Activity Report
2009

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His Majesty The King Mohammed VI
MESSAGE FROM THE MANAGING DIRECTOR

In the course of the year 2009, mining and petroleum industries worldwide have been impacted by the effects of the global financial crisis and the subsequent economic downturn.

At the upstream of the mining business, the budgets devoted to exploration all over the world have registered a decrease of 40% from their level in 2008. This decrease was observed mainly at large companies while the said «juniors» were capable of limiting the decrease to 6% only from one year to the other. Despite this particularly difficult context, the international mining industry was able to demonstrate remarkable strength. It is the Chinese growing demand that allowed once again to compensate the reflux demand of the industrialized countries which are facing a gloomy economic growth.

However, oil markets have been impacted by the global financial crisis which was exacerbated in the second quarter of 2008. This situation has affected the demand for oil, which has registered a decrease for the second consecutive year, the production and the price whose level returned to an average of $60 /bbl during the year.

It is in this international context, characterized by a slowdown in the global economy, that ONHYM could continue its activity, as part of its mission, at the service of oil and mineral exploration in our country. This activity has been made according to the major orientations, taken as strategic lines of action of the Office since its inception in 2005 and focuses on 4 fundamental axes: the rise of mining and petroleum exploration, the partnership development, the search for technical excellence and the introduction of the culture of performance.

In the field of oil exploration, licensing acreage reached at the end of year 2009, an area close to 249,694 km². Seven new petroleum agreements and three new reconnaissance licenses associating new international operators were concluded through a sustained effort of promotion to the international oil companies. The investments made by ONHYM’s partners in this exercise exceeded 1.6 billion dirham and those of the Office reached 86 million dirham.

ONHYM activity focused on the interpretation of seismic data, geological and geochemical studies to specify settings of different petroleum systems, on the set up of the BJD-1 stratigraphic drilling in Boujdour Area and the MKL-110 replacement well in Meskala field as well as on the evaluation studies of Boujdour coastal zones and Meskala-Toukimt fields.

ONHYM’s Partners activities have, on the other hand, recorded a significant easing in the exploration with the achievement of 9 wells and the re entry of FES-1 well against 4 wells drilled in 2008. These drillings have highlighted 4 discoveries of biogenic gas in the Gharb basin and 1 discovery of significant size in Tangier-Larache Offshore segment.

With regard to mining exploration, the results obtained by ONHYM studies confirmed the interest of the projects of iron, NB, TA, U and light rare earth of Glibat Lahouda and Twihinate (Awserd province) whose preliminary estimate of resources gave very encouraging results. Due to the interest shown by several foreign companies, these projects were carried in promotion for their development in partnership. The studies also certified the importance of two new prospects of iron, NB, TA, U and light Rare Earth of Lamлага and Drag Al Farnan that were discovered in 2008. In Tichka East project (Al Haouz province), the studies confirmed the results obtained during 2008 with interesting contents of gold.

Search for uranium has been intensified and several interesting structures have been identified, particularly in the region of Awserd. For industrial minerals and rocks, very interesting areas were defined in Sidi Kacem and Taza provinces for fibrous clays and in Meknes province for feldspar levels.
Work studies, in partnership in the domain of mining exploration, continued at the Achmmach area for tin, at Alous for copper, in the Anti-Atlas for uranium, in the region of Nador for bentonitic clays, at Sidi Bou Othman for andalusite and at Bou Issafen for zircon.

At the level of general research, there was launching of an airborne hyperspectral campaign covering Sirwa sector along with a regional geochemistry campaign in Awserd area. These two campaigns will help identify targets of precious metals and base metals that are subject to development work in 2010.

Mine laboratories, which are essential tools for any mining exploration activity, have been certified according to ISO 9001 version 2000 since 2007. Their certification was renewed due to a follow-up audit.

The exploitation of energy resources is one of the chosen priorities of the new national energy strategy. As such, the oil shale has undergone during this year, several actions including the creation of a Committee of national expertise, the launch of the invitation to construct a thermal power plant of 100 MW using the oil shale of Tarfaya in partnership with ONHYM and ONE and the signature of a confidentiality agreement with EN ROM society for its onsite process in Timahdit.

At the Level of the Information System Master Plan, the main projects concerning the introduction of information system have reached the execution phases and have been conducted as a project mode in several workshops and training and awareness-raising, allowing a better mobilization of the human resources at all hierarchical levels in order to achieve the objective of preparing ONHYM information system implementation.

Finally, I cannot conclude that Word without mentioning the capital role of human resources in any organization. This role is particularly important with regard to activities that require a high-tech in a field where technology plays a central role. For this reason, special attention is given to human resource management. It is in this spirit that ONHYM continues its policy of rejuvenation of its workforce, of training staff improvement and of consolidation of organizational foundations. The year 2009 has thus allowed the recruitment of 37 engineers, managers and technical specialists and a sustained program of training and transverse workshops that allowed to set up the principles and practices of a project management methodology, adapted to ONHYM context.

