Choice of the appropriate type of action on wells;
   - Choice of the completion technology (ESS or OHGP);
   - Choice of a piece of equipment for the operations.

6. Beneficiaries
   - State of Côte d’Ivoire;
   - CNR, PETROCI, SVENSKA.
   - Hydrocarbons market worldwide;
   - Ivorian natural gas market.
7. Previous or ongoing actions:
   - Development Phase I -- 2003-2006;
   - Development Phase II - 2008;
   - Ongoing: Preparatory work for phase II ½.

8. Implementation strategies:
   - Identify the wells selected for intervention;
   - Determine the adequate type of intervention for each well;
   - Reassess the hydrocarbon reserves available;

9. Activities to be carried out:
   - Identify the wells identified for the intervention;
   - Determine the appropriate type of intervention for each well;
   - Reassess the available hydrocarbon reserves;
   - Carry out well intervention taking into account experience gained during phase II.

10. Progress markers (indicators):
   - 1st Semester 2011: Selection of type of well intervention for each well;
   - 2nd Semester 2011: Design the interventions for each well;
   - 2012: Implementation phase;
   - October 2012: First Oil.

11. Period of implementation: 2012

12. Contracting authority: CNR International, the operator

13. Project Manager: The services company in charge of operations (to be selected)

14. Partners: PETROCI, SVENSKA.

15. Projected costs: CFAF 250,000 million (USD 500 million)

16. Expected Contributions
   - State of Côte d’Ivoire /PETROCI: Technical opinion before start of operations;
   - Local private sector: subcontracting for services to oil companies
   - External private sector: subcontracting for services to oil companies

17. Expected Gains: to be determined

18. Impact on MDGs/Environment: Contribution to domestic energy supply.

19. Financing recurrent expenditure: CNR, PETROCI, SVENSKA.
1. **Focus**: Attain, by 2015, a domestic daily production of 200,000 b/d in crude oil and 250 million cubic feet of natural gas.

2. **Objective**: Drill new development wells with a view to increasing oil and gas production.

3. **Description of the situation (situational analysis)**
   - **Phase I**: The Baobab field was developed initially with ten (10) production wells and three (3) with water injection in the course of 2005. These wells were fitted with expandable sand-filters (Expendable Sand Screen, ESS) in order to stop sand from entering as the reservoir was not much consolidated. Unfortunately, the ESS failed to work in five (5) wells out of the ten (10) producing wells. Four (4) of the damaged wells were in the south portion of the field, a fault zone.
   - **Phase II**: In 2008, in order to remedy the fall in production due to the closure of the wells, a second development phase was carried out involving drilling of four (4) new producing wells. These wells were fitted (completed) this time around with the Open Hole Gravel pack (OHGP), a system consisting of a perforated tube (screen) and processed sands (gravel) installed between the tube and the sides of the well. On account of a fracture, there was incomplete installation of “gravel” on two (2) of these wells. It was confirmed afterwards that these two wells were “problem wells”.
   - **Phase II 1/2**: A phase II ½ will be implemented in 2012 prior to phase III. It will consist of remedial intervention on the damaged wells of phases I and II with a view to rehabilitating them. Such action will help to give a better understanding of the causes of their failure.

4. **Cost of risks (weaknesses)**:
   - Technical risks related to operations;
   - High economic risks, social and environmental risks to be considered.

5. **Project-related constraints**:
   - Availability of results for phase II ½;
   - Choice of appropriate drilling techniques;
   - Choice of completion technology (ESS or OHGP);
   - Choice of a drilling platform for the operations.

6. **Beneficiaries**
   - State of Côte d’Ivoire;
   - CNR, PETROCI, SVENSKA.
   - Hydrocarbons market worldwide;
   - Ivorian natural gas market.
7. Previous or ongoing actions:
   - Development Phase I -2003-2006;
   - Development Phase II - 2008;
   - Development Phase II ½ in 2012 (not yet implemented)
   - Ongoing: Preparatory work for phase III.

8. Implementation strategies: will be clarified after phase II ½.

9. Activities to be carried out: Drilling and completion of new producing wells.

10. Progress markers (indicators):
    - 2011-2012: Synthesis of the work done in phase II ½;
    - 2012-2013: Design of the drilling and completion systems for the wells;
    - 2014-2015: Implementation Phase;
    - October 2015: First Oil.


12. Contracting authority: CNR International, the operator

13. Project Manager: The services company in charge of drilling (To be selected)

14. Partners: PETROCI, SVENSKA

15. Projected Costs: CFAF 1,000,000 (1,000 to 2,000 Million US Dollars)

16. Expected Contributions
    - State of Côte d’Ivoire /PETROCI: Technical opinion before operations;
    - Local private sector : subcontracting for services to oil companies;
    - External private sector: subcontracting for services to oil companies

17. Expected Gains: To be determined

18. Impact on MDGs/Environment: Contribution to domestic energy supply.

19. Financing recurrent expenditure: CNR, PETROCI, SVENSKA
1. **Focus:** Attain, by 2016, a domestic daily production of 200,000 b/d in crude oil and 250 million cubic feet of natural gas.

2. **Objective**
   - Drill new producing wells in poorly-drained areas and water injection wells.
   - Action on defective wells (workover) with a view to rehabilitating them.
   - Simultaneously develop the Etimoe prospect. The option of a new production platform is not set aside.

3. **Description of the situation (situational analysis)**
   After exploitation by Phillips Petroleum at the end of the 1970’s, CNR International started a new development in the Espoir field in 2002 and 2006 by drilling about twenty water-injection producing wells. Today, many of these wells function very much below normal performance as a result of silting. A phase III development has therefore been decided; it will consist of drilling new wells and trouble-shooting on wells that can be rehabilitated.

4. **Cost of risks (weaknesses):**
   - Technical risks related to operations;
   - High economic risks, social and environmental risks to be considered.

5. **Project-related** constraints:
   - Need for the construction of new cellars for drilling equipment;
   - Time-related constraint for getting « First Oil » as fast as possible;
   - Availability of a drilling platform by mid-2012.

6. **Beneficiaries**
   - State of Côte d’Ivoire;
   - CNR, PETROCI, TULLOW.
   - Hydrocarbons market worldwide;
   - Ivorian natural gas market.

7. **Previous or ongoing actions:**
   - Development Phase I;
   - Development Phase II;
   - Ongoing: Preparatory work for phase III.
8. Implementation Strategies:

- The project will be divided into two (2) parallel phases in order to overcome time constraints:
  - Designing the wells;
  - Describing the most prolific reservoir areas.
- To take immediate advantage of the availability of a Rig (drilling platform) by mid-2012, work implementation will be carried out in three (3) stages:
  - Stage 1: Drilling of the most reliable wells in terms of design and available reserves to replace already damaged wells;
  - Stage 2: Drilling of intermediate status wells;
  - Stage 3: Drilling of the wells that have the least viable design criteria and lowest volume of available reserves.

9. Activities to be carried out:

- Construction of new drilling cellars;
- Drilling and completion of new wells;
- Intervention (workover) on old wells.

10. Progress markers (indicators):

- April 2012: commencement of drilling;
- June 2012: First Oil.


12. Contracting authority: CNR International, the operator

13. Project Manager: The service company in charge of drillings (to be selected)

14. Partners: PETROCI, TULLOW

15. Projected Costs: CFAF 140,000 million (USD 400 million for Phase 1).

16. Expected Contributions
   - State of Côte d’Ivoire /PETROCI: Technical opinion before operations;
   - Private local companies: sub-contracting to oil companies;
   - External private businesses: sub-contracting to oil companies.

17. Expected Gains: to be determined

18. Impact on MDGs/Environment: Contribution to the supply of domestic energy.

19. Financing recurrent expenditure: CNR, PETROCI, TULLOW
1. **Focus:** Attain, by 2016, a domestic daily production of 200,000 b/d in crude oil and 250 million cubic feet of natural gas.

2. **Objective:** Develop the Kudu and Eland fields in Block CI-01.

3. **Description of the situation (situational analysis)**
   - Proven reserves:
     - Kudu: 54.5 BCF & 719 MBO;
     - Eland: 40.2 BCF & 502 MBO.

4. **Cost of risks (weaknesses):**
   - Technical risks related to operations;
   - High economic risks, social and environmental risks to be considered.

5. **Project-related constraints:** Availability of a natural gas market.

6. **Beneficiaries**
   - State of Côte d’Ivoire;
   - AFREN, PETROCI, SK CORPORATION.
   - Global Hydrocarbons market;
   - Ivorian natural gas market.

7. **Previous or ongoing actions:** Geosciences surveys and exploration drilling.

8. **Implementation strategies:**
   - For the Kudu field (71.6m water depth):
     - Drilling of two (2) development wells;
     - Installation of a « jacket » type fixed platform: the main operational platform.
   - For the Eland field (84.5m water depth):
     - Drilling of two (2) development wells;
     - Installation of an adjoining platform of a caisson type, without Helideck
   - Pipelines for exporting hydrocarbons:
     - A 10” pipeline from Kudu to Lion LPG (72Km);
     - An 8”pipeline between Eland and Kudu (18Km).

9. **Activities to be carried out:**
   - Drilling of wells;
   - Construction and installation of oil platforms;
   - Laying of pipelines.

10. **Progress markers (indicators):** To be specified in case outlets for natural gas.
11. **Implementation period**: unspecified (project duration: 2 years).

12. **Contracting authority**: AFREN, the operator

13. **Project Manager**: The service companies in charge of operations (to be selected).

14. **Partners**: PETROCI, SK CORPORATION

15. **Projected costs**: USD 280 million
   - Drilling and completion: USD 100 million;
   - Platforms and surface installations: USD 180 million.

16. **Expected Contributions**
   - State of Côte d’Ivoire /PETROCI: Technical opinion before operations;
   - Local private sector: subcontracting services to oil companies;
   - External private sector: subcontracting services to oil companies.

17. **Expected Gains**: to be determined

18. **Impact on MDGs/Environment**: Contribution to domestic energy supply.

19. **Financing recurrent expenditure**: AFREN, PETROCI, SK CORPORATION.
1. **Focus**: Attain, by 2015, a domestic daily production of 200,000 b/d in crude oil and 250 Million cubic feet of natural gas.

2. **Objective**: Develop the Mahi, Foxtrot, Marlin and Manta fields in Block CI-27.

3. **Description of the situation (situational analysis)**
   - The Foxtrot field has been producing since 1999 with four (4) producing wells and a fifth (5th) well will be drilled on this field;
   - Exploration work has been carried out on the Mahi, Marlin and Manta fields;
   - The proven reserves are:
     - Mahi: 163 BCF & 1 MMBO (condensate);
     - Marlin: 188 BCF & 8.4 MMBO (crude);
     - Manta: 164 BCF & 0.7 MMBO (condensate).

4. **Cost of risks (weaknesses)**:
   - Technical risks related to operations;
   - High economic risks, social and environmental risks to be considered.

5. **Project-related constraints**:
   - Availability of a natural gas market;
   - Distance between the Marlin and Manta fields on the Foxtrot platform;
   - Export of the crude oil produced.

6. **Beneficiaries**
   - State of Côte d’Ivoire;
   - FOXTROT, PETROCI, SECI, ENERCI.
   - Global Hydrocarbons market;
   - Ivorian natural gas market.

7. **Previous or ongoing actions**:
   - Development of the Foxtrot field;
   - Geosciences surveys and exploratory drilling on the Mahi, Marlin and Manta fields.

8. **Implementation strategies**:
   - *With the Foxtrot field platform as base*:
     - Two gas (2) wells have been drilled on Mahi;
     - An oil producing well has been drilled on Foxtrot.
With the new Marlin platform as base:
- Three (3) oil wells have been drilled on Marlin;
- Subsequent drilling of two (2) gas wells on Manta.
- An FSO (Floating, Storage and Offloading) that will receive oil from Marlin and export the associated gas through a 12” pipeline (15Km long) to existing pipelines.

9. Activities to be carried out:
- Drilling of wells;
- Construction and installation of platforms;
- Laying of de pipelines

10. Progress markers (indicators):
- End of 2011 - 2012: Drilling of the Mahi and Foxtrot wells;
- End of 2012 - 2013: Developing of Marlin;
- 2014: Drilling of the Manta well.


12. Contracting authority: FOXTROT International, the operator

13. Project Manager: The service company in charge of operations (to be selected).

14. Partners: PETROCI, SECI, ENERCI.

15. Projected costs: 262 500 (USD 525 million)
- Drilling of Mahi and Foxtrot wells: USD 150 million;
- Development of Marlin: USD 275 million;
- Development of Manta: USD 100 million.

16. Expected Contributions
- State of Côte d’Ivoire /PETROCI: Technical opinion before operations;
- Local private sector: subcontracting services to oil/gas companies;
- External private sector: subcontracting services to oil/gas companies.

17. Expected Gains: to be determined

18. Impact on MDGs/Environment: Contribution to domestic energy supply.

19. Financing recurrent expenditure: AFREN, PETROCI, SK CORPORATION.
1. **Focus**: Attain, by 2015, a domestic daily production of 200,000 b/d in crude oil and 250 Million cubic feet of natural gas.

2. **Objective**: Develop the Gazelle and Hippo fields of Block CI-202.

3. **Description of the situation (situational analysis)**
   - Prospective P mean Resources of:
     - Oil: 409 MMBO;
     - Gas: 760 Bscf.
     - Gazelle Reserves: 12 MMBO (oil) & 100 BCF (Gas)

4. **Cost of risks (weaknesses)**:
   - Technical risks related to operations;
   - High economic risks, social and environmental risks to be considered.

5. **Project-related constraints**:
   - Availability of a gas market;
   - Pipeline route towards Abidjan (Lion LPG, SIR);
   - Construction of a fixed platform on a little consolidated sea bottom.

6. **Beneficiaries**
   - State of Côte d’Ivoire;
   - RIALTO, PETROCI, C&L.
   - Global Hydrocarbons market;
   - Ivorian natural gas market

7. **Previous or ongoing actions**: Geosciences surveys and exploratory drilling.

8. **Implementation strategies**:
   - Concerning the Gazelle field (50m water depth):
     - Drilling of 6 development wells, 3 initially and 3 in the future;
     - Installation of a fixed platform measuring 50 X 75 feet: the main operations platform.
   - Concerning the Hippo field (90m water depth):
     - Drilling of 3 development wells, 1 initially and 2 in the future;
     - Installation of a fixed adjoining platform measuring 40 X 40 feet: this platform will be connected to the Gazelle platform by a 6” diameter pipeline.
   - Export hydrocarbon pipelines to consumer markets:
     - A 14” gas pipeline from Gazelle to Lion LPG;
     - An 8” oil pipeline from Gazelle to Lion LPG.

   The lines could be extended to Block CI-01 farther to the east in collaboration with AFREN for the development of the Kudu and Eland fields.
9. Activities to be carried out:
   - Well drilling;
   - Construction and installation of platforms;
   - Laying of pipelines


11. Implementation period: 2012 - 2013:

12. Contracting authority: RIALTO, the operator.

13. Project Manager: The service companies in charge of operations (to be selected).

14. Partners: PETROCI, C&L.

15. Projected costs: CFAF 82,600 million (USD 165.2 million)
   - Drilling and completion of two (2) wells at Gazelle: USD 54.4 million;
   - Gazelle platform: USD 110.8 million;

16. Expected Contributions
   - State of Côte d’Ivoire /PETROCI: Technical opinion before operations;
   - Local private sector: subcontracting services to oil/gas companies;
   - External private sector: subcontracting services to oil/gas companies.

17. Expected Gains: To be determined

18. Impact on MDGs/Environment: Contribution to domestic energy supply.

19. Financing recurrent expenditure: RIALTO, PETROCI, C&L.
1. **Focus**: Make Côte d’Ivoire a regional West African energy hub

2. **Objective**: Ensure that the Ivorian domestic market is supplied in natural-gas at affordable prices.

3. **Description of the situation**: Construct a land-based Abidjan to Assinie gas pipeline otherwise known as the Eastern Gas Pipeline to collect domestic production from the South-East and interconnect in the future with the West African Gas Pipeline (WAPCO Project).

4. **Cost of risks (weaknesses)**: to be clarified by way of assumptions and calculations
   - Internal:
   - External:
   - Industry:

5. **Project-related constraints**: Environmental and social impact in the early construction phase, providing right of way for the route in the construction phase, and establishing the appropriate institutional, legislative and regulatory framework.

6. **Beneficiaries**: Electricity sector, industrial, tertiary and household sectors as well as the Ivorian gas market

7. **Previous or ongoing actions**: Implementation of an Agreement CI State /PETROCI/SOGEPE; financing the civil engineering study phase; doing a summary feasibility appraisal of the project; identifying the pipeline routes.
   - **July 2011**: Presentation of SAIPEM’s economic appraisal report on natural gas supply strategies by Côte d’Ivoire.

   Signing of a memorandum of understanding between SAIPEM and PETROCI defining the main modalities of the collaborative framework to implement the project.

8. **Implementation strategies**: Private Public Partnership between PETROCI and private partners regrouped as a gas company operating under a concession agreement with the State of Cote d’Ivoire.

9. **Activities to be carried out**:
   - Feasibility study to be carried out for the construction of the Eastern Gas Pipeline
   - Negotiation of an MOU between SAIPEM and PETROCI HOLDING to specify the Terms of Reference of the feasibility study for the project.
   - Updating and validating the development plans for Blocks CI-01 and CI-202.
   - Raising capital from international financial institutions for the overall financing of the project.
10. **Progress markers (indicators):** 2010-2013
   - Technical and economic feasibility as well as civil engineering studies.
   - Signing of a Concession Agreement between the Ivorian state and the gas company
   - Environmental and social impact studies and supply of materials and equipment.
   - Contract award letter and EPC contract.
   - Building site meeting minutes and acceptance of works.
   - Commissioning Report

11. **Period of implementation:** 2011-2013

12. **Contracting authority:** PETROCI & partners

13. **Project Manager:** SAPIEM

14. **Partners:** PETROCI, SAPIEM, private and institutional partners

15. **Projected costs:** CFAF 32,500 million
   - Studies: CFAF 975 million
   - Equipment: CFAF 16,250 million
   - Works: CFAF 15,275 million

16. **Expected Gains:** to be determined

17. **Expected Contributions**
   - To be determined after feasibility studies.

18. **Impact on MDGs/Environment:** Destruction of farms and flora and possible need to resettle some communities.

19. **Financing recurrent expenditure:** to be determined
PROJECT SHEET n° 21

<table>
<thead>
<tr>
<th>Project</th>
<th>CONNECTION TO THE WEST AFRICA GAS PIPELINE (WAGP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Code</td>
<td>HC_UPST/GN/CT_2</td>
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</table>

1. **Focus:** Sub-regional integration in energy systems and making Côte d’Ivoire a West African regional energy hub

2. **Objective:** Secure regular natural gas supplies at affordable prices for the domestic market through interconnection to sub-regional reserves.

3. **Description of the situation:** Interconnection with the West African Gas pipeline (WAGP). At present, the offshore pipeline of about 700 km starts in Nigeria and has reached Takoradi in Ghana. The remaining stretch to be built, extending the pipeline to Côte d’Ivoire, is about 300 km long.

4. **Cost of risks (weaknesses):** to be clarified by assumptions and calculations
   - External risks: Cuts originating in Nigeria of natural gas supplies to Côte d’Ivoire

5. **Project-related constraints:** Environmental and social impact in the construction phase

6. **Beneficiaries:** State of Côte d’Ivoire, Ivorian electrical and industrial companies.

7. **Previous or ongoing actions:** Addressed to the ECOWAS Secretariat, a Letter of Intent requesting Côte d’Ivoire’s membership in the WAGP project. Visit to the Inter-State Transmission Company WAGPCo in Accra. Financing and Intermediation assistance Agreement with a private consultancy Management firm (PCM).

8. **Implementation strategies:** Negotiate the entry of Côte d’Ivoire into the WAPCO Project with a view to obtaining the same benefits as the founding countries.

9. **Activities to be carried out:** Undertake a technical and economic feasibility study; sign the various commercial contracts (buying gas from NGAS, transmission and interconnection with WAGPCo).

10. **Progress markers (indicators):**
    - 2013-2014: Feasibility Studies Report; Signature of the Amendment to the Inter-State Treaty making Côte d’Ivoire a member Environmental and social impact studies; Signing of different commercial contracts and financing agreements.
    - 2014-2016: Signing of EPC Contracts; Site Meeting minutes and acceptance of works
    - 2016-2017: Entry into service and commencement of gas supply.
    - 2014: Work and entry into service

11. **Period of implementation:** short term (2012 – 2017)

12. **Contracting authority:** WAPCO

13. **Project Manager:** To be determined

14. **Partners:** Shell Int., Chevron, SOTOGAZ (Société Togolaise de Gaz), VRA Ghana (Volta River Authority), SoBeGaz (Société Béninoise de gaz), PETROCI
15. **Projected costs**: FCFA 317 500 million  
   Studies: FCFA 9 525 million  
   Equipment: FCFA 158 750 million  
   Works: FCFA 149 225 million

16. **Expected Contributions**  
   To be determined after the feasibility studies

17. **Expected Gains**: To be determined

18. **Impact on MDGs/Environment**: Destruction of farms and flora and possible resettlement of some communities.

19. **Financing recurrent expenditure**: RIALTO, PETROCI, C&L.
1. **Focus**: Make Côte d’Ivoire the sub-regional (West African) energy Hub

2. **Objective**: Secure natural gas supplies at affordable prices for the domestic market.

3. **Description of the situation**: Acting to facilitate and speed up the development of the Ivorian gas industry, the previous government, through the then Minister of Petroleum Resources, authorized the oil companies to pre-finance the construction of gas pipelines pending the establishment of an appropriate legislative and regulatory framework. Furthermore, the Minister was careful to point out that the government intended to get this activity out of upstream oil operations once the new laws and regulations were adopted.

   Today, to achieve a reduction in supply costs and streamline the operation of these pipelines in accordance with legal provisions and generally accepted professional standards, the buy-back of these transmission facilities by third parties is a necessity.

4. **Cost of risks (weaknesses)**: not identified

5. **Constraints related to the project**: Design and passage of legislative and regulatory statutes, estimation of the commercial value of the pipelines.

6. **Beneficiaries**: State of Côte d’Ivoire, local market (electricity production, industrial and household use...)

7. **Previous or ongoing actions**: Design of legislative and implementing regulations

8. **Implementation strategies**: Implementation of legislative and regulatory texts and creation of a management entity for the gas transmission lines; negotiation on the price of natural gas at the wellhead.

9. **Activities to be carried out**: Establish a new price structure for natural gas; negotiate with the gas operators.

10. **Progress markers**: To be determined

11. **Period of implementation**: 2012

12. **Contracting authority**: Transmission Company

13. **Project Manager**: To be determined

14. **Partners**: PETROCI & Associates

15. **Projected costs**: To be determined

16. **Expected Contributions**: To be determined after the feasibility study

17. **Expected Gains**: To be determined

18. **Impact on MDGs/Environment**: not identified

19. **Financing recurrent expenditure**: RIALTO, PETROCI, C&L.
1. **Focus**: Make Côte d’Ivoire the hub of the sub-regional energy market

2. **Objective**: Secure natural gas supplies at affordable prices for the domestic market.

3. **Description of the situation**: continuing

4. **Cost of risks (weaknesses)**: indicate the assumptions and calculations
   - **Internal**: Absence of an Ivorian or sub-regional development plan for the gas sector
   - **External**: Increased demand by countries outside the ECOWAS and ECCAS sub-regions
   - **Industry**: Lack of a specialized training institution for the gas sector.

5. **Project-related constraints**: “take or pay” type of contract

6. **Beneficiaries**: State of Côte d’Ivoire, the sub-region, gas producer companies, gas transportation and distribution.

7. **Previous or ongoing actions**: launch of notices inviting Expressions of Interest.

8. **Implementation strategies**: apportion the domestic market

9. **Activities to be carried out**: Contact the various domestic actors/players and set up planning of work sessions.

10. **Progress markers (indicators)**:
    - 2012: Studies (technical and economic feasibility, engineering, environmental and social impact)
    - 2013: Construction and start of operation

11. **Period of implementation**: 2012 - 2013

12. **Contracting authority**: PETROCI & SAPIEM

13. **Project Manager**: SAPIEM

14. **Partners**: All the producers, transmission and distribution operators

15. **Projected costs**: CFAF 225,000 million
    - Studies: CFAF 6,750 million
    - Equipment: CFAF 112,500 million
    - Works: CFAF 105,750 million

16. **Expected Contributions**: To be determined after the feasibility studies

17. **Expected Gains**: To be determined

18. **Impact on MDGs/Environment**: unidentified

19. **Financing recurrent expenditure**: RIALTO, PETROCI, C&L.
1. **Focus:** Make Côte d’Ivoire the hub of the sub-regional energy market

2. **Objective:**
   - Protect the environment by limiting atmospheric and sound pollution
   - Develop the Ivorian gas potential
   - Develop the public transportation system by reducing its operational costs

3. **Description of the situation**
   - Launching the project’s operational phase by pilot phase testing.
   - Appraisal phase of the pilot project

4. **Cost of risks (weaknesses):**
   - External: Insufficient natural gas supplies and cost recovery from SOTRA (the bus company)

5. **Project-related constraints:** Lack of an appropriate and standardized regulatory framework in Côte d’Ivoire and SOTRA’s inability to honor its financial commitments

6. **Beneficiaries:** the general public and the transport sector

7. **Previous or ongoing actions:**
   - Pre- acceptance of the 2 last buses
   - Project Appraisal

8. **Implementation strategies:**
   - Pilot project
   - Increasing the SOTRA fleet
   - Popularizing the GNV

9. **Activities to be carried out:**
   - Acceptance of the last two buses shipped
   - Rebranding of these two buses
   - Setting up the Monitoring Committee

10. **Progress markers (indicators):**
    - SOTRA is connected to the PETROCI natural gas network
    - Installation of pressure regulator and metering stations at SOTRA
    - Installation of a compressor station at SOTRA
    - Installation of a storage facility dedicated to the natural gas-powered buses
    - Installation of distribution equipment
    - Signing a natural gas supply contract at SOTRA
    - The first two buses are put into service

11. **Period of implementation:** 2011 - 2016
12. **Contracting authority:** PETROCI SOTRA

13. **Project Manager:** Private Consultancy firm, PETROCI

14. **Partners:** PETROCI & SOTRA

15. **Projected costs:** CFAF 700 million (Studies and Equipment)

16. **Expected Contributions:** State of Côte d'Ivoire (PETROCI) CFAF 700 million, i.e. 100 %

17. **Expected Gains:** To be determined

18. **Impact on MDGs/Environment:** Reduction in atmospheric and sound pollution

19. **Financing recurrent expenditure:** to be determined
PROJECT SHEET n° 25

<table>
<thead>
<tr>
<th>Project</th>
<th>Pilot Project for Distribution of Compressed Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Code</td>
<td>HC_UPST/GN/CT_5</td>
</tr>
</tbody>
</table>

1. **Focus**: Make Côte d’Ivoire competitive and attractive country through the provision of clean and cheap energy.

2. **Objective**: Develop the natural gas distribution network by expanding use of compressed gas, to:
   - Supply factories, industrial centers, the tertiary sector and residential areas not yet supplied by the network.
   - Expand the market up to 400 km upcountry
   - Develop natural gas applications through disseminating use of bottled (cylinder) gas
   - Release the LPG for residential sectors upcountry
   - Prepare for a piped gas distribution network operating under the best safety conditions and with a sustainable rate of return

3. **Description of the situation**
   - Existence of distribution networks supplying the industrial areas in metropolitan Abidjan (Marcory, Vridi, Treichville, Yopougon): 18 Km completed and 15 km under construction.
   - Many interested potential customers in the industrial, tertiary and residential sectors all over the country: inability to supply them is due to a lack of infrastructure.

4. **Cost of risks (weaknesses)**: **External**: failure to supply enough gas

5. **Project-related constraints**: Regulatory, institutional and regulatory framework for the transmission and distribution of natural gas.

6. **Beneficiaries**: State of Côte d’Ivoire or PETROCI, industrial, tertiary and residential sectors,

7. **Previous or ongoing actions**: Preliminary studies and contacts with potential partners and suppliers.

8. **Implementation strategies**:
   - Pilot project to substitute butane gas for oil products with about 4 industrial users in Abidjan
   - Wider application of gas substitution for petroleum products in the industrial quarters of Abidjan coupled with simultaneous distribution to residential areas for use as household fuel, all from a micro-network.
   - Pilot distribution to some communities and community facilities (hospitals, schools, etc.) and craft industries and associated electricity generation for small isolated electricity grids
   - Start distribution in coastal SAN PEDRO by supplying a few large-scale energy consumers, - fuel, heating, refrigeration – which would make it possible to assess the gas market in this city and prepare a possible gas pipeline project to the city.
9. Activities to be carried out:
   - Demarcation of the pilot zone
   - Engineering, environmental and social impact studies
   - Construction of installations: gas delivery, compression, discharge, storage and conditioning stations.
   - Procurement of equipment for the transmission of compressed gas

10. Progress markers (indicators):
   - 2012: Pilot Project: Studies (technical and economic feasibility, engineering, environmental and social impact), supply of plant and equipment, works and start of operations
   - 2013: Pilot distribution to some communities combining housing – community infrastructure (hospitals, schools, etc..) as well as craft industries and associated electricity generation by small isolated electricity grids. Starting work on gas distribution in San Pedro


12. Contracting authority: PETROCI

13. Project Manager: Private Consultancy firms

14. Partners: to be identified

15. Projected costs: CFAF 5,000 million
   - Studies: CFAF 150 million, or 3% of the budget
   - Equipment: CFAF 2,500 million or 50% of the budget
   - Works: CFAF 2,350 million or 47% of the budget

16. Expected Contributions: State of Côte d’Ivoire: 100 %

17. Expected Gains: to be determined

18. Impact on MDGs/Environment: Surveys to be carried out

19. Financing recurrent expenditure: to be determined
## CHRONOGRAMME DES ACTIONS POUR LE PROJET PILOTE DE DISTRIBUTION PAR GAZ PORTE

| SEMAINE | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

**Chiffres et alinéas**
1. Décision de réalisation
2. Identification des clients et évaluation du potentiel
3. Lettres d'intention
4. Constitution de l'équipe projet
5. Elaboration des termes de référence (cahier de charges)
6. Concurrence et appel d'offres
7. Recevoir et analyser des offres
8. Choix du maître d'œuvre
9. Contrats de collaboration et étude conceptuelle et descriptive
10. Réunions et transfert de compétence
11. Études détaillées et spécifications équipements principaux
12. Études finales et définition des procédures et opérations
13. Réunions de travail avec le maître d'œuvre à Abidjan
14. Suivi des fournisseurs d'équipement
15. Règles d'installation et de sécurité
16. Confirmer les dimensions, conditions et contraintes principales
17. Fabrication réservoirs et container
18. Remise des Conception
19. Études d'implantation, montage et génie civil
20. Commandes des autres équipements et installations industrielles
21. Préparation des lance et installation énergie électrique
22. Constructions locales
23. Transport DEQ/ÉQUIPEMENTS et installations
24. Mise en service et accrochage CLIENTS
25. Mise en service de la distribution
26. Réunion continue et mise à niveau périodique

**Schéma**

- **Réseaux**
- **Containers**

---

**Coulours**
- **PETROCI**
- **Maître d'œuvre**
- **Conseiller en réservoirs**
- **Compresseur**
- **Compagnie EE**

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**Note**
- 2011 et 2012
1. **Focus**: Make Côte d’Ivoire the hub of the sub-regional energy market

2. **Objective**: Secure natural gas supplies for the domestic market

3. **Description of the situation**: This project consists of setting up a natural gas distribution infrastructure to supply an industrial area in Yopougon, a populated sub-district of Abidjan.

4. **Cost of risks (weaknesses)**:
   - **Internal**: natural gas transfer price
   - **External**: disruption in the natural gas supply

5. **Project-related constraints**:
   - **ADMINISTRATIVE CONSTRAINTS**
     - Diversion of the new St-Pierre road following an AGEROUTE recommendation (additional stretch which led to additional public works)
     - Awaiting AGEROUTE authorization and recommendations to pass the gas pipe/main on Abidjan’s 3rd bridge (since June 2011)
     - Delayed ordering procedures for the by-pass and gasoline removal unit as a result of the post-electoral crisis (postponement)
   - **TECHNICAL CONSTRAINTS**
     - The land lot that was acquired to build the source station poses a problem (waste water gutter right in the middle)

6. **Beneficiaries**: State of Côte d’Ivoire, domestic market (industrial sectors)

7. **Previous or ongoing actions**:

<table>
<thead>
<tr>
<th>INFRASTRUCTURE</th>
<th>DETAILS</th>
<th>LEVEL OF IMPLEMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source station</td>
<td>• Natural gas treatment unit&lt;br&gt;• A supervisory system&lt;br&gt;• A technical and office building&lt;br&gt;• A workshop and a store&lt;br&gt;• A storage shed&lt;br&gt;• Safety precautions (Lightening rod, fire alarm system, etc…)&lt;br&gt;• Connections to FOXTROT and AFREN</td>
<td>5%</td>
</tr>
<tr>
<td>Natural gas distribution network</td>
<td>• Underground piping&lt;br&gt;• Safety mechanisms (valves, cathodic protection, etc…)&lt;br&gt;• Connection to customers&lt;br&gt;• Tele-operation (fiber optics, supervision)</td>
<td>90%</td>
</tr>
</tbody>
</table>

8. **Implementation strategies**: Approach new prospects in the extension areas and offer pre-financing from PETROCI to convert their units.
9. Activities to be carried out:
   o Acquisition of gas treatment station
   o Development and layout of the source station
   o Construction of the network
   o CIE delivery post at the source station
   o Trials, control and fueling the network

10. Progress markers (indicators):
    September 2011: End of network construction
    4th quarter of 2011: Estimated 1st supply to customers: in July 2012:
    Completion of work on the source station:

11. Period of implementation: short term

12. Contracting authority: PETROCI

13. Project Manager: PETROCI

14. Partners: to be identified

15. Projected costs: CFAF 3,700 million

16. Expected contributions: State of Côte d'Ivoire (PETROCI): 100 %

17. Expected Gains: to be determined

18. Impact on the MDGs/Environment: Possible relocation of some communities; less green house gas emissions.

19. Financing recurrent expenditure: to be determined.
**PROJECT SHEET no 27**

<table>
<thead>
<tr>
<th>Project</th>
<th>DISTRIBUTION NETWORK EXTENSION TO THE KOUMASSI INDUSTRIAL AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Code</td>
<td>HC_UPST/GN/CT_7</td>
</tr>
</tbody>
</table>

1. **Focus:** Make Côte d’Ivoire the hub of sub-regional energy market
2. **Objective:** Secure natural gas supplies for the domestic market
3. **Description of the situation:** Densification of natural gas distribution network
4. **Cost of risks (weaknesses):**
   - **Internal:** natural gas transfer price
   - **External:** disruption in the natural gas supply
5. **Project-related constraints:** Unavailability of natural gas, natural gas transfer price,
6. **Beneficiaries:** State of Côte d’Ivoire, local market (industrial, tertiary and domestic sectors)
7. **Previous or ongoing actions:** Existing utility distribution networks and engineering study of network extension.
8. **Implementation strategies:** Approach several prospects in the planned extension areas and propose PETROCI pre-financing to convert their units.
9. **Activities to be carried out:** Engineering study, supply of plant and equipment, economic and social impact study, work to completion and startup
10. **Progress markers (indicators):** to be determined
11. **Period of implementation:** 2013
12. **Contracting authority:** PETROCI & Private Partners
13. **Project Manager:** PETROCI & Private Partners
14. **Partners:** not yet identified
15. **Projected costs:** CFA 5,000 million
   - Studies: CFA 500 million
   - Equipment: CFA 2,250 million
   - Installation work: CFA 2,250 million
16. **Expected Contributions:** to be specified
17. **Expected gains:** to be determined
18. **Impact on MDGs/Environment:** Possible relocation of communities and reduced green house gas emissions.
19. **Financing recurrent expenditure:** to be determined.
1. **Focus:** Make Côte d’Ivoire the hub of sub-regional energy

2. **Objective:** Substitute with LPG in the residential and tertiary areas in Abidjan in order to have enough for upcountry districts

3. **Description of the situation:**
   - Existence of distribution networks to supply the industrial areas in Abidjan (Marcory, Vridi, Treichville, Yopougon): 18 km have been completed and 15 km are being installed.
   - Less expensive and unsubsidized natural gas will replace subsidized LPG in the more structured city quarters.