Thanks to the dynamics behind ONHYM teams, all categories combined, the Office will pursue its exploration activity of our national underground resources, thus contributing to the economic and social development of our country under the enlightened leadership of HIS MAJESTY THE KING, May GOD glorify Him.
HIGHLIGHTS

Hydrocarbons

- Four modest size discoveries of biogenic gas in the Gharb onshore basin and one large size discovery of biogenic gas in Tanger-Larache offshore;
- Signature of 7 new petroleum agreements and 3 new reconnaissance contracts;
- Acquisition of 2 188 km$^2$ of 3D seismic, 3 195 km of 2D seismic, 637 ADD-HR stations, 1 813 km of gravimetric survey and 1 793 km of airborne gradiometric survey;
- Conduction of workover operations in MKL-102 well using H.1700 n°II rig;
- Drilling of 9 exploratory wells, one of which in offshore and reentry of FES-1 well;
- Passage to additional periods within the framework of 4 petroleum agreements;
- Conclusion of 14 addenda to petroleum agreements and of 2 addenda to reconnaissance contracts.

Mines

- Evaluation of Glibat Lafhouda and Twihinat prospects resources (Fe, Nb, Ta, U and Light Rare Earth) located in Awserd province;
- Discovery of 2 new prospects in Lamllaga and Drag Al Farnan (Fe, Nb, Ta, U and Light Rare Earth) and confirmation of their importance through core drilling;
- Launching of the transfer operation of Azouggar N’tili poly metallic gold project;
- Renewal, by follow-up auditing, of certification of Mine laboratories in accordance with ISO 9 001,2 000 referential;
- Completion of a geochemical survey in the south provinces over an area covering 5000 km$^2$ and a hyperspectral survey in Sirwa block over an area of 10 000 km$^2$;
- Conclusion of 3 new conventions, 2 mining draft agreements, 3 Memoranda of Understanding (MoU) and five amendments.

Oil shale

- Setting up of a national expertise committee for the development of oil shale; the committee’s inaugural session was chaired by Ms. Amina BENKHADRA, the Minister of Energy, Mines, Water and Environment;
- Signature of 3 confidentiality agreements and 1 Memorandum of Understanding (MoU) for the development of oil shale potential;
- Presentation by Petrobras/Total of the preliminary technical and economic feasibility study of Timahdit pyrolysis plant project.
International Environment

According to the International Monetary Funds (IMF) projections published in January 2010, the world economy saw a negative growth in 2009 estimated at 0.8% against 3.0% growth in 2008. The decrease in activity affected mainly OECD countries, the Community of Independent States (CIS) and Central and Eastern Europe countries. On the contrary, the group of emerging and developing countries managed to reach a growth of 1% in 2009 against 6.1% in 2008.

Largely affected by the repercussions of 2008 recession, the world economy saw some improving signs starting from the second quarter of 2009 under the combined effect of boosting measures taken by some governments and the steady demand of emerging countries. The world economic recovery was confirmed by the IMF which expects a growth of 3.9% in 2010 and 4.3% in 2011.

In this context, the international energy landscape was marked, in 2009, by a decrease in world E&P investments estimated at 16%, according to the Institut Français du Pétrole. This decrease affected mainly North America (37%). In contrast, these capital expenditures remained stable in Asia, where Chinese companies continued to massively invest in exploration but also in the acquisition of foreign companies to secure their supplies. In the same way, drilling activity fell as the number of wells drilled onshore dropped by 33% and offshore wells registered 11% decrease. In this field, the case of China contrasts with the rest of the world as the wells drilled there increased by 15%.

The world energy scene was also marked by a relative stabilization of crude oil prices. After ranging between 40 and 45$/bbl at the beginning of the year, oil prices saw upward or downward variations later on, due to the combination of several effects connected to OPEC supply evolution (excess and then respect of quotas), to Euro/dollar parity as well as to the domestic tensions in some oil producing countries (like Nigeria). Thus, after reaching its lowest level at 33.66 $/bbl on December 24, 2008, the Dated Brent reference oil price, starting from March 2009, fluctuated around 70$/bbl until October 15, 2009. Then it registered an upward trend reaching its highest level of the year at 78.61$/bbl on December 1st, 2009 before coming back to 77.67$/bbl on December 31, 2009.

After a sustained growth that lasted several years, the world mining industry was also hit by the indirect consequences of the international financial crisis and by the decrease in demand of mineral raw materials. On the upstream front, the budgets allocated to exploration registered globally a decline of 42% compared to 2008, according to Metals Economics Group consultant.
Year after year, the prices of base metals globally decreased compared to the year 2008, recording an average drop of 22% for copper, 17% for lead, 11% for zinc, and 27% for tin.

**National Situation**

Despite an unfavorable world context, Morocco succeeded in remarkably withstanding the effects of the financial and economic crisis, thanks to the support measures provided by the Public Authorities to some sectors that are particularly threatened, to rigorous follow up of the evolution of the world economy as part of a strategic alert committee. Thus the world economy registered a growth of 5% in 2009.

This performance was owed to an exceptional agricultural campaign, to the dynamics of the domestic demand and to the strengthening of public investments.