4. **Cost of risks (weaknesses):** clarify the assumptions and calculations
   - Internal: natural gas transfer price
   - External: disruption in the natural gas supply

5. **Project-related constraints:**
   - Formulation and adoption of a regulatory, institutional and legislative framework for the transmission and distribution of natural gas
   - Disseminating use of gas (bringing in a gas consumer “culture”).

6. **Beneficiaries:** State of Côte d’Ivoire, residential and tertiary sectors

7. **Implementation strategies:**
   - Pilot Project on distribution in Zone 4 & Treichville
   - Creation of partnerships with house building operators
   - Promotion of natural gas equipment

8. **Activities to be carried out:** Demarcation of the pilot zone, engineering studies, environmental and social impact study, supply of machines and equipment, works and their commissioning

9. **Progress markers (indicators):**
   - 2012: Technical and economic feasibility studies and engineering studies
   - 2013: Environmental and social impact studies and supply of machines and equipment
   - 2015: Work completion and startup

10. **Period of implementation:** short term

11. **Contracting authority:** PETROCI

12. **Project Manager:** PETROCI & Private Consultancy firms
13. **Partners:** PETROCI & Private Consultancy firms to be identified

14. **Projected costs:** CFAF 15,000 millions
   - Studies: CFAF 450 million
   - Equipment: CFAF 7,500 million
   - Work: CFAF 7,050 million

15. **Expected contributions:** to be determined after feasibility studies

16. **Expected contributions:** to be specified

17. **Expected Gains:** to be determined

18. **Impact on MDGs /Environment:** Possible relocation of some communities and less greenhouse gas emissions.

19. **Financing recurrent expenditure:** to be determined.
1. **Focus**: Make Côte d’Ivoire the hub of the sub-regional energy market

2. **Objective**: Ensure the quality of distributed natural gas and maximize national production of LPG

3. **Description of the situation**: Natural gas pumped through the piping that crosses the Jacqueville peninsula is roughly processed on platforms. Only AFREN and CNR gas flows are properly processed after moving through the LION-LPG unit where their contents in acid gas (CO2), water (H2O) and liquid hydrocarbons (condensate and LPG) are brought back to acceptable levels. To date, the natural gas produced by Foxtrot field still does not get as much processing, to the extent that PETROCI had to install a small processing unit upstream of its distribution network.

4. **Cost of risks (weaknesses)**:
   - Internal risks: Speedy corrosion of transmission infrastructure, unreliability of the metering system and therefore the billing system.
   - External risks: Low protection of property and persons residing close to the transmission piping.

5. **Constraints relating to the project**: Designing an appropriate regulatory framework.

6. **Beneficiaries**: State of Côte d’Ivoire and consumers, local market (production of electricity, industrial and household use)

7. **Previous or ongoing actions**: Designing of legislative and regulatory texts.

8. **Implementation strategies**: Implementation of a new regulatory framework binding producers to process their gas in line in accordance with regulatory specifications before it gets to the transmission piping.

9. **Activities to be carried out**: Studies, supply of machines and equipment, environmental and social impact studies, work to completion and start of operations

10. **Progress markers (indicators)**:
    - 2012: Technical and economic feasibility studies and engineering studies; environmental and social impact studies
    - 2013: Supply of machines and equipment; work completion and start of operations

11. **Period of implementation**: short term

12. **Contracting authority**: PETROCI & partners

13. **Project Manager**: Private Consultancy firms
14. **Partners:** To be determined

15. **Projected costs:** CFAF 10,000 million  
   Studies: CFAF 300 million  
   Equipment: CFAF 5,000 million  
   Work: CFAF 4,700 million

16. **Expected contributions:** to be specified

17. **Expected Gains:** to be determined after feasibility studies

18. **Impact on MDGs /Environment:** Possible relocation of some communities and less greenhouse gas emissions.

19. **Financing recurrent expenditure:** to be determined.
PROJECT SHEETS
RELATING TO STRATEGIC AREA OF ACTIVITY NO 2:
MIDSTREAM
1. **Focus:**

Ensure that Côte d’Ivoire becomes the supply center in the sub-region for refined petroleum products (the hub in West and Central Africa) and the following services:

- Control of marine and lagoon pollution
- Degassing and removal of slops from vessels
- Treatment of waste water in industrial units

2. **Objective**

- Collect and treat ship ballasts to protect the environment
- Collect and treat waste water from industrial units

3. **Background (negative practices)**

- Discharging of ballasts and slops from ships into the sea and lagoon
- Degassing of vessels on sea and in the lagoon
- Discharge of waste water from industrial plants into the lagoon

4. **Cost of risks (weaknesses):** to be specified in the assumptions and calculations

   **Internal:** high economic, social and environmental risks
   **External:** high economic, social and environmental risks
   **Industry:**

5. **Project-related constraints:** Finalizing the acquisition of the site

6. **Beneficiaries:** Côte d’Ivoire and the Gulf of Guinea, refineries, industries in the port area, the port, all the ships in transit at the port

7. **Previous or ongoing actions:** Presentation of the project

8. **Implementation strategies:**

   - Create an independent autonomous entity
   - Create an autonomous entity in which the PAA

9. **Activities to be carried out:**

   - Technical and economic feasibility studies
   - Project promotion among partners (PAA, SIR, Gestoci...)
   - Selection of the EPC (Engineering, Procurement, Construction) company

10. **Progress markers (indicators):**

    - 2011: Conduct of technical and economic feasibility studies
    - 2012: 100% Engineering studies; 100% site preparation (cleaning, earthmoving works…); 50% supply and 30% construction
    - 2013:100% supply; 100% construction and operation; 2014: start of operations
11. **Period of implementation**: short term

12. **Contracting authority**: PETROCI and Associates

13. **Project Manager**: To be selected

14. **Partners**: PAA, SIR, GESTOCI

15. **Projected costs**: The feasibility study for the project has not yet been done. Estimated costs for the project may be calculated by including the project in engineering work for the Storage Terminal.

16. **Expected Contributions**
   
   State of Côte d’Ivoire: Facilitator for the acquisition of 300 ha land lot, entry into force of a government decree making it obligatory to treat slops and waste water and carry out degassing in the ship before its contents are discharged into the sea or lagoon

17. **Expected Gains**: to be determined

18. **Impact on MDGs /Environment**: This information will be available at the end of the Environmental and social impact studies underway

19. **Financing recurrent expenditure**
   
   - At the survey phase: by PETROCI/SIR/GESTOCI/PAA
   - At Implementation: by Project Company
1. Focus:
: Ensure that Côte d’Ivoire becomes the supply center in the sub-region for refined petroleum products (the hub in West and Central Africa) providing:

- Strategic storage for Côte d’Ivoire and the region
- A domestic and sub-regional supply centre
- Secure supplies at affordable prices
- Secure logistical, oil and port infrastructure

2. Objective

- Receive, store and re-export all crude oil produced in Côte d’Ivoire and most of the crudes in the sub-region
- Increase the strategic storage capacity of all petroleum products and crude oil as well as butane gas
- Manage the strategic storage capacities for Côte d’Ivoire and the landlocked countries
- Capacity to take in imports transported by large cargo vessels by providing wharfs and pipelines, with a view to reducing the supply costs of refined products exported to countries in the sub-region including the landlocked countries

This terminal should make of Abidjan the storage and supply centre for petroleum and petrochemical products in West and Central Africa, and it should offer a stock exchange listing for petroleum products: FOB Abidjan / CIF West Africa.

3. Description of the sub-regional market:

- Growth in demand for refined products: 4 % per year
- Importation of over 26 million tons of refined products in 2009
- Forecasts indicate that imports will have reached 74 million tons by 2031
- Growth in crude oil production beyond 6 million bbls/day
  - Inadequate logistical infrastructure which tends to increase supply costs

4. Cost of risks weaknesses):

- **Internal**: high economic, social and environmental risks
- **External**: sub-regional and global competition

5. Project-related constraints:

- Finalizing acquisition of the site
- Reviewing the price structure

6. Beneficiaries: Côte d’Ivoire and the countries in the sub-region (West and Central Africa), refineries, traders, crude oil producers
7. Previous or ongoing actions:
   - Cost-benefit studies carried out by AXENS (France): Oct. 2010
   - Environmental and social impact studies: continuing

8. Implementation strategies:
   - ✓ Phase 1: 500,000 metric tons (finished products)
   - ✓ Phase 2: 1,100,000 metric tons (finished products + crude oil)

9. Activities to be carried out:
   - Finalization of the ESIS
   - Update of technical and economic feasibility studies
   - Promotion of partners’ project (countries in the sub-region and different strategic partners)
   - Selection of EPC (Engineering, Procurement, Construction)

10. Progress markers (indicators):
    - 2011: Update of technical and economic feasibility studies
    - 2012: 100% Engineering studies; 100% preparation (clearing, earthmoving works...); 50% supplies and 20% construction site
    - 2013: 100% supplies; 70% construction and execution of the first 500,000 metric tons section
    - 2014: 100% Construction and execution of the 600,000 metric tons 2nd section

11. Period of implementation:
    - 2011 to 2013: 1st section (500,000 MT)
    - 2013 to 2014: 2nd section (extension to 1,100,000 MT)

12. Contracting authority: PETROCI and Associates

13. Project Manager: to be selected

14. Partners: Countries in the sub-region and other strategic partners

15. Projected costs: CFAF 183,050 million
    - 2011 to 2013: 1st section (500,000 metric tons)
      Engineering studies: CFAF 7,100 million (USD 14.2 million)
      Equipment and other costs: CFAF 175,950 million (USD 351.9 million)
    - 2013 to 2014: 2nd section (extension to 1,100,000 metric tons)
      Engineering studies: CFAF 6,900 million (USD 13.8 million)
      Equipment and other costs: CFAF 173,600 million (USD 347.2 million)
16. **Expected contributions**
   - State of IC: Facilitator for 300 Ha land acquisition
   - Institutional: Agreements with partner States
   - Local private companies (sub-region): Majority
   - External private companies: Minority

17. **Expected gains**: review underway

18. **Impact on the MDGs/Environment**: Information will be available at the end of the environmental and social impact study which is underway

19. **Financing recurrent expenditure**: review of amount underway
   - At survey stage: by PETROCI/SIR/GSTOCSI/SMB
   - At Implementation stage: Project Company
1. **Focus**: Control domestic demand and the upcountry market in terms of consumption of petroleum products. (Availability of LPG gas and access to this product by the population)

2. **Objectives**
   - Regulate the importation of butane
     - Increase the butane storage capacity from 2 300 MT to 6 300 MT then later on to 10 300 MT
     - Reduce the berthing time spent by LPG tankers by using the 12” pipeline instead of the existing 6”.
     - Significantly increase the filling capacity of LPG gas cylinders.
     - Support the policy of popularizing the use of LPG which was started by PETROCI in 1993

3. **Description of the situation**
   The issue is to build an LPG aerial storage sphere with a capacity 4,000 metric tons, a filling plant with a production rate of 300 t/d with two (2) bulk loading stations and a 12’’ loading pipeline linking the wharfs and the PETROCI storage spheres in order to address the issue of:
   - Increased demand for LPG gas
   - Shortage of LPG supply
   - Inadequate storage capacity
   - Deficit in filling infrastructure.

4. **Cost of weaknesses**: to be determined

5. **Project-related constraints**: Acquisition of part of the land from PAA (Port of Abidjan)

6. **Beneficiaries**: Ivorian population; national and sub-regional market

7. **Previous or ongoing actions**
   Turnkey contract with Friedlander, for the construction of a 4,000 MT sphere and a filling unit on 15 September, 2010
   Technical Studies (APS and APD) completed:
     - Sphere and filling unit: Friedlander in December 2010
     - 12’’ LPG pipeline: Afric Engineering November, 2010
   Tendering and award of contracts for the supply of «12” LPG pipeline»:
     - TC Afrique in January 2011:
       - Commencement of work on the « Sphere and filling unit »: Friedlander in February 2011
       - Commencement of work on the «12” butane line»: SCTII in June, 2011
   Supply of 90% of 12”pipelines by TC Afrique
8. Implementation strategies: to be determined

9. Activities to be carried out
   - Completion of piping supplies by TC AFRIQUE and work on 12 inch butane line
   - Site preparation works
   - Lot 1: storage
   - Lot 2: extension of filling unit
   - Lot 3: security
   - Lot 4: road works and buildings

10. Progress markers (indicators)
    - Ratio of technical progress
    - Rate of execution of budget allocation
    - January 2013: start of operations

11. Period of implementation: short term
    - Sphere & Filling unit: 24
    - Changing the 12” Kerosene line into LPG line: 8

12. Contracting authority: PETROCI

13. Project Manager: Friedlander for the construction of a 4,000 TM sphere and a filling plant and
    SCTII for the 12” LPG pipeline.

14. Partners: PETROCI, Friedlander, SCTII and TC AFRIQUE

15. Projected costs: CFAF 29,100 million
    - Spheres and filling unit: CFAF 27,800 million (HT)
    - Changing 12” aviation fuel pipeline into LPG line: CFAF 1,300 million

16. Expected Contributions: State of CI (PETROCI): 100 %

17. Expected Gains: to be determined

18. Impact on the MDGs/Environment: to be determined

19. Financing recurrent expenditure: to be determined
**PROJECT SHEET n° 33**

<table>
<thead>
<tr>
<th>Action Code</th>
<th>UPCOUNTRY PIPELINE: BOUAKE – FERKESSEDOUGOU</th>
</tr>
</thead>
</table>

1. **Focus**: Manage domestic demand and sub-regional market in terms of consumption of petroleum products.

2. **Objectives**
   - Promote effective distribution of petroleum products on domestic territory and beyond the border;
   - Increase the volume of hydrocarbons currently transported;
   - Increase and augment flexible supply of security stocks to Ferkéssédougou;
   - Relieve the congestion at the Bouaké depot;
   - Reduce transport cost of hydrocarbons;
   - Reposition Côte d’Ivoire regionally and ensure more stable and reliable supplies in growing hydrocarbon needs;
   - Improve the security on Ivorian roads and rail networks by significantly reducing transportation by tankers and all the risks deriving from use of tankers;
   - Reduce atmospheric and sound pollutions caused by road traffic;
   - Move the vehicle export supply zone to Ferkéssé dougou;
   - Create one of the pipeline transmission network hubs, and consider feasible extensions (in the north to Burkina Faso and Mali, to the west for the domestic market then to Guinea).

3. **Description of the situation:**
   - Completion of the first phase of the pipeline project to Bouaké
   - Inadequate capacity for the hydrocarbon quantities transported
   - Poor distribution of the quantities consumed
   - Fuel shortages in filling stations due to the low quantities transported
   - Disruption in the supply of security stocks
   - Deterioration of the road and rail traffic network and risk of accidents
   - Widespread corruption due to cargo diversion by road transport (about 15 billion CFA Francs/year in lost tax revenues)

4. **Risks**
   - Bottlenecks in the area of administrative approvals (Diligence)
   - Community demands for Supportive Measures
   - Road conditions do not facilitate traveling

5. **Project-related constraints**: to be specified

6. **Beneficiaries**: Ivoirian population and the landlocked countries, consumers of oil products

7. **Previous or ongoing actions**: technical study to be conducted.
8. **Strategies:** to be specified

9. **Activities to be carried out**
   - Setting up a Project team
   - Selecting an engineering consultancy firm
   - Project design
   - Selection of consultancies by WA to conduct studies into possible risks and ESIS
   - Studies in the area of dangers and ESIS
   - Validation ESIS


11. **Period of implementation:** 2014-2016

12. **Contracting authority:** PETROCI

13. **Project Manager:** GESTOCI

14. **Partners:** to be determined

15. **Projected costs (excluding products):** CFAF 90,000 million (length of Bouaké – Ferkessédougou pipeline): 300 km
    - Studies (12%): CFAF 10,800 million
    - Works (48%): CFAF 43,200 million
    - Supplies (40%): CFAF 36,000 million

16. **Expected contributions:** to be determined.