The national energy scene was marked in 2009 by the announcement, by His Majesty the King Mohammed VI, in November, of a national solar scheme aimed at the production of 2,000 megawatts of solar energy by 2020. This project is part of the national energy strategy worked out by Morocco aimed at developing renewable energies. The energy scene was also marked by the first National Energy Forum held on March 6, 2009, under the patronage of His Majesty the King.

The year 2009 confirmed the trend of a sustained growth of primary energy consumption. The latter went from 14,794 Ktoe in 2008 to 15,118 Ktoe in 2009. Despite a decrease recorded over the last years, the

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**Total world exploration budget in billion US dollars**

(Non ferrous metals without uranium)

- Non ferrous exploration
- Annual indexed metals price

part of petroleum products still remains predominant (60.7% in 2009). Considering the drop in oil prices on the international market and the decrease in imported quantities, the oil bill went down from 61.5 billion DH in 2008 to 45.5 billion DH in 2009. The energy bill was reduced to 54.2 billion DH in 2009 after having reached 70.6 billion DH in 2008. The national oil market saw in 2009 the introduction on the market of the new gasoil 50 ppm and the unleaded gasoline. The production of electricity went up from 6 689 GWH in 2008 to 7 531.2 GWH in 2009.

After 2008 qualified as an exceptional year, the national mining activity registered a decline in 2009 both in terms of production and sales. The production of crude phosphates dropped by about 32% under the effect of the crisis that affected the agricultural sector and consequently the fertilizers demand. The decrease was lower for other mining products (-1.5%). The production of solid fertilizers was the only exception to this downward trend as it recorded an increase of more than 36%, compared to the year 2008.

PETROLEUM EXPLORATION

In 2009, petroleum exploration activities, by Onhym and its partners, recorded an important increase in terms of exploratory wells drilled (9 wells in addition to re-entry of FES-1 in 2009, compared to only 2 wells in 2007 and 4 wells in 2008).

Moreover, the expansion of the use of 3D seismic during the exploration phase, allowed to reduce considerably the geological risk of the basins and to achieve encouraging results, as the biogenic gas discovery in the Rharb Tertiary basin and its extension in the Atlantic offshore.

The first 2D seismic acquisition in the frontier zones (Bas Draa and Asilah basins), the resumption of the offshore exploration where new exploration permits were granted and the persistent interests shown by the petroleum companies in the onshore, will certainly contribute in developing new play concepts and prospects and will open up new exploration perspectives in these zones.

Hydrocarbon Licensing

Despite an international environment marked by a considerable deterioration since early 2009, and by negative impacts felt in the international oil industry, Onhym has succeeded in maintaining a sustained rhythm of activity in partnership. Consequently, the number of awarded permits has increased from 106 in 2008 to 131 by the end of 2009, showing the consolidation of exploration efforts by converting some reconnaissance zones into exploration permits.

By the end of 2009, the mining domain is shown as follows:

<table>
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<td><strong>Total</strong></td>
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ONHYM’s Activity

Petroleum exploration activity during 2009, with Onhym’s own resources, has been characterized by the implementation of the following geological and geophysical works:

- Interpretation of seismic data on stations;
- Conduct of geological studies, geological and geochemical modeling and laboratory analyses;
- Achievement of the planting of BJD-1 stratigraphic well on Boujdour and MKL-110 replacement well on Meskala;
• Proactive promotion of open onshore blocks and relinquished offshore blocks aimed at attracting new partners;
• Continuation of digitization of petroleum data in an appropriate format and their download as part of the Petroleum GIS development.

• Petroleum Evaluation Surveys

Onhym has continued the petroleum evaluation studies on Boujdour coastal areas and Meskala-Toukimt fields, through geological and geophysical detailed interpretations. Work dedicated to the promotion of still open blocks and relinquished blocks focused on El Jadida-Ifni offshore segment.

• Regional reconnaissance on Boujdour coastal zones

Following the first regional interpretation of the 530 km of 2D seismic integrating the older seismic data available on the shallow offshore zones, the potential zones were delineated. AVO processing of seismic sections crossing the identified leads, integrated in a new detailed interpretation, allowed to classify these structures and to plant the stratigraphic well named BJD-1. The main target of BJD-1 is the reconnaissance of petroleum systems of the Mesozoic series in Boujdour basin and the precision of the stratigraphy of Tertiary, Cretaceous and Upper Jurassic formations. The platform of the well was built and preparations for the drilling of the well due in 2010 have started.

• Appreciation and development of Meskala and Toukimt fields

The interpretation of 185 km² of 3D seismic on Meskala-Toukimt zone has continued internally with the mapping of seismic horizons presenting a petroleum interest. The detailed analysis of the seismic attributes led to the definition of several promising blocks at the level of Jurassic reservoirs (Toukimt), Triassic and Paleozoic reservoirs (Meskala). At the same time, a second interpretation of 3D seismic data, carried out externally, has confirmed the interests shown for the identified blocks. The replacement well named MKL-110, scheduled for the maintenance of current production, will be spudded as a result of the evaluation of geological and economic risks. An appreciation/development program on these fields and on the adjoining zones will be worked out by early 2010.