17. **Expected gains:** to be specified

18. **Impact on MDGs/Environment**
    - Supply of petroleum products ensured in compliance with safety and environmental conservation standards (exhaust fumes from vehicles);
    - Protection of Ivorian national forestry resources by promoting the use of LPG gas throughout the country.

19. **Financing recurrent expenditure:** to be specified
1. Focus
The objective is to make Côte d’Ivoire the supply hub for refined products in the sub-region (West and Central African Hub). This implies securing logistical petroleum and port infrastructure and also securing the Vridi Industrial area as well as the port domain.
It involves setting up a water system and a fire protection multi-purpose centre for prevention and operations.

2. Objective
- Guarantee that all sites at PETROCI in the Vridi Industrial area, the SIR and GESTOCI are provided with inexhaustible and immediately available quantities of water from the canal
- In the long run, extend this network to cover the entire VRIDI Industrial area
- Make cooling water for fire outbreak readily available in the event of a fire disaster

3. Context
- Unavailability of water in the fire fighting system
- No pooling of firefighting and other resources in the VRIDI area

4. Cost of risks (weaknesses): specify the assumptions and calculations
   Internal: Risk of destruction of business installations located within the port area (PAA, PETROCI, SIR, SMB, Lion GPL…).
   High economic, social and environmental risks

5. Project-related constraints: Involvement and cooperation of all businesses in the port area

6. Beneficiaries: All the businesses in the port area, the state of Côte d’Ivoire.

7. Previous or ongoing actions:
   - Completion of detailed study on protection of PETROCI sites
   - The contract for supplies has been awarded
   - Prepayment invoice for procurement of supplies forwarded

8. Implementation strategies:
   - Phase 1: Protection of PETROCI sites in Vridi
   - Phase 2: Securing all sites in the Vridi industrial Area
   - Phase 3: Extension of the network to the Treichville municipality.
9. Activities to be carried out:
Build the network in accordance with the above-mentioned phases -:
- A fire protection system using an 18 inch fiberglass-reinforced polyester resin with a maximum flow rate of 1500 m³/h at 15 bar
- 3 motor pump sets of 500 m³/h each at 15 bar
- 1 electric generator of 500 m³/h at 15 bar
- 2 Jockey pumps of 20 m³/h each

10. Progress markers (indicators):
- Phase 1: Works acceptance report
- Phase 2: Works acceptance report
- Phase 3: Works acceptance report

11. Period of implementation: short + medium term
- Phase 1: 2011-2012
- Phase 2: 2013-2014
- Phase 3: 2016-2017

12. Contracting authority: PETROCI and Associates

13. Project Manager: PARLYM


15. Projected Costs: CFAF 7,000 million
   - Phase 1: CFAF 7,000 millions
   - Phase 2 and 3: to be specified by the studies

16. Expected Contributions
   - Government of CI: different tax exemptions relative to VAT, customs duties, etc.
   - Institutional: Agreements to source financial credits at a concessionary rate
   - Local Private companies: Agreements with business enterprises in the Industrial Area
   - External Private companies: to be determined

17. Expected gains: to be determined

18. Impact on the MDGs/Environment: Environmental and Social Impact Studies pending

19. Financing recurrent expenditure
   - At survey phase: by PETROCI
   - At Implementation phase: Project Company
1. Focus
The objective is to make Côte d’Ivoire the supply hub for refined products in the sub-region (West and Central African Hub):
- Strategic storage for Côte d’Ivoire and the sub-region
- National and sub-regional supply centre
- Ensuring hydrocarbon supplies at an affordable cost
- Ensuring the security/safety of petroleum and port logistical infrastructure

2. Objective
- Take delivery of, store and re-export all crude oil produced in Côte d’Ivoire and most of the crudes in the sub-region
- Increase strategic storage capacity for all petroleum products and crudes including LPG
- Manage strategic storage capacities for Côte d’Ivoire and the landlocked countries
- Capacity to take hydrocarbons imported by large cargo vessels by providing wharfs and pipelines, with a view to reducing the supply costs of refined products exported to countries in the sub-region including the landlocked countries

This Abidjan terminal will be the storage and supply hub in West and Central Africa for petroleum and petrochemical products and offer stock exchange listing for petroleum products: FOB Abidjan/CIF West Africa.

3. Description of the sub-regional market situation
- Growing demand for refined products: 4% per annum
- Importation of more than 26 million metric tons of refined products in 2009
- Projected Imports are expected to reach 74 million tons by 2031
- Growing production of crude oil exceeds 6 million bbls/d
- Insufficiency of logistical infrastructure, leading to increasing supply costs

4. Cost of risks (weaknesses):
- Internal: high economic, social and environmental risks
- External: sub-regional and international competition

5. Project-related constraints: to be determined

6. Beneficiaries: Côte d’Ivoire and countries in the sub-region (West and Central Africa), Refineries, Traders, crude oil producers

7. Previous or ongoing actions: Construction of a terminal with a capacity of 1,100,000 Tons

8. Implementation strategies:
2nd phase: increase to 2,000,000 metric tons – refined products+crudes+LPG
9. **Activities to be carried out**: Selection of EPC (Engineering, Procurement, Construction)

10. **Progress markers (indicators)**:
   - 2016: 100% Engineering studies; 100% site preparation (clearing, earthmoving works...); 50% supplies and 20% construction
   - 2017: 100% supplies; 70% construction and operational start with available stocks
   - 2018: 100% Construction and operation of all the stocks under the 2nd phase (900,000 tons t)

11. **Period of implementation**: medium term

12. **Contracting authority**: PETROCI and Associates

13. **Project Manager**: to be selected

14. **Partners**: Countries in the sub-region and other strategic partners

15. **Projected costs**: CFAF 125,000 million (USD 250 million)
   - Engineering studies: pending
   - Equipment and other costs: pending
   - Operations: pending

16. **Expected Contributions**
   - Government of CI: Facilitator
   - Institutional: Financing
   - Local private companies (sub-region): Financing
   - External private companies: Financing

17. **Expected gains**: to be determined

18. **Impact on the MDGs/Environment**: The information will be made available at the end of the ongoing Environmental and Social Impact Studies

19. **Financing recurrent expenditure**
   - At the Study phase: Project Company
   - At the Implementation phase: Project Company
1. **Focus**: Manage domestic and upcountry demand in terms of petroleum products.

2. **Objective**
   - Supply the domestic market and landlocked countries;
   - Constitute 60 day consumption security stocks in petroleum products
   - Store products from the refinery;
   - Transit operations for products coming from the international market;
   - Provide fuel and supplies to shipping

3. **Description of the situation**
   - Ever growing demand in Côte d’Ivoire and the landlocked countries;
   - Need to build up adequate security stocks in all products;
   - Growing traders’ activity at the Port Autonome d’Abidjan.

4. **Cost of risks (weaknesses)**: Threat of disruption in supplies at domestic level and regionally beyond

5. **Constraint relating to the project**: unavailability of financing

6. **Beneficiaries**
   - State of Côte d’Ivoire;
   - Landlocked countries;
   - People involved in the activity;
   - Consumers

7. **Previous or ongoing actions**
   - Completion of technical study on a part of the project;
   - Construction of LPG spheres is underway;
   - Installation of pipeline linking the depot to the wharfs is underway.

8. **Implementation strategy**: Gradually increase capacities based on market trends.

9. **Activities to be carried out**:
   - Preliminary studies;
   - Draft-design studies;
   - Detailed technical studies;
   - Sourcing funding;
   - Organizing tender procedures;
   - Awarding the contracts;
   - Project monitoring and management;
10. Progress markers (indicators)

- **Completion 2011**: Completed construction of an LPG sphere with a capacity of 2,000 metric tons linking the depot to the wharfs;
- **2012 – 2013**: Construction of three of (03) reservoirs with a capacity of 32,000 m³ each (GO, SSP, JET A1); two (02) bitumen reservoirs with a capacity of 500 metric tons each and a 2,000 tons sphere;
- **2014 -2016**: Construction of four GO reservoirs, each with a capacity of 15,000 m³ and a 2,000 metric ton LPG sphere.

11. Period of implementation: medium term

12. Contracting authority:

- Ministry of Mining, Petroleum and Energy;
- Ministry of Finance and Economy;
- GESTOCI.

13. Project Manager: GESTOCI

14. Partners

- Financial Institutions;
- PETROCI;
- Private businesses.

15. Projected costs (excluding products): CFAF 65,000 million (130 million USD / 99 million euros)

16. Expected contributions: to be determined.

17. Expected gains: to be determined

18. Impact on MDGs/Environment

- The project guarantees the supply of petroleum products and at the same time complies with safety and environmental conservation standards;
- The project protects the forest resources of Côte d’Ivoire by promoting use of LPG throughout the country.

19. Financing recurrent expenditure: to be specified
1. **Focus**: Manage domestic demand by serving the surrounding area of the Yamoussoukro depot and the hinterland market (pending the construction of the Ferkessédougou depot).

2. **Objectives**
   - Supply the domestic market and the landlocked countries;
   - Build 60 day security stocks for petroleum products;
   - Store products from the refinery;
   - Provide transit for products coming from the international market;

3. **Description of the situation**:
   - Ever growing demand in Côte d’Ivoire and in the landlocked countries;
   - Need to build-up adequate security stocks on a par with consumption

4. **Cost of risks (weaknesses)**: Threat of disruption in supplies at domestic level and even further in the landlocked countries.

5. **Project-related constraints**: unavailability of financing

6. **Beneficiaries**
   - The State of Côte d’Ivoire;
   - The landlocked countries;
   - The industry;
   - Consumers of petroleum products

7. **Previous or ongoing actions**
   - Technical study done on a part of the project;
   - Construction of LPG spheres is underway;
   - Construction of pipelines linking this depot to the one in Abidjan is underway.

8. **Implementation strategy**:
   - Construction four (04) reservoirs for hydrocarbons;
   - Construction five (05) spheres of 4,000 MT.

9. **Activities to be carried out**:
   - Preliminary studies;
   - Draft-design studies;
   - Detailed technical studies;
- Sourcing funding;
- Organizing the tender procedures;
- Awarding the contracts;
- Project Monitoring and management;

10. **Progress markers (indicators)**
- July 2011 –February 2013: Construction reservoirs for liquid hydrocarbons;
- 2013 – 2015: Construction of two (02) LPG spheres each with a capacity of 4,000 metric tons;
- 2015 -2017: Construction of three (03) LPG each with a capacity of 4,000 metric tons;

11. **Period of implementation:** medium term

12. **Contracting authority:**
- Ministry of Mining, Petroleum and Energy;
- Ministry of Finance and Economy;
- GESTOCI.

13. **Project Manager:** GESTOCI

14. **Partners**
- Financial Institutions;
- PETROCI;
- Private businesses.

15. **Projected costs (excluding products):** CFAF 53,000 million (106 million USD/81 million euros)

16. **Expected contributions:** to be determined.

17. **Expected gains:** to be determined

18. **Impact on MDGs/Environment**
- Guarantees the supply of petroleum products in compliance with safety and environmental conservation standards;
- Protects the forest resources of Côte d’Ivoire by promoting the use of LPG throughout the country.

19. **Financing recurrent expenditure:** to be specified
1. **Focus**: Manage domestic demand by serving the surrounding area of the Yamoussoukro depot and the hinterland market (pending the construction of the Ferkessédougou depot).

2. **Objectives**
   - Supply the domestic market and the landlocked countries;
   - Build up sixty-day security stocks for petroleum products;
   - Store products from the refinery;
   - Ensure transit operations of products from the international market;

3. **Description of the situation**:
   - Ever-growing demand in Côte d’Ivoire and in the land-locked countries;
   - Need to build-up adequate security stocks on a par with consumption

4. **Cost of risks (weaknesses)**: Threat of disruption in the domestic market supplies and regionally in landlocked countries.

5. **Project-related constraints**: Unavailability of financing

6. **Beneficiaries**
   - The State of Côte d’Ivoire;
   - The land-locked countries;
   - The industry;
   - Consumers of petroleum products

7. **Previous or ongoing actions**: Technical study to be conducted

8. **Implementation strategy**:
   - Construction of nine (09) liquid hydrocarbon reservoirs;
   - Construction of five (05) spheres with a capacity of 5,000 metric tons.

9. **Activities to be carried out**:
   - Preliminary studies;
   - Draft-design studies;
   - Detailed technical studies;
   - Sourcing of funds;
   - Organizing tender procedures;
   - Awarding contracts;
   - Project Monitoring and management;

10. **Progress markers (indicators)**
    - **2014 - 2017**: Construction of (09) liquid hydrocarbon reservoirs and three (03) butane spheres each with a capacity of 4,000 metric tons;
    - **2017 – 2019**: Construction of two (02) butane spheres each with a capacity of 2,000 metric tons and one (1) sphere with a capacity of (01) 1,000 metric tons.
11. **Period of implementation**: medium term

12. **Contracting authority**:
   - Ministry of Mining, Petroleum and Energy;
   - Ministry of Finance and Economy;
   - GESTOCI.

13. **Project Manager**: GESTOCI

14. **Partners**
   - Financial Institutions;
   - PETROCI;
   - Private businesses.

15. **Projected costs (excluding products)**: CFAF 57,500 million (115 million USD / 88 million euros)

16. **Expected contributions**: to be determined.

17. **Expected gains**: to be determined

18. **Impact on MDGs/Environment**
   - Guarantees the supply of petroleum products in compliance with safety and environmental conservation standards;
   - Protects the forest resources of Côte d’Ivoire by promoting the use of butane gas throughout the country.

19. **Financing recurrent expenditure**: to be specified
1. **Focus**: Efficiently manage domestic demand and consumption of petroleum products.

2. **Objectives**
   - Supply the domestic market and neighboring countries to the west of Côte d’Ivoire;
   - Build up sixty-day security stocks for petroleum products;
   - Store products originating from the refinery;
   - Ensure transit operations for products from the international market;
   - Provide fuel and services to shipping at the Port Autonome de San Petro

4. **Description of the situation**:
   - Ever growing demand in Côte d’Ivoire and in the landlocked countries;
   - Need to build-up adequate security stocks on a par with consumption;
   - Mining projects in the western part of the country;
   - Growing activities at the San Pedro Port.

5. **Cost of risks (weaknesses)**: Threat of disruption of domestic market supplies.

6. **Project-related constraints**: unavailability of financing

7. **Beneficiaries**
   - The State of Côte d’Ivoire;
   - The land-locked countries;
   - The industry;
   - Consumers of petroleum products

8. **Previous or ongoing actions**: Technical study to be carried out.

9. **Implementation strategies**
   - Construction of (09) liquid hydrocarbon reservoirs and two (23) butane spheres each with a capacity of 4,000 metric tons;
   - Construction of three (03) liquid hydrocarbon reservoirs and one (1) butane sphere with a capacity of 4,000 tons

10. **Activities to be carried out**:
    - Preliminary studies;
    - Draft-design studies;
    - Detailed technical studies;
    - Sourcing funding;
    - Organizing tender procedures;
    - Awarding contracts;
    - Project Monitoring and management.
11. Progress markers (indicators)
   - **2013 - 2015**: Construction of (09) liquid hydrocarbon reservoirs and two (02) butane spheres each with a capacity of 4,000 metric tons;
   - **2015 – 2017**: Construction of three (03) liquid hydrocarbon reservoirs and one (01) butane sphere with a capacity of 4,000 metric tons

12. *Period of implementation*: medium term

13. *Contracting authority*:
   - Ministry of Mining, Petroleum and Energy;
   - Ministry of Finance and Economy;
   - GESTOCI.

14. *Project Manager*: GESTOCI

15. *Partners*
   - Financial Institutions;
   - PETROCI;
   - Private businesses.

16. *Projected costs (excluding)*: CFAF 100,000 million (USD 200 million /EUR152.5 million)

17. *Expected contributions*: to be determined.

18. *Expected gains*: to be determined

19. **Impact on MDGs/Environment**
   - Guarantees the supply of petroleum products in compliance with safety and environmental conservation standards;
   - Protects the forest resources of Côte d'Ivoire by promoting the use of butane gas throughout the country.

*Financing recurrent expenditure*: to be determined
1. **Focus:** Provide better quality control of petroleum products on Ivorian territory

2. **Objective:** Provide the downstream petroleum industry segment with an efficient laboratory for analysis and quality control of petroleum products to ensure that every product sold in Côte d'Ivoire meets the required standards.

3. **Description of the situation:** Work completed and promotion of the lab started

4. **Cost of weaknesses:** to be determined

5. **Project-related constraints:** Cost, time and quality of service providers involved in building rehabilitation, timeline for delivery and installation of equipment, socio-political situation.

6. **Beneficiaries** PETROCI; All the petroleum companies, filling stations, industries, customs, research centers and universities ....