• Play concept control of El Jadida-Ifni offshore segment

New promising play concepts and prospects have been highlighted after the mapping of Paleozoic, Jurassic and Cretaceous horizons resulting from the interpretation on station of more than 20 000 km of 2D seismic data. The exploration of developed topics opened up new perspectives for the promotion of these segments to international oil players. This will subsequently boost activity in these offshore basins.
Promotion

As part of actions aimed at promoting the Moroccan sedimentary basins to the oil & gas industry worldwide, Onhym’s efforts have largely focused on the Atlantic offshore segments. In this regard, Onhym has attended 9 international events, among which: Nape Expo, Eage, Apex, Omc, Aapg annual convention & Exhibition, SPE offshore Europe Conference & Exhibition, SEG annual meeting, Aapg international Conference & Exhibition and 13th Africa Oil, Minerals Trade and Finance Conference & Exhibition…

Moreover, with the support of Ustda, the Office has also organized a door-to-door promotion campaign to five Houston-based petroleum companies: BHP Billiton (Américas), Plains E&P Co, Devon Energy Corp, Hess and Petrobras Americas. This campaign was an opportunity to present Morocco’s exploration potential of Essaouira, Safi and Rabat offshore sedimentary basins. 9 companies visited Onhym and benefited from detailed presentations; likewise, data rooms were organized on the various blocks on offer to promotion.

These efforts were crowned with the signature of 7 new petroleum agreements: Foum Draa offshore, Sidi Moussa offshore, Zag basin, Sidi Moktar, Loukos offshore, Casablanca offshore and Tarfaya offshore and 3 new reconnaissance licenses: Tendrara Sud, Missour Est and Taounate.

Other negotiations at various stages are ongoing on three zones: Maamoura, Lalla Mimouna and Tizroutine. These negotiations should lead to the signature of new agreements on these regions at the beginning of 2010.

Partners’ Activities

Onhym partners’ activities, in 2009, were marked by a notable increase in exploration activity with a special emphasis on drilling. The main activities are summarized as follows:

- The implementation of a gravity survey totaling 1,813 Km off Essaouira (Essaouira offshore permit and Essaouira Shallow reconnaissance zone), an airborne gradiometry survey totaling 1,793 km in the Prerif (Fès permit and Taounate reconnaissance zone and a detailed ADD-HR coverage of 637 stations in the Prerif (Ouezzane-Tissa permit);
- The acquisition of 3,195 Km of 2D seismic data (of which 1,813 Km offshore) and 2,188 km² of 3D seismic data (of which 2,048 offshore);
- The drilling of 9 wells, Anchois-1 on Tanger-Larache permit in the Atlantic offshore, KSR-8, DRJ-6, CG-D-10 and KSR-9 on Sebou permit in the Gharb basin, OZW-1 and HKE-1 on Ouezzane-Tissa permits, and HR-33bis on Tselfat permit in the Prerif basins and TAJ-1 on Bouanane permit in Boudenib-Errachidia basin;
- The re-entry of FES-1 well on Fès permit, at the level of the Prerif basin with resumption of drilling until the interval of 4172 m to test the Miocene gas levels and reach deep Jurassic targets;
- The finalization of geological and geophysical studies and interpretations have led to the planting and preparation of platforms of several drillings that will be spudded in 2010, more particularly in the Gharb and Prerif basins.

Offshore zones

Tanger – Larache permit (Repsol/Dana/Gas Natural)

Repsol Company and its associates Gas Natural and Dana have drilled their first
well (Anchois-1) with a final depth of 2359 m on Tanger–Larache permit. This well highlighted a significant accumulation of biogenic gas. The ongoing economic and feasibility study on reserves and gas market will define the continuation of the work program on these permits.

Casablanca offshore Permit (MPE)

A new petroleum agreement was concluded with MPE to carry on petroleum evaluation work on the permit. The Paleozoic and Triassic formations constitute the main petroleum targets.

Loukos offshore Permit (MPE)

A new petroleum agreement was also concluded with MPE to carry on exploration work of Mesozoic and Cenozoic objectives of this segment.

Agadir maritime permit (GBP)

The interpretation of 2D seismic data, particularly the sequence stratigraphy analysis and AVO studies are underway. Arrangements for the acquisition of 100 km² of 3D seismic data on the permit are underway. This seismic survey aims at defining drillable prospects in this zone.

Ras Juby permit (Genting)

The economic feasibility study for development of Cap Juby oil field was carried out. Studies of sedimentary geology on the cores of older wells in Tarfaya offshore have helped to precise the nature and the parameters of the carbonate reservoirs. The results of these studies will reinforce the promotion campaign conducted by the company for research of partners to share the exploration drilling risk.

Boujdour offshore permits (Kosmos)

The acquisition survey of 2 048 km² of 3D seismic was completed on March 31. The first results of the interpretation of this seismic have helped to better precise the prospects identified by 2D seismic and to well define new promising prospects associated to the channels of Albian-Aptian age. The latter will be studied, processed and interpreted and will help ranking and choosing the best prospect on which an exploratory well will be spudded.