7. **Previous or ongoing actions:** Finalization of the project and commencement of promotional activities

8. **Implementation strategies:**
   - Environmental and social impact study
   - Acquisition and rehabilitation of the building to house the laboratory,
   - Design and choice of equipment for the laboratory
   - Recruitment of personnel to operate the laboratory

9. **Activities to be implemented:** Promotion of the laboratory

10. **Progress markers (indicators):**
    - 2008: Environmental and social impact study; acquisition of own building; study and evaluation; choice, ordering of equipment
    - 2009: Purchasing, implementation of development work and rehabilitation
    - 2010: Resumption of construction and remedial work rehabilitation, installation of equipment, recruitment of personnel and routine tests.

11. **Period of implementation:** short term

12. **Contracting authority:** PETROCI HOLDING

13. **Project Manager:** PETROCI HOLDING

14. **Partners**
The officials of DCAR have collected data from companies such as SIR, SGS, INTERTEK and Q § Q in Cote d’Ivoire and from international bodies such as PETROTEST (Germany), NORMALAB (France), ISL-PAC (USA-France) with a view to designing development plans and selecting equipment.
15. **Projected costs**: CFAF 1,500 millions  
   - Building: CFAF 360 million  
   - Equipment: CFAF 1,095 million  
   - Others: CFAF 45 million  

16. **Expected contributions**: Government of CI (PETROCI): 100 %  

17. **Expected gains**: to be determined  

18. **Impact on MDGs/Environment**: to be determined  

19. **Financing recurrent expenditure**: to be determined
1. **Focus:** Efficiently manage the domestic and landlocked countries demand markets in butane consumption and preserve flora and fauna.

2. **Objectives**
   - Provide supplies to the domestic market and the landlocked countries;
   - Build up sixty-day security stocks for petroleum products;
   - Store products from the refinery;
   - Ensure transit operations for products coming from the international market;

3. **Description of the situation**
   - Ever growing demand in Côte d'Ivoire and in the landlocked countries;
   - Need to build-up adequate security stocks on par with consumption;

4. **Cost of risks (weaknesses):** Threat of disruption of domestic market supplies.

5. **Project-related constraints:** unavailability of financing

6. **Beneficiaries**
   - The State of Côte d'Ivoire;
   - The land-locked countries;
   - The industry
   - Consumers of petroleum products

7. **Previous or ongoing actions:** Technical study to be implemented

8. **Implementation strategy**
   - Construction of the Abidjan – Yamoussoukro segment (about 300 KM);
   - Construction of the Yamoussoukro – Ferkéssé Dougou segment (about 375 KM).

9. **Activities to be implemented**
   - Preliminary studies;
   - Draft-design studies;;
   - Detailed technical studies;
   - Sourcing funding;
   - Organizing tender procedures;
   - Awarding contracts;
   - Project Monitoring and management

10. **Progress markers (indicators)**
    - 2013 - 2015: construction of the segment Abidjan – Yamoussoukro;

11. **Period of implementation:** 2013-2017 (cf. planning below)
12. Contracting authority
   - Ministry of Mining, Petroleum and Energy;
   - Ministry of Finance and Economy;
   - GESTOCI.

13. Project Manager: GESTOCI

14. Partners
   - Financial Institutions;
   - PETROCI;
   - Private businesses.

15. Projected Costs: (without products): 250,000,000 USD / 190,500,000 EUROS / CFAF 125 billion.

16. Expected contributions: To be determined.

17. Expected Gains: to be redefined

18. Impact on MDGs/Environment
   - The project guarantees petroleum product supplies in compliance with safety and environmental conservation standards;
   - The project protects the forest resources of Côte d’Ivoire by promoting use of butane gas throughout the country.

19. Financing recurrent expenditure: to be determined
### SCHEDULING OF PROJECT IMPLEMENTATION DURING THE STUDY PHASE

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1. **Focus:**
   The SIR must be able to supply products that comply with environmental standards. Petroleum product specifications will become all the more stringent and will be developed to AFRIV standards.

2. **Objective**
   Build a diesel oil desulphurization unit and related units in compliance with petroleum products specification trends.

3. **Description of the situation**
   The products from the SIR comply with AFRI II specifications for petrol and AFRI III for diesel oil. These specifications will be upgraded to AFRI IV and AFRI V which will be the most stringent. For now, the SIR units are unable to supply products that are consistent with these standards.

4. **Cost of risks (weaknesses):** assumptions and calculations to be specified
   - **Internal:** High public health expenditure (see report «The refining sector in Sub-Saharan Africa »).
   - **External:** Inability to sell some petroleum products on the international market.
   - **Task:** Disappearance of refining operations in Côte d'Ivoire.

5. **Project-related constraints:** Chronogram for development of the specifications to AFRI V (2017).

6. **Beneficiaries:** Public health improvement for the population.

7. **Previous or ongoing actions:**
   - Strategic Plan SIR 2020
   - Feasibility studies for an HDS unit

8. **Implementation strategies:**
   - Formulate the Process Design Package (PDP)
   - Carry out detailed preliminary studies (FEED)
   - Carry out detailed studies and order equipment that require lengthy procurement processes (EP)
   - Build the new unit
   - Source funding

9. **Activities to be carried out:**
   - 2011/2012: PDP and FEED
   - 2013: EPC
   - 2014: Commencement of construction

10. **Progress markers (indicators):**
    - 2011: 100% PDP
    - 2012: 100% FEED
    - 2013: 100% EP
    - 2014: Commencement of construction

11. **Period of implementation**
    - 2012: Draft Detailed Project Design
- 2013: Study of details and order of equipment requiring long delivery processes
- 2014 to 2016: Construction of the new unit

12. **Contracting authority:** SIR
13. **Project Manager:** to be appointed
14. **Partners:** Shareholders
15. **Projected costs:** CFAF 147,000 million
   - Study: CFAF 17,000 million
   - Equipment: CFAF 130,000 million
16. **Expected contributions:** to be determined
17. **Expected gains:** to be determined
18. **Impact on the MDGs/Environment:** Compliance with environmental requirements in relation to petroleum products; improvement in public health.
19. **Financing recurrent expenditure:**
   - Study Phases: SIR
   - Implementation Phase: SIR / State of Côte d’Ivoire
**Project Sheet n° 43**

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<th><strong>Project</strong></th>
<th>DEVELOPING THE CONVERSION OF THE REFINERY TO PRODUCE MORE DIESEL OIL</th>
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<td><strong>Action Code</strong></td>
<td>HC_MSTR/RAFF/MT_1</td>
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1. **Focus:**

Demand for diesel oil will get increasingly higher. Refineries with high rates of returns tend to convert oil residues into light products. The SIR must meet diesel oil needs by increasing its level of conversion.

2. **Objective:** Increase the capacity of its hydrocracking plant and build a new and full conversion refinery.

3. **Description of the situation:** By 2025, SIR production will not be able to meet domestic diesel oil needs. Furthermore, the SIR does not convert all the residue into light products. This feature has a negative effect on the rate of return of the facility.

4. **Cost of risks (weaknesses):** assumptions and calculations to be specified.

   - **Internal:** Risk of importing diesel oil by 2025.
   - **External:** Inability to meet the needs of upcountry and regional markets
   - **Industry:** Disappearance of refining operations in Côte d’Ivoire.

5. **Project-related constraints:** Evolving diesel oil needs and refining margins.

6. **Beneficiaries:** The Ivorian market and the landlocked countries.

7. **Previous or ongoing actions:**
   - SIR 2020 strategic Plan
   - Feasibility studies on increasing the capacity of the hydrocracking plant.

8. **Implementation strategies:**
   - Carry out different studies aimed at increasing the capacity of the hydrocracking plant
   - Carry out studies on the installation of a full conversion refinery
   - Source funding
   - Build a new plant and increase the capacity of hydrocracking unit

9. **Activities to be carried out:**
   - 2013: Preliminary Design Study (PDS) on increasing the hydrocracker capacity and the capacity of the full conversion refinery (DAS: desasphalting unit).
   - 2014: APD on the increase in capacity of the hydrocracker unit and the full conversion refinery
   - 2015: Detailed study of the increase in capacity of the hydrocracker unit and the full conversion refinery.
   - 2016: Construction of additional high capacity on hydrocracker unit and the full conversion refinery.

10. **Progress markers (indicators):**
    - 2013: 100% APS high capacity unit and full conversion unit
    - 2014: 100% APD high capacity unit and full conversion refinery
    - 2015: 100% EP high capacity and full conversion refinery
    - 2016: Commencement of construction on adding high capacity and full conversion.

11. **Period of implementation**
    - 2013/2014: Study on increasing the hydrocracking capacity and full conversion refinery (DAS)
2015: Detailed study on increasing hydrocracking capacity and full conversion refinery.
2016/2017: Construction of a high capacity hydrocracking unit and of the new full conversion refinery (DAS)

12. Contracting authority: SIR

13. Project Manager: to be designated

14. Partners: Shareholders

15. Projected costs:
   - Study: CFAF 17 billion. Equipment: CFAF 130 billion

16. Expected Contributions: to be determined

17. Expected Gains: to be determined


19. Financing recurrent expenditure
   - Study Phases: SIR
   - Implementation Phase: SIR / State of Côte d’Ivoire
1. Focus
Studies indicate that the petroleum products market in West Africa will reach about 60 million tons per annum by 2030; this compares unfavorably with the current refining capacity of 35 million tons. The SIR could position itself strongly: meet the needs of countries that do not have refineries and partially fill the gap in terms of the needs of some countries which presently have refineries.

2. Objective
Increase the refining capacity of the SIR from 4 million tons to 10 million tons to meet the needs of some countries by the year 2030.

3. Description of the situation
With its current capacity, the SIR treats 3.8 million tons of crude oil per annum. The company supplies the Ivorian market and some neighboring countries (Mali, Burkina Faso, Niger). Surplus products are exported. Studies on the petroleum needs forecast a 4% growth rate by 2030. Thus the annual needs of Côte d’Ivoire and the neighboring countries which do not have refineries are estimated at 2.5 million tons and 7.7 million tons respectively.

To meet these petroleum product needs and comply with environmental standards, the SIR is amending its SIR 2020 plan and proposing a strategic development plan for 2030. Its processing objective targets 10 million tons per annum.

   - Internal: Risk of diesel oil importation.
   - External: Loss of attractive markets as a result of a shortage of products.
   - Industry:


6. Beneficiaries: States in the sub-region; countries in the sub-region which do not have refineries and partly Nigeria.

7. Previous or ongoing actions: Strategic Plan SIR 2020

8. Implementation strategies:
   - Carry out a market survey
   - Carry out the different ...........
   - Seek funding
   - Build new units

9. Activities to be carried out:
   - 2017: Market survey / APS
   - 2018: Draft Detailed Project Design (APD)
   - 2019: Detailed Studies
   - 2020: Construction

10. Progress markers (indicators):
   - 2017: 100% Market survey and APS
- 2018: 100% FEED
- 2019: 100% Detailed studies
- 2020: Start of construction

11. **Period of implementation**: long term
- 2017/2019: Study on increase in capacity
- 2020/2022: Construction

12. **Contracting authority**: SIR / SMB

13. **Project Manager**: to be designated

14. **Partners**: Shareholders

15. **Projected costs**: CFAF 2,630,000 million
    - Study: CFAF 30,000 million
    - Equipment: CFAF 2,600,000 million

16. **Expected contributions**: to be determined

17. **Expected gains**: to be determined

18. **Impact on MDGs /Environment**: These new projects will imply more effective treatment of emissions and an improved quality of these emissions (water, air).

19. **Financing recurrent expenditure**
    - Study Phases: SIR / SMB
    - Implementation Phase: SIR-SMB / State of Côte d'Ivoire
PROJECT SHEETS RELATING TO
THE STRATEGIC AREA OF ACTIVITY NO 3:
DOWNSTREAM
PROJECT SHEETS RELATING
TO THE STRATEGIC AREA OF ACTIVITY NO 4:
INSTITUTIONAL FRAMEWORK, CAPACITY BUILDING
1. **Focus**: to be determined

2. **Objective**
   - increase the petroleum revenue of the Ivorian state;
   - foster transparency in the hydrocarbons sector;
   - build management and administrative capacity within the hydrocarbons sector

3. **Description of the situation**

   The reform of the legislative, regulatory texts of the hydrocarbons sector was initiated by the state of Côte d’Ivoire in 2008.

   This reform was awarded to a reputable international consulting firm, that is the Van Meurs consultants, and it was also monitored by national experts from all sectors operating in the hydrocarbons sector:
   - The President’s Office: Special Adviser to the President on Hydrocarbons Issues;
   - Prime Minister’s Office: BNEDT, CEPICI.
   - Ministry of Economy and Finance: Directorate of Participation and Privatization, Tax Revenue Office, Customs Authority, National Treasury;
   - Ministry of Environment: ANDE;
   - Ministry of Transport: Office of Maritime and Port Affairs.

   Since 2009, the Governance and Institutional Development Grant (DGDI) of the World Bank, which seeks to strengthen the key sectors of the Ivorian economy particularly the exploration and hydrocarbon production sector, supports the Ivorian Government in its efforts to achieve the above-mentioned objectives.

   This reform led to the adoption of the following texts:
   - A draft Hydrocarbons Code;
   - A draft Production Sharing Contract comparable to an Association Agreement.

   All the regulatory texts relating to the draft Hydrocarbons Code should, in pursuance of this project, be proposed by the Van Meurs Consulting firm within the context of the service contract to be signed, then adopted by the Government afterwards.

   All the draft prototype versions of the Hydrocarbons Code and the Production Sharing Contract were forwarded on 28 March, 2011 to the office of the Ministry of Mines and Energy. These latest versions are mostly based on the observations of the Ministry of Mines and Energy.
Following the validation and ownership workshop on the said texts held in July 2010, a first copy of a model draft Hydrocarbons Code and Production Sharing Contract produced by the Monitoring and Finalization Committee on the petroleum sector institutional reform was forwarded to the office of the Minister of Mines and Energy as well as the office of the Minister of Economy and Finance.

4. Costs of weakness: to be determined

5. Project-related constraints: to be specified

6. Beneficiaries: State of Côte d’Ivoire and oil operators, specialized services firms in the petroleum industry chain.

7. Previous or ongoing actions:

   - Signing of a consultancy contract with the Van Meurs consulting firm
   - Meetings of Van Meurs consulting firm with all actors/players in the hydrocarbons sector
   - Feedback by the Van Meurs consulting firm on the draft Hydrocarbons Code and Production sharing contract
   - Establishment of a Committee to review the draft texts
   - Seminar to prepare a validation workshop on the texts
   - Validation and ownership workshop
   - Establishment of a Monitoring Committee on the draft texts
   - Production of the draft texts by the Committee: draft Hydrocarbons Code and the draft Model Production Sharing Contract and forwarding to the Ministries
   - Draft presentation Report on the draft Hydrocarbons Code
   - Redistribution of the Ivorian sedimentary basin based on new legal provisions of the Hydrocarbons Code (Order n°039 of 24 June, 2010 creating new petroleum blocks in the Ivorian sedimentary basin)
   - Organization of a limited consultation on blocks CI-504, CI-513, CI-514, CI-515 and CI-516 in October, 2010 with ANADARKO and MARATHON on the basis of the new modalities: results forwarded to the offices of the Ministry of Mines and Energy and the Ministry of Economy and Finance.
   - Preparation of negotiations on blocks CI-500, CI-501, CI-502 and CI-520 with PETROCI in December 2010 and January 2011 on the basis of the new modalities.

8. Implementation strategies: to be determined

9. Activities to be carried out:

   - Ensure the adoption of the Draft Hydrocarbons Code and the draft Model Production Sharing Contract
   - Enact the Hydrocarbons Code: National Assembly or Presidential Order
   - Adopt the model Production Sharing Contract
   - Conclude a services contract for the design of regulatory texts on the Hydrocarbons Code.
   - Set up the institutional framework for the Hydrocarbons Code: government decree relative to the organization and functioning of companies established by the Hydrocarbons Code
   - Initiate review work on the regulations relative to the Hydrocarbons Code
- Submit these regulatory texts to the authorities to have them issue the relevant government decrees and ministerial orders (Décrets and arrêtés)
- Organize a promotional and ownership forum on the new texts.

10. **Progress markers:** End of October 2011: Hydrocarbons Code adopted

11. **Period of Implementation:** short term (July to December, 2011)

12. **Contracting authority:** Government

13. **Project Manager:** Ministry of Mining, Petroleum and Energy

14. **Partners:** DGDI (Work Bank), FMI, Van Meurs Consulting firm

15. **Projected Costs:** CFAF 600 million

16. **Expected Contributions:** DGDI

17. **Expected gains:** to be determined

18. **Impact on the Ivorian petroleum sector**
   - Transparency in the management of the State’s oil revenues
   - Effective coordination in the management of oil revenues
   - Professionalism in the upstream management of oil operations

19. **Financing recurrent expenditure:** to be specified
1. **Focus**: Settlement of SIR debts

2. **Objective**: Reduce the difficulties faced in crude oil supply.

3. **Description of the situation**

   The SIR debt owed by the Ivorian state amounted to FCFA 92.3 billion by 30 June, 2011. This substantial amount of debt poses many problems in respect to financing the refinery’s supplies. The SIR is compelled to resort to short term bank borrowings which increase its financial costs considerably.

4. **Cost of risks (weaknesses):**

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<tr>
<th>RISKS</th>
<th>ASSUMPTIONS FOR CALCULATIONS</th>
<th>COST OF WEAKNESSES</th>
<th>DEFINITION / COMMENTS</th>
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<tbody>
<tr>
<td>Internal risks</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>High financial costs</td>
<td>Borrowing of FCFA 65 billion to finance supplies</td>
<td>Financial costs are estimated at FCFA 5.5 billion per annum (at the rate of 8.5%)</td>
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<tr>
<td>External risks</td>
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<td></td>
<td></td>
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<tr>
<td>Lessening levels of confidence by banks</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Halt in refining operations</td>
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5. **Project-related constraints**: Obligation to contract loans at high financial costs

6. **Beneficiaries**: SIR and consumers; the country’s refining sector.

7. **Previous or ongoing actions**: Discussions with public authorities.

8. **Implementation strategies**:

   Introduce a FCFA 35 per liter item into the price structure of petroleum products on the domestic market. This item would be included in the ex-SIR price and therefore applied and deducted by the SIR till the settlement of the debt amounting to CFAF 92,300 million.

   The pricing structure will be streamlined by working on the VAT in such manner that the pump prices will remain unchanged.
9. **Activities to be implemented**: 2011: Change in price structure to include SIR debt repayment.

10. **Progress markers (indicators)**: 2011: Signing of government decree to change the price structure

11. **Period of implementation**: 2011: Change of the price structure

12. **Contracting authorities**: SIR

13. **Project Manager**: SIR

14. **Partners**: State of Côte d'Ivoire, Banks

15. **Projected Costs**: CFAF 92,300 million

16. **Expected contributions**: bank borrowing of CFAF 65,000 million.

17. **Expected gains**: to be specified

18. **Impact on MDGs/Environment**: to be specified

19. **Financing recurrent expenditure**: to be specified
Strategic Development Plan
2011-2030
Republic of Côte d’Ivoire
Ministry of Mines, Petroleum
and Energy

URGENT PROJECTS
IN MINING AND GEOLOGY,
HYDROCARBONS, AND ELECTRICITY
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As Ivory Coast awaits implementation of projects under its strategic plan over the short to longer term, it is predicted that the country will face a crisis situation from 2011 to 2013. To be able to deal with this period of great stress, Ivory Coast must find some immediate internal solutions.
CHAPTER 1:
MINES AND GEOLOGY SECTOR
Proposed measures that need to be taken urgently:

- Mining of manganese deposits at Lauzoua.
- Audit of mining titles.
- Review of procedures for granting mining titles.
- Conflict resolution in exploration or mining areas.

The cost of funding the above programs is estimated at CFA 8.1 billion, including the state’s share of CFA 4.6 billion (57.3%), and contributions from other sources amounting to CFA 3.5 billion (42.7%).

1. MINING MANGANESE DEPOSIT AT LAUZOUA

1.1. PRESENTATION OF THE MINE

Figure 1: Location of the Lauzoua mining site
The Lauzoua manganese deposit is in the Lauzoua sub-district (sous-préfecture), in the Guitry district (département). It is located 190 km west of Abidjan and 7 km north of the road called “la Côtière”. It extends over a ridge, 14 km long, over a 100 km² area covered by exploration permit no. 62. Three (3) types of mineralization occur:

i. lensoid ore on the hilltops (8%),
ii. dismantled ore over the lensoid ore (77%),
iii. duricrust ore on the hillsides (15%).

1.2. PREVIOUS ACTIVITIES
From 1955 to 1970, a French company, MOKTA EL HADID carried out the exploration and development of this deposit.

Starting in 1994, SODEMI began an initial development program on the deposit that included certification work on surface deposit reserves, sample marketing trials, and a feasibility study, followed by a test mining phase.

This program, on the one hand, confirmed the chemical properties of Lauzoua’s manganese, and its suitability for metallurgical processing and, on the other, it gave SODEMI the solid practical experience required to better understand the reserves, and also master the technical parameters required for larger-scale operation. Also, a 3000 m RC drilling survey, conducted to verify the depth of the deposit, gave encouraging results.

Based on this experience, SODEMI signed a partnership agreement in August 2009 with a Chinese company, CGM, in order to form a mining company called ‘Compagnie Minière du Littoral’, to develop the deposit. The capital allocation of CML is:

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<tr>
<td>SODEMI</td>
<td>51 %</td>
</tr>
<tr>
<td>CGM</td>
<td>39 %</td>
</tr>
<tr>
<td>State</td>
<td>10 %</td>
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An application for a mining permit was introduced in 2010 for the entire surface covered by the exploration permit. On September 23, 2010 mining permit no. 36 was issued to SODEMI and then transferred to CML on November 5, 2010.

To date, certified superficial deposit reserves on the permit are approximately 1.4 million tons of marketable products with a 40% Mn content. However as agreed under the Partnership Agreement, CGM shall conduct exploration and mining core drillings to increase reserves. For this purpose, a new exploration permit (no. 248) was requested in addition to the first. CGM is also committed to carrying out preliminary exploration to ascertain the potential of this latter permit.

Translator’s note : In French, (i) minerai de lentille; (ii) minerai de démantèlement; (iii) minerai de cuirasse.
1.3. OBJECTIVE
The reopening of the manganese mine at Lauzoua is aimed at generating financial resources for SODEMI and also for the Republic of Ivory Coast.

1.4. PRESENTATION

1.4.1. Description of the current status
This mining project, currently in its implementation stage, involves mining (certified) superficial deposit reserves estimated at about 1.4 million tons of marketable crude ore with a production rate of 300,000 tons per annum.

However, an intensive exploration program, aimed at highlighting the depth of mineralization is planned. Similarly, an application has been made for a permit covering the surface area of the current mining permit in order to increase reserves and thereby guarantee a reasonable life span for this project.

1.4.2. Strategy
SODEMI is considering setting up a logistics company after confirmation that sufficient reserves exist, in order to reduce outsourcing exploration and transportation. The logistics company will also be involved in the Monogaga iron ore exploration project, which is scheduled for 2015.

1.4.3. Activities to be carried out
Finalization of Amendment no. 4 on repayment modalities to CGM of supplier credit for its provision of equipment, and on exploration work to be undertaken by CGM on mining permit no. 36 and exploration permit no. 248.
Payment of CGM’s entry fee
Appointment of representatives of Ivory Coast on the board of directors
Mobilization and establishment of the service provider
Meeting of the board of directors
Commencement of ore extraction
Finalization of mine construction
Commencement of production

1.4.4. Implementation period
The initially estimated life span of the mineral deposit is 5 years, based on already certified superficial deposit reserves. However, the expected results of future deeper exploration programs and the grant of the requested research permit to increase reserves will allow significant extension of the mine’s life span. The mine is scheduled to reopen within four months.
1.4.5. Cost Estimate and Solicited Investments

The estimated cost of the project is CFAF 8 billion. The required investment is to be shared between:

- 57%, or CFAF 4.6 billion for SODEMI,
- 43% or CFAF 3.4 billion for CGM.

The investment will create about one hundred (100) direct jobs.

2. AUDIT OF MINING TITLES

Performance of an audit of mining-related permits will quickly add needed clarity to this sector and provide better understanding of the current Ivorian mining cadastral system. Auditing shall be done in three (3) stages:

i. Data collection

This phase aims at collecting information listed below from companies holding mining titles:

- Copies of administrative decisions and regulations (government decrees, ministerial orders, modified memorandum and articles of association/corporation charter and bylaws, or business agreements with partners and subcontractors);
- Investment sources (funds raised on the stock exchange, stockholders’ equity, ...);
- Copies of payments made for taxes, fixed fees, royalties on surface area rights;
- List of technical and administrative employees, by job category and nationality;
- Pay scale by job category and nationality (Ivorians and expatriates);
- Annual reports and a General Report by period of validity;
- Details of actual expenditures prepared in the attached model format.

i. Data comparison

The data collected will be compared with data held by the DGMG (Directorate General of Mines and Geology) to review their conformity with regulatory provisions and contractual commitments. In addition, operators will be interviewed to provide additional information and explanations, and a field visit will be made to ascertain field work implementation and whether such work was executed within the limits defined by the mineral title.

ii. Audit Report

After completion of auditing, an audit report will be prepared for each mineral title.

The audit must be conducted within a two (2)-month period. Total cost of the auditing exercise is estimated at CFAF 75.5 million.
3. REVISION OF THE PROCEDURE FOR GRANTING PERMITS

3.1. BACKGROUND
Current bottlenecks and slow processing procedures for granting mining permits are discouraging potential investors in the mining sector. Urgent steps should be taken to address weaknesses and strengthen best practices in this area.

One of the objectives of the Ministry of Mines is to increase investment in the exploration sector in order to develop new mineral deposits and significantly increase production. A revision of the current and rather complex procedures applied before delivery of mining titles will help achieve this.

3.2. RATIONALE
The Mining Law of 1995 helped to attract foreign investment and boost mining activities. But the procedure for granting mining rights by government decree, with its various steps listed below, is felt to be an impediment:
- Registration, verification and review of applications at the Directorate-General of Mines and Geology (Direction Générale des Mines et de la Géologie - DGMG);
- Convening of the Inter-ministerial Mining Committee (COMINE), composed of 14 officials, to review applications;
- Preparation of draft decrees and reports;
- Transmission of the draft decrees and reports to the Minister in charge of Mines, the Minister of Environment, the Minister of Economy and Finance, who are all co-signatories of the presentation reports;
- Transmission of the above documents to the government’s General Secretary for a review in a Cabinet meeting;
- Approval by the President of the Republic, who signs the government decree;
- The signed decree is registered by the government’s General Secretary, and sent back to the office of the Minister of Mines.

As it involves a high number of decision-makers, this lengthy procedure delays the delivery of permits, thus penalizing investors. As a result, some investors are tempted to seek investment opportunities elsewhere.

3.3. OBJECTIVE
The objective of this project is to increase the level of investments in the mining sector by reducing the processing time and delays in applying for and granting mining-related permits.

3.4. PROJECT OVERVIEW
The project will consist in developing and getting approval for a new procedure regulating delivery of permits. This new procedure will rest mainly on the following:
- Setting a reasonable timeframe for each stage of the procedure;
- Reducing the number of COMINE members;

- Granting prospecting and mineral exploration permits under a ministerial order of the Minister in charge of Mines;

- Granting a mining permit by government decree, after presentation to the Cabinet of the report approved and signed by the Minister in charge of Mines.

3.5. SOCIO-ECONOMIC IMPORTANCE OF THE PROJECT

This new procedure, if adopted, will give a new impetus to mining activities, and this will increase the number of permits for mineral prospection/exploration and also the chances of finding deposits, which are sources of employment and wealth.

3.6. EXPECTED OUTCOMES

Expected outcomes at the end of the first two (2) months of project implementation are:

- The proposed procedure is approved by the Government;
- The enabling texts are given Presidential assent.

3.7. PROJECT COST

To be determined.

3.8. ACTION ORGANIZATIONS

The organizations involved in revising the current delivery procedure are the Directorate-General of Mines and Geology (DGMG/DDM and DSRM) and the office of the Minister of Mines, Oil and Energy Resources.
4. CONFLICT RESOLUTION IN EXPLORATION AND MINING AREAS

4.1. BACKGROUND
There have always been frictional relations between entities that develop natural resources and local communities in mineral deposit areas.

In some regions of Ivory Coast, some areas have become a focus of tension between mining operators and villagers. To mitigate these occasionally deadly conflicts, there is an urgent need to develop a suitable platform for cooperation and sustainable consensus between mining companies and communities affected by mining activities.

4.2. ORGANIZATION OF THE PROJECT
- Identify conflict areas;
- Identify the nature of the conflict: over land, politics, due to lack of information and communication, or relating to social claims...;
- Set up the different delegations that will travel to the trouble spots;
- Write letters to mining operators, regional services (DR, DR), and administrative authorities;
- Send out field delegations to inform and sensitize communities, as well as collect information about the conflict;
- Write up the findings reports;
- Compile a summary of all the reports to include all internal and external factors underlying conflicts;
- Propose solutions at the national and local levels;
- Submit the draft proposals to Cabinet;
- Send delegations to interact with local communities about the draft solutions;
- Report back to the Cabinet;
- Draw up a draft paper or bill suggesting measures on prevention and conflict settlement at the mining sites whose permits are being examined at Cabinet level;
- Disseminate and explain the paper during ministerial visits.

4.3. PERIOD OF EXECUTION AND PROJECT COST
It is estimated that these project activities, when launched, will continue for about three (3) months. The project cost is estimated at CFAF 39.4 million, covering mainly traveling and related expenses.
CHAPTER 2:
HYDROCARBONS SECTOR
1. **URGENT MEASURES NEEDED TO ENSURE NATURAL GAS SUPPLIES**

An increase in natural gas supplies to fuel thermal production units may be obtained by:

i. drawing on the south-eastern domestic production, via the Abidjan–Assinie onshore pipeline, the so-called Eastern pipeline: the gas fields development program has not yet been approved, and the pipeline is not yet built.

ii. drawing on regional (Ghana and Nigeria) production, via the interconnected West Africa Gas Pipeline Project (WAPCO). This project is not yet operational.

iii. importing liquefied gas, but it requires specialized logistics in terms of ships and reconditioning units; moreover, it would be expensive (over CFAF 225 billion) and it requires a long implementation period (over 2 years).

These options would give the sector a competitive advantage and help it balance its accounts. Investment costs are estimated at CFAF 105 billion.
CHAPTER 3:
ELECTRICITY SECTOR
"To eliminate any risk of load shedding, all necessary measures should be taken to augment domestic generation capacities". Extract from the conclusions and recommendations of the Government seminar held on 5 and 6 July 2011.

1. BACKGROUND
   
   1.1. PRODUCTION EQUIPMENT
   A feature of the electricity sector in Ivory Coast is the fact that there has been no investment in more than a decade in respect of electricity generation, transmission and distribution, whether in maintenance or infrastructure renewal. Most of its facilities are thus in an advanced state of dilapidation and operating at capacity limits. With such overloading of distribution facilities, power cuts are necessary to bring back transits and voltages within the range of permissible values and protect in this way both infrastructure and people.

   There is no production reserve to meet electricity needs at peak and N-1 security periods in the event of a shutdown of a generating unit, and this exposes the electricity system to a risk of massive and deep load shedding, if a high-capacity generating group is damaged.

   1.2. SUPPLY OF NATURAL GAS
   Natural gas is used as fuel by thermal power plants. Local gas supplies currently meet only 87% of domestic needs. Locally produced gas is declining because additional fields have not been put into production.

   This shortage will grow as early 2012 and will lead, as of 2013, to the sector’s inability to meet local market needs and further, it will stalemate any recovery plan for the mining sector.

   ![Graph 1: Supply vs. demand for natural gas](image)
1.3. FINANCIAL POSITION

The electricity sector has an important financial deficit, which had reached CFA 120 billion in 2010. It can be blamed, firstly, on inappropriate rate management and, secondly, on higher fuel prices. Sector deficit is expected to deteriorate further in the future, worsening the liquidity problems of independent producers (CIPREL, AZITO, AGGREKO) and gas operators (FOXTROT, CNR, AFREN) and consequently, creating risks of electricity outages and interruptions in the supply of gaseous fuel.

2. EXPLAINING PROJECT SELECTION

The projects were selected to meet the following immediate objectives:

- Improve the efficiency of existing energy infrastructure
  - Acquisition of five (5) transformers
  - BOAD Rehabilitation Program
  - PURE Rehabilitation program

- Reduce Consumption
  - Installation of five (5) million compact florescent Lamps (CFL)
  - Energy savings in administrative office buildings
  - Combat non-technical losses (fraud, theft, vandalism)

- Develop production infrastructure
  - Azito combined cycle power plant
  - Signature of the SOUBRE Agreement (pending HIPC initiative)
  - Implement complementary measures such as settling debt due to Electricity Sector
  - A lower natural gas price (a reduction of US$ 8 to 6 per one million cubic feet daily)

2.1. IMPROVING THE EFFICIENCY OF EXISTING ENERGY INFRASTRUCTURE

2.1.1. Acquisition of five transformers

This project is part of an effort to enhance the electricity transmission/distribution network.

It involves supplying five (5) transformers capable of eliminating operating constraints, in other words that will allow the Ivorian grid to bear the various transit loads, reduce technical losses, provide better service to consumers and ensure service continuity.

It involves procuring and installing three (3) transformers 90/33/16, 5 kV of 36 MVA and two (2) transformers 90/33/16.5 of 24 MVA.

Project implementation will take ten (10) months. The project cost is CFAF 4.0 billion, to be entirely financed by the private sector.
2.1.2. BOAD Rehabilitation program

This project is part of an effort to improve Ivorian electricity operations and to secure regular supplies for domestic customers.

The specific objectives of the project are to:

- Reduce the average outage time by 15h, gaining 9 GWh in undistributed energy valued at CFAF 4.5 billion per annum;
- Reduce undistributed Energy by 10 GWh, valued at CFAF 5 billion per annum;
- Produce 140 GWh per annum from the no. 3 group at Vridi Plant and 35 GWh from the no. 1 group at Taabo, totaling 175 GWh, valued at CFAF 7.8 billion per annum.

The project activities are:

- Rehabilitation of electromechanical equipment at Vridi, Taabo, Faye, Anyamé 1 and Anyamé 2;
- Construction of a 225/90/30 kV transformer substation at Djibi;
- Reinforcement of the interconnected network by purchasing and installing fourteen (14) transformers;
- Reinforcement of the distribution network in the city of Abidjan by creating four (04) MV power lines at departure point and renewing the HV trains at the Vridi station.