Essaouira deep offshore permit and Essaouira shallow offshore reconnaissance zone (Canamens)

Canamens proceeded to the reprocessing of more than 6 000 km of 2D seismic data and acquired 1 813 km of new 2D seismic and gravimetry data by the end of September 2009. A first regional assessment concerned the identification of source rocks and potential reservoirs in this segment.

Sidi Moussa permit (Serica Sidi MoussBV/ Island)

After the data gathering, the first exploration work focused on a regional evaluation study to identify the promising petroleum systems.

Foum Draa permit (Island/Serica Foum Draa BV)

As part of a preliminary evaluation aimed at determining play concepts, the gathering of data and the start of synthesis work made up the essential activities of these partners in the permit.

• Onshore zones

Ouezzane-Tissa permit (TransAtlantic/Direct/ Anschutz/Longe)

The drilling of OZW-1 exploration well started on April 12, 2009 and reached the final depth of 2 738, 1 m.

A second drilling of HKE-1 well reached the total depth of 1 497, 3 m by the end of 2009. Gas shows were recorded. This drilling will be carried on in 2010 to reach the total depth of 2 700 m and to test the levels that displayed hydrocarbon shows.

At the same time, 637 ADD-HR stations were recorded on the permit for the control of other identified prospects.
Asilah permit (TransAtlantic/Direct/Anschutz/Longe)

The reprocessing and interpretation of newly acquired 2D seismic (20, 5 km) enabled to delineate prospective areas. A supplement of 122 km of 2D seismic data was acquired in August in order to better specify the closures of mapped prospects.

Gharb Centre and Sud permits (Cabre)

The processing, interpretation and AVO study of 210 km of 2D seismic data led to the definition of new anomalies. ADR (Atomic Dielectric Resonance) radar study carried out at the well and mapped prospects location aimed at the direct detection of hydrocarbons and the reduction of geological and petroleum risks.

Fes permit (Cabre)

After the completion of FES-1 drilling, the postmortem study has recommended the re-entry of this well to reach the Domerian deep objectives and test them along with the Tertiary gas bright spots. This re-entry started on September 23, 2009 and reached the depth of 4 172 m. Tests on zones that displayed gas shows were carried out and will continue in 2010.

Taounate reconnaissance zone (Cabre)

In addition to the regional geological studies, Cabre acquired an airborne gradiometry survey covering this reconnaissance zone and Fes permit in order to determine positive structures. 1 793 km were acquired by the end of 2009 on both regions. This survey will be completed in 2010.

Sebou permit (Circle Oil)

A sustained drilling program of 4 wells named KSR-8, DRJ-6, CGD-10 and KSR-9 led to 4 modest biogenic gas discoveries. Tests and preparations for putting these accumulations into production are underway. The building of platforms and access roads to the well sites planned for drilling in 2010 started at the end of 2009.

Tselfat permit (TransAtlantic)

The processing and interpretation of 175 km² of 3D seismic data was carried out. The first well named HR 33-bis, out of 4 wells planned on the permit, reached the final depth of 1 073.5 m. Tests at the Jurassic level pointed out weak gas and oil shows. The Tertiary level will be tested in 2010.

Tendrara permit (MPE)

The petroleum evaluation of this permit is pursued with a sedimentological study on drill cores of TE-4 and TE-5 wells and a structural geological study for the modeling of Triassic reservoirs extension. The result will be integrated for a new interpretation of 3D seismic and a reevaluation of the reserves.

Tendrara Sud reconnaissance zone (MPE)

The encouraging results obtained from the exploration program conducted in Tendrara permits incited the company to conclude a new reconnaissance license concerning the zone named “Tendrara Sud”.

Missour Est reconnaissance zone (MPE)

Geological and geophysical studies for the evaluation of the petroleum potential in this zone are underway.
Sidi Moktar permits (MPE)

A new petroleum agreement named “Sidi Moktar”, covering 3 permits was concluded on this zone in Essaouira basin to explore Triassic and Paleozoic formations. A 3D seismic survey of 100 km² is planned on these permits.

Missour Ouest reconnaissance zone (MND)

The seismic reprocessing and the geological and geochemical studies carried out in this zone were not encouraging for MND which withdrew from this zone.

Boudenib permit (MND)

The interpretation of magnetic/gravity and seismic data showed prospective zones. A 2D seismic survey is expected on these zones in order to precise the closures of identified structures.

Tadla and High Atlas reconnaissance zones (Hunt Oil)

On Tadla basin, the interpretation of 60 km² of 3D seismic data enabled the identification of prospective zones. Hunt Oil did not succeed in attracting petroleum companies to share the exploration risk. This zone was consequently abandoned.

In the High Atlas reconnaissance zone, the structural study combined with the interpretation of satellite images was not conclusive for Hunt Oil; this reconnaissance zone was subsequently abandoned.

Doukkala-Abda reconnaissance zone (Eni)

The interpretation of 484 of newly acquired 2D seismic and of 1 000 km of older reprocessed data highlighted prospective zones at the Paleozoic and Triassic levels. The size of these prospects and the volume of estimated potential reserves do not meet with Eni’s standards. This zone was subsequently abandoned and will be promoted in 2010.