The project has an implementation period of 36 months. The project cost, at CFAF 29 billion, is funded entirely by the WADB/BOAD through a loan from the Energy Development Fund.

2.1.3. The PURE project

The objective of this project is to improve the quality of electricity supply and financial profitability in the electricity sector, through the following actions:

- Replacement of obsolete distribution and/or overloaded equipment by much more efficient and technologically advanced equipment;
- Extension and reconfiguration of the transmission network;
- Promotion of demand management activities.

2.1.4. Components

Expansion and rehabilitation of the distribution network

a) The extension of the distribution network over Abidjan’s metropolitan area, and in densely populated quarters such as Abobo, Anyama, Bingerville and Yopougon, in order to connect about 60,000 new customers to the distribution network, with particular attention for poor neighborhood city areas where unrecorded service connections have been made by local communities.

b) Modernization and restructuring of the low-voltage distribution network in the metropolitan area of Abidjan, and in the upcountry towns of Gueyo, Soubré, and
Yamoussoukro, through installing departure point substations and distribution circuit substations, and replacing equipment and lines that are either in a bad condition, ancient or overloaded.

c) Modernization and restructuring of medium and high voltage substations in metropolitan Abidjan - notably by replacing overloaded equipment such as transformers and circuit breakers - and also by installing capacitors in other parts of the country.

d) i) Provision of logistical means to help manage demand, including the provision and installation of compact fluorescent lamps;

ii) Supply and installation of meters and creation of service centers for customers;

iii) Strengthening supervisory capacity of sector work, in particular by providing vehicles to SOPIE.

Preparation of future investments in the transmission network

a) By conducting feasibility, design and environmental studies and preparing tender documents for restructuring and modernizing the transmission network in the metropolitan area of Abidjan, in particular for the station extension at Riviera, construction of the Anoumabo, Djibi and Anani substations and for the interconnection of the Djibi and Riviera substations.

b) By conducting feasibility, design and environmental studies and preparing tender documents for restructuring and modernizing the transmission network in the eastern, northern and western parts of the country, in particular for construction of a substation in Bondoukou, the connection of the Tabou, Tai, and Zagne regions to the 90kV network of the Beneficiary, and the interconnection of Ferkessedougou and Laboa stations.

Institutional support and Project supervision

a) Institutional support, in particular:

i) Provision of consultancy services on gas prices and supply;

ii) Assessment of human resource capacity in the sector, design and implementation of a capacity building program based on the assessment;

iii) Design and implementation of an institutional framework for a rational use of energy and managing demand, as well as of (essentially) pilot project programs related to individuals, public lighting and public buildings consumption;
iv) Service connections at subsidized rates for low-income subscribers, through the establishment of a renewable fund to finance such connections;

v) Updating the sector assets register, notably by conducting a physical inventory, cost assessment, and making the required accounting entries to include such assets in the balance sheet of the Project Implementing Unit;

vi) A) carrying out a rate survey; B) to establish new rate regulation procedures, and C) carrying out an assessment of the impact of electricity rates on poverty and of their social impact in general; and

vii) Reviewing and updating laws and regulations in view of institutional reform in the sector.

b) Coordination and supervision of the project, including implementation, monitoring and evaluation of social and environmental safeguard measures, audits and information, education and communication activities.

The project cost is about CFAF 24.2 billion and is funded by the World Bank through a grant agreement. The project duration is 36 months after signature of the grant agreement.

2.2. REDUCTION IN CONSUMPTION

2.2.1. Installation of five (5) million energy saving bulbs in residential areas.

This project is part of the overall effort at achieving efficiency in domestic electricity demand. Its objectives are to:
- Reduce domestic electric consumption;
- Reduce the national energy consumption bill;
- Reduce technical losses due to saturation of a number of transmission and distribution facilities;
- Reduce greenhouse gas emissions.

Implementation of the project will require the following activities:
- A technical definition study;
- Acquisition of five (5) million low energy-consumption bulbs;
- An intensive communication campaign to ensure acceptance from project targets;
- Distribution of four (4) bulbs per household, at a cost of CFAF 300/bulb, by private companies authorized by the project;
- Collection and destruction of incandescent bulbs.
The Project implementation period is 12 months. The project will cost CFAF 11 billion and is financed by the Government of Ivory Coast. Energy savings are estimated at 100 MW.

2.2.2. Reduced Consumption in public buildings

This project is part of efforts to improve the end use of electricity. It aims at:

- Eliminating overlapping peak loads,
- Guiding and coordinating load optimization through the usual scenarios,
- Preparing daily and monthly electricity bills for comparison with CIE (Ivorian Electricity Concessionaire Operator) bills;
- Supervising and monitoring performance in public buildings.

Activities to be implemented are:

- Preparation of Tender Documents for the project
- Launching and award of Contract
- Establishment of technical autonomous energy management of the said buildings.

The project cost is one (1) billion CFA francs. It will be implemented in 6 months.

This project, which yielded encouraging results in 2010, is slow in taking off on account of the delayed implementation of the institutional framework.

2.2.3. Efficient Public Lighting

The project is part of an effort to improve energy efficiency in public lighting. Its objectives are to:

- Improve energy efficiency of public lighting
- Save (energy and money) on operating costs
- Reduce production of greenhouse gases

The project involves replacing mixed-type lamps (160 W and 250 W) used in the Ivorian public lighting system by high pressure sodium (HPS) lamps. 74,033 (EP) mixed fixtures are involved:

- Replacement of 160 W mixed lamps: The Ivorian public lightening has 37,406 160 W mixed lamps, to be replaced by 100W HPS lamps;
- Replacement of 250 W mixed lamps: Ivorian public lighting has 36,627 mixed lamps of 250 W which will be replaced by 150W HPS ‘blade’ bulbs.
Activities to be implemented in this project, as part implementation are:

- Removal of all mixed bulbs/lamps (74,033);
- Recycling of old bulbs (storage, destruction, environmental safeguard);
- Installation of 37,406 100W HPS lamps;
- Installation of 36,627 150W HPS lamps.

Project cost is CFAF 10.8 billion, financed by the Government of Ivory Coast that contributes CFAF 1.65 billion, or 15.28% of total cost while the private sector will be providing CFAF 9.15 billion or 84.72%. Project implementation will take 24 months.

2.2.4. Fight against fraud, theft, vandalism and illegal occupation
The project is part of an effort to improve the technical, financial and economic performance of the energy sector. Its objectives are to:
- Disseminate information about the functional rules of the electricity sector
- Control fraud in the electricity sector
- Facilitate access to electricity for the less privileged
- Improve upon the recovery rate of electricity sector billings
- Reduce considerably non-technical losses
- Improve the technical performance of the networks

Activities to be carried out under this project are:
- Passage in parliament of the energy law,
- Establishment of a taskforce to fight fraud and start anti-fraud field operations
- Annulment of municipal permits and bylaws on reserved electricity sector public space, freeing of the power line corridors, demarcation of electricity installations, and a 70% reduction in fraud cases.

Ivory Coast must quickly pass the bill, which has been under review since 2010, and implement the planned action programs. The duration of the project is 5 years. The energy savings realized are estimated at 450 GWh. The total cost of the project - CFAF 14 billion – is financed by a CFAF 12 billion Ivorian state contribution and the sector finances CFAF 2 billion. The resulting financial gain from an implemented project is estimated at CFAF 14 billion per annum.

2.3. DEVELOPMENT OF ENERGY GENERATING FACILITIES
2.3.1. Conversion of Azito power station into a combined cycle (Phase 3)
This project is part of efforts to enhance power generation capacity. It involves the installation of boilers to recover steam from the gas turbines at the existing station, in order to achieve a combined cycle system, whose generating cost is lower than in the current open cycle turbine station.
The objective here is to reduce consumption of natural gas and to save on fuel costs.

The various planned activities under this project are to:
- Have amendment no. 3 to the Azito agreement signed;
- Perform all the technical and financial feasibility studies for the combined cycle power station at the current site;
- Conduct a feasibility study of energy evacuation.
- Conduct an environmental impact study;
- Source for funding;
- Build the plant.

The duration of the project is 32 months and the cost is CAF 208.5 billion, funded entirely by private operators.

2.3.2. Construction of a hydroelectric power station at Soubré

This project aims at increasing the domestic generating pool by building the hydroelectric dam at Soubré. It aims at increasing generation capacity in the country with a renewable energy source whose cost per kilowatt hour is lower than that of the thermal kWh.

Activities to be implemented are:
- Request funding from the Chinese Government;
- Sign the funding application;
- Set up the financing arrangements;
- Construct the facility and bring it into service.

Completion time for this project is 5 years. The estimated project costs total CAF 305 billion for the civil works and plant equipment, the energy transmission network and all the costs related to population displacement.

2.4. SUPPORTIVE MEASURES

These supportive measures are taken to help restore the financial viability of the electricity sector; they include recording its deficit in the government budget, reviewing the price of natural gas, readjusting sector rates, activating the planned five (5) investment funds (under the no. 5 amendment- CIE), and seeking all bilateral and multilateral funds available, including environmental funding, on the international market as well as registration with the CAF 500 billion Energy Development Fund of the WADB/ BOAD, and the Investment Fund of CAF 2,000 billion being created at WADB.
2.4.1. Settlement of debts to private operators

The project is part of the effort to improve the sector’s financial position. Its objective is to ensure continuity of electric supply and gaseous fuel supplies to the electricity sector.

Activities to be implemented are:
- Negotiations with private operators to reduce sector costs, notably with gas operators to reduce the natural gas cost (placing an upper limit on the price of gas);
- The planned increase in electricity rates (to improve the sector’s resources) did not take place on account of the crisis the country went through;
- Conduct a rate survey;
- Seek government assistance to set up a revolving fund mechanism on a quarterly basis to finance part of the sector’s deficits, notably the bills of IPPs and gas producers;
- Continue negotiations with the government to place a ceiling on gas prices and reduce other sector expenses;
- Schedule rate adjustments to improve sector revenue.

The implementation period required for this project is a maximum of twelve months if it starts on 1st July 2011.

The estimated cost of this project is equivalent to the forecasted debt of IPPs and gas operators under Pari Passu. This debt is estimated to be about CFAF 60 billion at year-end 2011.

2.4.2. Reduction in the price of natural gas

This project is part of the effort to improve the sector’s financial position. Its objective is to ensure continuity of electric supply and gaseous fuel supplies to the electricity sector.

It involves beginning discussions between the State and gas operators in order to renegotiate a lower price for natural gas so as to contribute to the sector’s rapid return to a financially stabilized position. The government’s proposals are:
- Foxtrot (Block CI-27): set the upper limit at $6/MMTU;
- AFREN (Block CI-11): set the price of gas at $1.75/MMBTU;
- CNR (Block CI-26 and CI-40): set the price of gas at $1.30/MMBTU.
Discussions are expected to last for four months, and should result in the signing of new contracts with operators, the implementation of which would be effective from January 2012.

2.4.3. Other supporting measures
These projects must be accompanied by supportive measures regarding immediate implementation of the human resources training plan.
ANNEX 1: SUMMARIES
Table 1: Urgent Projects in Mines and Geology

<table>
<thead>
<tr>
<th>NO</th>
<th>POLICY BASIS</th>
<th>ACTIONS</th>
<th>DEVELOPMENT OBJECTIVE OR EXPECTED OUTCOMES</th>
<th>DURATION (MONTHS)</th>
<th>COSTS (MILLIONS CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Population increase</td>
<td>Resume mining operations at Lauzoua manganese mine</td>
<td>Help improve the financial resources of SODEMI and of Ivory Coast</td>
<td>4</td>
<td>8,000.0 4,500.0 3,500.0</td>
</tr>
<tr>
<td>2</td>
<td>Accompanying measures</td>
<td>Conclude the audit of 30 licenses issued</td>
<td>Better governance</td>
<td>2</td>
<td>75.5 75.5 -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Review title issuance procedures</td>
<td>Ensure transparent management and optimum resource mining; induce operators to keep to their preset programs; avoid freezing permits; increase the volume of exploration work</td>
<td>2</td>
<td>A/D A/D A/D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resolve conflicts between operators and some local communities on site</td>
<td>Create an enabling environment for development of mining activity and thus sustain investments</td>
<td>3</td>
<td>39.4 39.4 -</td>
</tr>
<tr>
<td></td>
<td><strong>Total accompanying measures</strong></td>
<td></td>
<td></td>
<td><strong>114.9</strong></td>
<td><strong>114.9</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Urgent Projects</strong></td>
<td></td>
<td></td>
<td><strong>8,190.4</strong></td>
<td><strong>4,690.4</strong> <strong>3,500.0</strong></td>
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</table>

A/D: To be determined
Table 2: Urgent Projects in Hydrocarbons

<table>
<thead>
<tr>
<th>NO</th>
<th>POLICY BASIS</th>
<th>ACTIONS</th>
<th>DEVELOPMENT OBJECTIVE OR EXPECTED OUTCOMES</th>
<th>DURATION (MONTHS)</th>
<th>COSTS (MILLIONS CFAF)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Carry out portable gas distribution: 1st phase</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Develop the natural gas distribution network by expanding use of domestic portable gas</td>
<td>8</td>
<td>5,000.0</td>
<td>5,000.0</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Competitiveness</td>
<td>Initiate hinterland logistics survey</td>
<td>Facilitate better distribution of petroleum products upcountry</td>
<td>12</td>
<td>10,800.0</td>
<td>A/D</td>
<td>A/D</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiate Terminal survey: 1st phase</td>
<td>Make Ivory Coast a supply center of refined products in the sub region (West and Central African hub)</td>
<td>12</td>
<td>7,100.0</td>
<td>-</td>
<td>7,100.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Butane: Contract directly with producers</td>
<td>Secure supplies at lower cost to Ivorian domestic market</td>
<td>6</td>
<td>T/D</td>
<td>T/D</td>
<td>T/D</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Community safety</td>
<td>Initiate survey of port area</td>
<td>Secure the oil and port logistical infrastructure in the industrial zone of Vridi</td>
<td>12</td>
<td>700.0</td>
<td>T/D</td>
<td>T/D</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Accompanying measures</td>
<td>Design the SIR debt clearance program</td>
<td>Reduce difficulties in financing the supply of crude oil to the refinery</td>
<td>12</td>
<td>92,300.0</td>
<td>92,300.0</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suggest reorganization of distribution sector</td>
<td></td>
<td></td>
<td>T/D</td>
<td>T/D</td>
<td>T/D</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Propose revision of institutional framework, customs &amp; investments codes</td>
<td>Increase the oil revenues of the State of Ivory Coast; increase transparency in the hydrocarbon sector, improve management capabilities and administration of the hydrocarbon sector</td>
<td>6</td>
<td>600.0</td>
<td>600.0</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>105,000.0</td>
<td>97,900.0</td>
<td>7,100.0</td>
<td></td>
</tr>
</tbody>
</table>

% 93.2 6.8

T/D: To be determined.
**Table 3: Urgent projects in Conventional Electricity**

<table>
<thead>
<tr>
<th>NO</th>
<th>POLICY BASIS</th>
<th>ACTIONS</th>
<th>DEVELOPMENT OBJECTIVE OR EXPECTED OUTCOMES</th>
<th>DURATION (MONTHS)</th>
<th>COSTS (MILLIONS CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CUMUL</td>
</tr>
<tr>
<td>1</td>
<td>Improve energy efficiency of existing infrastructure</td>
<td>Acquire five transformers 90/33/16.5 kV (3x36 2x24 MVA and MVA) Rehabilitation of existing infrastructure (BOAD Projects + PURE)</td>
<td>Strengthen the power transmission and distribution network not only to reduce technical losses but also to give the Ivorian grid the capacity to bear various transit loads.</td>
<td>10</td>
<td>4,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12-36</td>
<td>53,200</td>
</tr>
<tr>
<td>2</td>
<td>Minimize Consumption</td>
<td>Replace five (5) incandescent lamps with their low energy consumption equivalent in one (1) million household subscribers: five (5) million LCL</td>
<td>Reduce domestic consumption by at least 100 MW and thus avoid load shedding.</td>
<td>24</td>
<td>11,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reduce consumption in the public buildings</td>
<td>6-60</td>
<td>2,300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Improve public lighting efficiency</td>
<td>12-24</td>
<td>11,800</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Legislate to control non-technical losses (theft, fraud, ...)</td>
<td>20</td>
<td>2,800</td>
</tr>
<tr>
<td>3</td>
<td>Develop generation infrastructures</td>
<td>Implement the combined cycle Azito station Negotiate and sign a concession agreement for emergency installation of a new thermal station of 150 MW/combined cycle Hydroelectric Project for Soubré (270 MW): Submit request for additional funding</td>
<td>As an urgent matter, increase the electric power supply to ensure security of supply. The funding request must be made now so that the dam can be operational in 2016. Its construction will increase the power's generating capacity enough to meet electricity demand by the year 2016-2017. Hydropower, together with thermal power, will also establish an energy mix balance lowering the production costs of electricity.</td>
<td>50</td>
<td>208,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36</td>
<td>125,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>A/D</td>
</tr>
<tr>
<td>4</td>
<td>Take accompanying measures</td>
<td>Propose mechanisms and a final settlement program for debt owed to the sector’s</td>
<td>Reduce cash flow pressures on IPPs (CIPREL, AZITO, AGGREKO) and gas operators (FOXTROT, CNR, AFREN), thus ensuring supply continuity in electricity and gaseous fuel to the electricity sector.</td>
<td>4-36</td>
<td>60,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Begin discussions to lower the price of natural gas and in general to reduce operating costs</td>
<td>6</td>
<td>A/D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start a process of priority training programs</td>
<td>6-50</td>
<td>A/D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restructure administrative services</td>
<td>6-12</td>
<td>A/D</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>478,600</td>
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T/D: To be determined.
### Table 4: Assessment of BOAD Project Component