Ouest Souss onshore reconnaissance zone (BGP)

Negotiations for entering into a new agreement on this zone failed to convert this reconnaissance zone into an exploration permit. This reconnaissance zone was abandoned.

Bas Draa permit (Petro-Canada/RWE)

The first 2D seismic acquisition survey on this frontier zone started on March 22, 2009. The company terminated the acquisition of 1 260 km of 2D seismic in this permit and the first results of this survey revealed encouraging structures. Seismic processing has been implemented and will be completed in 2010.

Zag basin permit(San Leon Energy, Island Oil & Gas/Longreach)

Interpretation of air-mag and surface geological data enabled to highlight potential Paleozoic structures in this frontier zone. The encouraging results incited these companies to convert the reconnaissance zone into an exploration permit. Preparations for the acquisition of 500 km of 2D seismic program started at the end of 2009.

Tarfaya onshore permit (Island Oil & Gas, San Leon Energy/Longreach)

The reprocessing of older 2D seismic data and preparations for the acquisition of new seismic data planned on this zone are underway.
Haha permit (PEL)

PEL carried out the acquisition of a 3D seismic coverage of 140 km$^2$. Half-graben structures were identified. Seismic processing will be achieved in 2010. Structural geological field studies enabled to develop a structural model in this region.

Bouanane permit (Dana/Tethys/Eastern)

The drilling of TAJ-1 well, planted on Tafejjart structure, started on March 22, 2009 and was stopped at the final depth of 3,274 m. Gas shows were detected at the Ordovician level. A postmortem study of the well, which is underway, will help define the remaining work to be conducted on the permit.

Guercif Est and Ouest permit (TransAtlantic/Stratic/Longe)

An agreement was concluded with the various partners for the choice between the drilling of a well or the 2D seismic survey.

The interpretation of older seismic data enabled to define the potential prospects. The expected well will be spudded on one of these prospects once the analysis of geological and economic risks is carried out.

Summary of work implemented in 2009

- Geophysical Activity

<table>
<thead>
<tr>
<th>Permit / reconnaissance zone (RZ)</th>
<th>Company</th>
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<th>3D seismic (km$^2$)</th>
<th>ADD-IR (stations)</th>
<th>Airborne gradiometry (km)</th>
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<td><strong>Total</strong></td>
<td></td>
<td><strong>3,195</strong></td>
<td><strong>2,188</strong></td>
<td><strong>637</strong></td>
<td><strong>1,793</strong></td>
<td><strong>1,813</strong></td>
</tr>
</tbody>
</table>
### Drilling Activity

<table>
<thead>
<tr>
<th>Permit</th>
<th>Company</th>
<th>Name of well</th>
<th>Final interval (m)</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanger-Larache</td>
<td>Repsol/Dana/Gas Natural</td>
<td>Anchois-1</td>
<td>2 359</td>
<td>14/01/2009 to 13/03/2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KSR-8</td>
<td>1 945</td>
<td>01/01/2009 to 17/01/2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DRJ-6</td>
<td>1 366</td>
<td>01/04/2009 to 12/04/2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CGD-10</td>
<td>970</td>
<td>27/04/2009 to 06/05/2009</td>
</tr>
<tr>
<td>Sebou</td>
<td>Circle Oil</td>
<td>KSR-9</td>
<td>1 327</td>
<td>23/05/2009 to 04/06/2009</td>
</tr>
<tr>
<td>Bouanane</td>
<td>Dana/Tethys/Eastern</td>
<td>TAJ-1</td>
<td>3 274</td>
<td>23/03/2009 to 23/07/2009</td>
</tr>
<tr>
<td>Ouezzane - Tissa</td>
<td>TransAtlantic/Direct/Anschutz/Longe</td>
<td>OZW-1</td>
<td>2 738.1 (side-track)</td>
<td>12/04/2009 to 31/12/2009</td>
</tr>
<tr>
<td>Tselfat</td>
<td>TransAtlantic</td>
<td>HR-33bis</td>
<td>1 073.5</td>
<td>07/08/2009 to 04/09/2009</td>
</tr>
<tr>
<td>Ouezzane - Tissa</td>
<td>TransAtlantic/Direct/Anschutz/Longe</td>
<td>HKE-1</td>
<td>1 497.3</td>
<td>18/11/2009 to 31/12/2009</td>
</tr>
</tbody>
</table>
ONHYM’s exploration work in 2009

- **offshore El Jadida - Ifni**
  - Objectives: Jurassic, Cretaceous Tertiary
  - Study and evaluation for promotion

- **Meskala - Toukimt**
  - Objectives: Subsalt
  - Petroleum studies and evaluation for the development of these fields

- **Boujdour Onshore**
  - Objectives: Mesozoic and Tertiary
  - Study and evaluation of regional reconnaissance
Partners’ exploration activities in 2009

- **TransAtlantic/Direct/Anshutz/Longe (Tissa-Ouezzane)**
  - Acquisition of 637 ADD-HR stations
  - Drilling of 2 wells: OZW-1 (FD: 2,738,1 m) and HKE-1 (underway: FD: 1,497,3 m)

- **Repsol/Dana/Gas Natural (Tanger-Larache)**
  - Drilling of anchor-1 well (FD: 2,959 m)