<table>
<thead>
<tr>
<th>Subcomponents</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Millions CFAF</td>
</tr>
<tr>
<td><strong>Subcomponents 1.1</strong></td>
<td></td>
</tr>
<tr>
<td>Extension of distribution network in currently connected areas (Abobo, Anyama, Yopougon, Bingerville)</td>
<td>2,520</td>
</tr>
<tr>
<td>Extension of distribution network in the new settlement areas where illegal connections exist</td>
<td>1,980</td>
</tr>
<tr>
<td><strong>Total 1.1</strong></td>
<td>4,500</td>
</tr>
<tr>
<td><strong>Subcomponent 1.2</strong></td>
<td></td>
</tr>
<tr>
<td>Reconfiguration of the Abidjan, Yamoussoukro, Soubré and Gueyo MV network</td>
<td>4,950</td>
</tr>
<tr>
<td>Reinforcement of the Abidjan MV/LV network</td>
<td>4,500</td>
</tr>
<tr>
<td><strong>Total 1.2</strong></td>
<td>9,450</td>
</tr>
<tr>
<td><strong>Subcomponent 1.3</strong></td>
<td></td>
</tr>
<tr>
<td>Replacement of six HV/MV transformers at the Abobo, Bia and South Yopougon substations</td>
<td>2,160</td>
</tr>
<tr>
<td>Supply and installation of capacitors in Attakro, Agnibilekro et Abengourou HV substations</td>
<td>900</td>
</tr>
<tr>
<td>Replacement of 15 circuit breakers at departure point in secondary stations in Abidjan</td>
<td>540</td>
</tr>
<tr>
<td><strong>Total 1.3</strong></td>
<td>3,600</td>
</tr>
<tr>
<td><strong>Subcomponent 1.4</strong></td>
<td></td>
</tr>
<tr>
<td>Meters and customer assistance centers</td>
<td>1,125</td>
</tr>
<tr>
<td>Vehicle to supervise the project</td>
<td>120</td>
</tr>
<tr>
<td>Supply and installation of compact fluorescent bulbs/lamps (CFL)</td>
<td>500</td>
</tr>
<tr>
<td><strong>Total 1.4</strong></td>
<td>1,745</td>
</tr>
<tr>
<td><strong>Total Component 1 (miscellaneous and unforeseen expenses not included)</strong></td>
<td>19,295</td>
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### Component 2: Preparatory activities to future investment in the transmission network

<table>
<thead>
<tr>
<th>Subcomponents</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Millions CFAF</td>
</tr>
<tr>
<td><strong>Subcomponent 2.1</strong></td>
<td></td>
</tr>
<tr>
<td>Preliminary studies for the extension and reinforcement of the HV network of the Metropolitan area of Abidjan</td>
<td>450</td>
</tr>
<tr>
<td><strong>Total 2.1</strong></td>
<td>450</td>
</tr>
<tr>
<td><strong>Subcomponent 2.2</strong></td>
<td></td>
</tr>
<tr>
<td>Preliminary studies for a 90 kV Agnibilekrou –Bondoukou- Serebou transmission line</td>
<td>270</td>
</tr>
<tr>
<td>Preliminary studies for connecting Zagna –Tai-Taboo to the national 90 kV grid</td>
<td>122</td>
</tr>
<tr>
<td>Preliminary studies for a 225 kV Laboa - Ferkessedougou transmission line</td>
<td>1,000</td>
</tr>
<tr>
<td><strong>Total 2.2</strong></td>
<td>1,392</td>
</tr>
<tr>
<td><strong>Total Component 2 (miscellaneous and unforeseen expenses not included)</strong></td>
<td>1,842</td>
</tr>
</tbody>
</table>
Component 3: Project Supervision and Institutional Support

<table>
<thead>
<tr>
<th>Subcomponents</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Millions CAF</td>
</tr>
<tr>
<td><strong>Subcomponent 3.1</strong></td>
<td></td>
</tr>
<tr>
<td>Consulting services for early evaluation of the implementation and recovery policy framework</td>
<td>9</td>
</tr>
<tr>
<td>Advisory services for procurement</td>
<td>30</td>
</tr>
<tr>
<td>Consulting services to adapt the Project Execution Manual</td>
<td>7.5</td>
</tr>
<tr>
<td>Project management software for SOGEPE</td>
<td>15</td>
</tr>
<tr>
<td>Technical supervision services for SOPIE</td>
<td>120</td>
</tr>
<tr>
<td>Supervision and bringing into service done by the CIE</td>
<td>180</td>
</tr>
<tr>
<td>External Auditor</td>
<td>25</td>
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<tr>
<td><strong>Total 3.1</strong></td>
<td>386.5</td>
</tr>
<tr>
<td><strong>Subcomponent 3.2</strong></td>
<td></td>
</tr>
<tr>
<td>Consulting services in setting gas prices and contract tendering and award s</td>
<td>40</td>
</tr>
<tr>
<td>Program to evaluate and build capacity of HR</td>
<td>350</td>
</tr>
<tr>
<td>Program to achieve energy efficiency and manage demand</td>
<td>100</td>
</tr>
<tr>
<td>Renewal Fund to connect of low-income customer brackets</td>
<td>1,500</td>
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<tr>
<td>Assistance SOGEPE for valuing assets and balance sheet preparation</td>
<td>270</td>
</tr>
<tr>
<td>Electricity Rates Survey and Impact survey on living conditions and poverty</td>
<td>350</td>
</tr>
<tr>
<td>Legal Advisor for institutional reforms</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total 3.2</strong></td>
<td>2,660</td>
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<tr>
<td><strong>Total Component 3 (miscellaneous and unforeseen expenses not included)</strong></td>
<td>3,047</td>
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</table>

Costs excluding taxes and fees; 1 dollar = CAF 500
ANNEX 2: IMPLEMENTATION SCHEDULES
### Table 5: Sector: Mines and Geology

#### Audit of mining titles

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>ACTIONS</th>
<th>IMPLEMENTATION SCHEDULE</th>
<th>COSTS (Millions CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Induce operators to implement programs submitted to the administration in order to increase the volume of exploration and avoid freezing licenses</td>
<td>Collect field data</td>
<td>1st Fortnight 2nd Fortnight 3rd Fortnight 4th Fortnight</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compare the field data with those of companies</td>
<td></td>
<td>75.5</td>
</tr>
<tr>
<td></td>
<td>Prepare an audit report</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Revision of the procedure for awarding mining titles

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>ACTIONS</th>
<th>IMPLEMENTATION SCHEDULE</th>
<th>COSTS (Millions CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce the processing time for applications, granting mining titles on the one hand and on the other increase the level of investment in mining</td>
<td>Develop a new processing procedure for applications for mining titles</td>
<td>1st Fortnight 2nd Fortnight 3rd Fortnight 4th Fortnight</td>
<td>T/D</td>
</tr>
<tr>
<td></td>
<td>Implement the new procedure at the DGMG</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Submit the new procedures for approval to the Cabinet and Government</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Submit the proposed procedure to the President of the Republic for signature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Publish, make available the final statutory instrument on the new procedure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

T/D: TO BE DETERMINED.
Conflict resolution in areas of exploration and mining

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>ACTIONS</th>
<th>IMPLEMENTATION TIMETABLE</th>
<th>COSTS (Millions CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create an enabling environment for developing mining activity and</td>
<td>Appoint members of the committees</td>
<td>S 1 S 2 S 3 S 4 S 5 S 6 S 7 S 8 S 9 S 10 S 11 S 12</td>
<td></td>
</tr>
<tr>
<td>sustaining investment</td>
<td>Organize information and public education missions/visits</td>
<td></td>
<td>39.4</td>
</tr>
<tr>
<td></td>
<td>Conduct a study to identify sources of conflict</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Define compensation method, streamline and harmonize aid to the</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inform the communities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Developing manganese deposits at Lauzoua

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>ACTIONS</th>
<th>IMPLEMENTATION TIMETABLE</th>
<th>COSTS (Millions CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reopen the manganese mine in Lauzoua to generate financial resources for</td>
<td>Finalize the amendment no. 4 on repayment terms for exploration work on</td>
<td>M 1 M 2 M 3 M 4 M 5</td>
<td>8,000</td>
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<tr>
<td>SODEMI and for the State of Ivory Coast</td>
<td>licenses # 36 and 248</td>
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</tr>
<tr>
<td></td>
<td>- Collect CGM entrance fee</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Appoint representatives to the Board</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Mobilize and install the service provider</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Convene the Board of Directors</td>
<td></td>
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<tr>
<td></td>
<td>Start ore extraction</td>
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<td></td>
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<tr>
<td></td>
<td>Finalize the construction of the mine</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Start production</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 6: SECTOR: ELECTRICITY

**PROJECT TYPE: REHABILITATION**

Supply of 5 transformers

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Actions</th>
<th>Months</th>
<th>Timetable for completion: 10 months after award of the contract</th>
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</thead>
<tbody>
<tr>
<td>Improve the energy efficiency of the existing source</td>
<td>Provision and installation of 5 transformers</td>
<td>10</td>
<td>Month 1</td>
</tr>
<tr>
<td></td>
<td>- Procurement form for CIE</td>
<td>10d</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Manufacturing process of 5 transformers</td>
<td>10d</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Confirmation and assessment of warranties</td>
<td>5d</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Manufacturing and factory acceptance</td>
<td>6</td>
<td></td>
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<tr>
<td></td>
<td>- Transportation to Abidjan</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Assembly and Site Acceptance</td>
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</tbody>
</table>

The **PURE Project**

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Components</th>
<th>Timetable for completion: 36 months after entry into force of the grant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve current energy efficiency level</td>
<td>Institutional support (Ivory Coast)</td>
<td>Months 1</td>
</tr>
<tr>
<td></td>
<td>Studies of future work (C2)</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Rehabilitation and expansion of network (C3)</td>
<td>16</td>
</tr>
</tbody>
</table>

33
## BOAD Project

**Actions**

### Signing of loan agreement

**Timetable for completion: 31 months after the disbursement of the loan**

<table>
<thead>
<tr>
<th>Months</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<td>3.</td>
<td>12</td>
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</tr>
</tbody>
</table>

**Rehabilitation of TAG/GT 3 of Vridi**

- **Study**: 2
- **Tendering process**: 6
- **Supply, works, entry into service**: 12

**Overhaul of alternator of Taabo Plant 1**

- **Study**: 2
- **Tendering process**: 4
- **Supplies, works, entry into service**: 6

**Taabo dewatering system repair**

- **Study**: 2
- **Tendering process**: 6
- **Supplies, works, entry into service**: 6

**Fayé upstream face repairs**

- **Study**: 2
- **Tendering process**: 4
- **Supplies, works, entry into service**: 6

**Renewal of Ayamé monitoring systems 1 & 2**

- **Study**: 2
- **Tendering process**: 6
- **Supplies, works, entry into service**: 8

**Construction of the Djibi station**

- **Study**: 4
- **Tendering process**: 6
- **Supplies, works, entry into service**: 20

**Reinforcement of HVB/HVA substations**

- **Study**: 2
- **Tendering process**: 6
- **Supplies, works, entry into service**: 14

**Reinforcement of HVA substations**

- **Study**: 2
- **Tendering process**: 6
- **Supplies, works, entry into service**: 12

**Environmental and social measures**

- **Engineering consulting**: 30
- **Tendering process**: 4
- **Services**: 26

**Technical and financial audits**

- **Study**: 30
- **Tendering process**: 4
- **Supplies, works, entry into service**: 26
# PROJECT TYPE: REDUCTION IN CONSUMPTION

## Project: Distribution of 5 million Low consumption bulbs/lamps

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>Year 1</th>
<th>Year 1</th>
<th>Duration (months)</th>
<th>Costs (Millions CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quart. 1</td>
<td>Quart. 2</td>
<td>Quart. 3</td>
<td>Quart. 4</td>
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<tr>
<td>Preliminary</td>
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<tr>
<td>Preliminary Survey (baseline survey)</td>
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<tr>
<td>Project design and specifications</td>
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<tr>
<td><strong>Total</strong></td>
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<tr>
<td>administrative aspects</td>
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<td>Finalizing project financing setup</td>
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</tr>
<tr>
<td>Communication</td>
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<tr>
<td><strong>Total</strong></td>
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<tr>
<td>Technical Aspects</td>
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<tr>
<td>Acquisition of energy-saving lamps</td>
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<tr>
<td>CDM process</td>
<td></td>
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<tr>
<td>Distribution</td>
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<tr>
<td>Processing of end-of-life CFL</td>
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<td>Collection and disposal of used lamps/bulbs</td>
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<tr>
<td><strong>Total</strong></td>
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</tr>
<tr>
<td>Evaluation</td>
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</tr>
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<td>Monitoring and evaluation</td>
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</tr>
<tr>
<td>Project Management</td>
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<tr>
<td><strong>Total</strong></td>
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<td>Costs (M CFAF)</td>
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<tr>
<td></td>
<td>Miscellaneous &amp; Contingencies</td>
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<tr>
<td><strong>Total Cost of the Project</strong></td>
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</tbody>
</table>
# Energy saving in public buildings

<table>
<thead>
<tr>
<th>Actions</th>
<th>Activities</th>
<th>S1</th>
<th>S3</th>
<th>S4</th>
<th>S5</th>
<th>S6</th>
<th>S9</th>
<th>S14</th>
<th>S15</th>
<th>S16</th>
<th>S18</th>
<th>S19</th>
<th>S28</th>
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</thead>
<tbody>
<tr>
<td>Preparation of the project</td>
<td>Defining the scope of the study</td>
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<tr>
<td></td>
<td>Data and information gathering</td>
<td></td>
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<tr>
<td></td>
<td>Report and data analysis</td>
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<tr>
<td>Contractual arrangements and deployment of the system</td>
<td>Preparation and signing of contract</td>
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<td></td>
<td>Care facilities and/or deployment of GTB technology</td>
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<td></td>
<td>Installation of equipment</td>
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<tr>
<td>Monitoring and ensuring sustainable performance</td>
<td>Implementation of measuring procedures</td>
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<td></td>
<td>Implement, monitor proposed maintenance and/or operation plan</td>
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<tr>
<td></td>
<td>Supervision and Output analysis</td>
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</tbody>
</table>
## Fighting fraud, theft, vandalism and illegal occupation

<table>
<thead>
<tr>
<th>Actions</th>
<th>Activities</th>
<th>S1</th>
<th>S4</th>
<th>S5</th>
<th>S6</th>
<th>S7</th>
<th>S8</th>
<th>S9</th>
<th>S12</th>
<th>S13</th>
<th>S16</th>
<th>S7</th>
<th>S20</th>
<th>Costs</th>
<th>Millions CFAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced program for moral and civic education</td>
<td>Workshop to integrate content information relating to energy in the curricula of Education for Human Rights and Citizenship</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Writing workshop training modules, experimental protocols and training materials finalization</td>
<td></td>
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<tr>
<td>Information and sensitization of the population</td>
<td>Development of communication plan</td>
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<td>Creating a taskforce to combat fraud, theft, vandalism and illegal occupation</td>
<td>Development of statutory instrument governing the operations of the taskforce and its membership</td>
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<td>Adoption of regulatory framework to control work of taskforce</td>
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<td>Electricity supply to deprived and peripheral urban communities</td>
<td>Benchmarking assignment and solution approval</td>
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<td>Participation in the approval of land subdivision plans</td>
<td>Administrative procedures for integration into the Joint Committee that approve land subdivision plans</td>
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<td>Control the Committee’s decisions in the field</td>
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**PROJECT TYPE: INCREASED PRODUCTION**

**Objective:** Develop production infrastructure

**Conversion of the Azito plant into a combined cycle (Phase 3)**

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<th>Actions</th>
<th>Timetable for completion: 26 months after entry into force of the loan</th>
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<td>Months</td>
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<td>Entry into service</td>
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**Construction of hydroelectric dam at Soubré**

<table>
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<th>Actions</th>
<th>Timetable for completion: 2 months</th>
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<td>Month 1</td>
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<td>Preparation of the draft application by the DGE (MMPE)</td>
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<td>Submission of draft application by DGE to MMPE</td>
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<tr>
<td>Submission of the Project application by the MMPE to MEF</td>
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<td>Approval of the application by the MEF</td>
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<td>Submission of the signed application to EximBank of China</td>
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</table>
# TYPE OF PROJECT: SUPPORTIVE MEASURES

Clearing debt due to private operators and Reducing the price of natural gas

| Objective | Action | Month | Month 2 | Month 3 | Month 4 ...
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<td>W 1</td>
<td>W 2</td>
<td>W 3</td>
<td>W 4</td>
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<tr>
<td>Improve the financial position of the electricity sector</td>
<td>Meeting with private operators</td>
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<td>Finalizing negotiations</td>
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<td>Implementation of agreements</td>
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