- **Circle Oil (Sebou)**
  - Drilling of 4 wells: KSR-8 (FD: 1,945 m), DRI-6 (FD: 1,366 m), CGD-9 (FD: 970 m) and KSR-9 (FD: 1,927 m)

- **Canemens (Essaouira offshore permit and Essaouira Shallow reconnaissance zone)**
  - Acquisition of 1,813 Km of 2D seismic data

- **Kosmos (Boujdir offshore)**
  - Acquisition of 2,048 Km² of 3D seismic data

- **Cabre (Fes)**
  - Re-entry of FES-1 well underway
  - Depth reached: 4,172 m

- **Dana/Tethys/Eastern (Roussane)**
  - Drilling of TAJ-1 well (TD: 3,274 m)

- **TransAtlantic (Tresilat)**
  - Drilling of HR-33 bis well (FD: 1,073,5 m)

- **PEL (Ihaya)**
  - Acquisition of 140 Km² of 3D seismic data

- **Petro-canada & RWE (Bas Dras)**
  - Acquisition of 1,260 Km² of 2D seismic data
In 2009, Onhym undertook with petroleum companies several proactive promotion actions and contacts that led to the conclusion of the following:

- 7 new petroleum agreements;
- 3 new reconnaissance contracts;
- Passage to additional periods as part of 4 petroleum agreements;
- 14 amendments to petroleum agreements;
- 2 addenda to reconnaissance contracts;
- 3 confidentiality agreements;
- 1 memorandum of understanding (MoU) related to oil shale.

### Petroleum Partnerships and Cooperation

#### Petroleum Agreements

<table>
<thead>
<tr>
<th>Partners</th>
<th>Zone of interest</th>
<th>Permit &amp; Area</th>
<th>Date of signature of agreement</th>
<th>Validity period</th>
<th>Work expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVM International Ltd</td>
<td>Tarfaya offshore</td>
<td>Tarfaya offshore 1 to 8 15 041.4 Km²</td>
<td>03/12/2009</td>
<td>2 years 6 months</td>
<td>Acquisition, processing and interpretation of 3D seismic, Reprocessing of 3D and 2D seismic lines, Geological and geophysical work</td>
</tr>
<tr>
<td>Island International Exploration Morocco Serica Foum Draa B.V</td>
<td>Foum Draa offshore</td>
<td>Foum Draa offshore 1 to 3 5 090 Km²</td>
<td>18/06/2009</td>
<td>17/08/2009 to 16/02/2012</td>
<td>Geological and geophysical work, Economic study, Planning of an exploration well</td>
</tr>
<tr>
<td>Island International Exploration Morocco Serica Sidi Moussa B.V</td>
<td>Sidi Moussa offshore</td>
<td>Sidi Moussa offshore 1 to 4 7 624.4 Km²</td>
<td>18/06/2009</td>
<td>17/08/2009 to 16/02/2011</td>
<td>Geological and geophysical work, Economic study, Planning of an exploration well</td>
</tr>
<tr>
<td>San Leon Morocco Ltd Island International Exploration Morocco Longreach Oil &amp; Gas Ventures Ltd</td>
<td>Zag basin</td>
<td>Zag basin 1 to 11 21 672.5 Km²</td>
<td>18/06/2009</td>
<td>17/08/2009 to 16/02/2012</td>
<td>Geological and geophysical work, aeromagnetic survey of Zag and Bas Draa basins</td>
</tr>
<tr>
<td>Sidi Moktar</td>
<td>“Sidi Moktar Nord” “Sidi Moktar Sud” “Sidi Moktar Ouest” 4 498.7 Km²</td>
<td></td>
<td>01/07/2009</td>
<td>28/08/2009 to 27/08/2012</td>
<td>Acquisition, processing and interpretation of 3D seismic survey</td>
</tr>
<tr>
<td>Maghreb Petroleum Exploration</td>
<td>Loukkos offshore</td>
<td>“Loukos offshore I” 1 925 Km²</td>
<td>13/11/2009</td>
<td>2 years</td>
<td>Reprocessing and interpretation of 2D seismic survey</td>
</tr>
<tr>
<td></td>
<td>Casablanca offshore</td>
<td>“Casablanca” offshore &lt;A&gt; Casablanca offshore &lt;B&gt; “Safi offshore I” 3 500 Km²</td>
<td>13/11/2009</td>
<td>2 years</td>
<td>Reprocessing and interpretation of 2D seismic survey</td>
</tr>
</tbody>
</table>
## Reconnaissance Contracts

<table>
<thead>
<tr>
<th>Partners</th>
<th>Zone of interest &amp; Area</th>
<th>Date of signature of agreement</th>
<th>Validity period</th>
<th>Work expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maghreb Petroleum Exploration</td>
<td>Tendrara Sud 2 650.1 Km²</td>
<td>14/04/2009</td>
<td>05/05/2009 to 04/05/2010</td>
<td>Geological study and integration of TE-4 and TE-5 well data in the evaluation of the zone of interest</td>
</tr>
<tr>
<td></td>
<td>Missour Est I 8 873.33 Km²</td>
<td>12/10/2009</td>
<td>28/10/2009 to 27/10/2010</td>
<td>Petroleum system evaluation in the Paleozoic</td>
</tr>
<tr>
<td>Cabre Morocco Ltd</td>
<td>Taounate 4 659.5 Km²</td>
<td>09/10/2009</td>
<td>28/10/2009 to 27/10/2010</td>
<td>Acquisition of geophysical data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>An ADR program</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Geological field work</td>
</tr>
</tbody>
</table>

## Passage to additional periods as part of petroleum agreements

<table>
<thead>
<tr>
<th>Partners</th>
<th>Zone of interest &amp; Area</th>
<th>Permit</th>
<th>Validity period</th>
<th>Work expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransAtlantic Maroc Ltd</td>
<td>Asilah 2 200.1 Km²</td>
<td>“Asilah 1 and 2”</td>
<td>29/05/2009 to 28/05/2012</td>
<td>Drilling of an exploratory well</td>
</tr>
<tr>
<td>Longe Energy Ltd</td>
<td>Gharb 2 716.2 Km²</td>
<td>“Gharb Centre”</td>
<td>10/07/2009 to 09/07/2012</td>
<td>- Acquisition and AVO processing of 2D seismic - Drilling of 5 exploratory wells</td>
</tr>
<tr>
<td>Direct Petroleum Morocco</td>
<td>Fès 1 598.85 Km²</td>
<td>“Fès”</td>
<td>26/09/2009 to 25/03/2013</td>
<td>- Acquisition of 2D seismic - Acquisition of ARKeX gravity and gradiometry lines - Drilling of an exploratory well</td>
</tr>
<tr>
<td>Anschutz Morocco Corporation</td>
<td>Sebou onshore 188.30 Km²</td>
<td>“Sebou”</td>
<td>18/07/2009 to 17/07/2011</td>
<td>- Acquisition, processing and interpretation of 3D seismic - Drilling of 3 exploratory wells</td>
</tr>
</tbody>
</table>
## Amendments to petroleum agreements

<table>
<thead>
<tr>
<th>Partners</th>
<th>Zone</th>
<th>Amendments</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genting Oil Morocco Ltd</td>
<td>Ras Juby Offshore</td>
<td>Amendment n°2 to «Ras Juby Offshore» petroleum agreement</td>
<td>Extension of the initial validity period of the permit for 6 months until 1st January 2010</td>
</tr>
<tr>
<td>Cabre Morocco ltd</td>
<td>Fes</td>
<td>Amendment n°1 to «Fes» petroleum agreement</td>
<td>Extension of the initial validity period of the permit for 6 months until September 25, 2009</td>
</tr>
<tr>
<td></td>
<td>Fes</td>
<td>Amendment n°2 to «Fes» petroleum agreement</td>
<td>Change of duration and of work programs of 1st and 2nd additional periods</td>
</tr>
<tr>
<td>TransAtlantic Morocco Ltd</td>
<td>Tselfat</td>
<td>Amendments n°1 &amp; 2 to «Tselfat» petroleum agreement</td>
<td>Extension of the initial validity period of the permit for 12 months until July 10, 2010</td>
</tr>
<tr>
<td>Petroleum Exploration (Private) Ltd</td>
<td>Haha</td>
<td>Amendments n°1 &amp; 2 to «Haha» petroleum agreement</td>
<td>Extension of the initial validity period of the permit for 12 months until June 19, 2010</td>
</tr>
<tr>
<td>Direct Petroleum Morocco Inc. Anschutz Morocco Corporation TransAtlantic Morocco Ltd, Stratic Exploration Morocco Ltd Longe Energy Ltd</td>
<td>Ouezzane - Tissa</td>
<td>Amendments n°2 &amp; 3 to «Ouezzane-Tissa» petroleum agreement</td>
<td>Extension of the initial validity period of the permit for 12 months until July 31, 2010</td>
</tr>
<tr>
<td>TransAtlantic Morocco Ltd, Stratic Exploration Morocco Ltd Longe Energy Ltd</td>
<td>Guercif</td>
<td>Amendment n°2 to «Guercif» petroleum agreement</td>
<td>Change of the minimum work program of the initial validity period</td>
</tr>
<tr>
<td>Circle Oil Morocco Ltd</td>
<td>Sebou onshore</td>
<td>Amendment n°1 to «Sebou onshore» petroleum agreement</td>
<td>Change of the work program and of the guarantee amount of the first additional period</td>
</tr>
<tr>
<td>Maghreb Petroleum Exploration</td>
<td>Tendrara</td>
<td>Amendment n°1 to «Tendrara» petroleum agreement</td>
<td>Transfer of MPE parts of interests to Crosco International and Oil &amp; Gas Investment Fund in these permits</td>
</tr>
<tr>
<td>Repsol Exploracion SA Dana Petroleum (E&amp;P) ltd Gas Natural Exploracion SL</td>
<td>Tanger-Larache offshore</td>
<td>Amendments n°4 &amp; 5 to «Tanger-Larache offshore» petroleum agreement</td>
<td>Extension of the initial validity period of the permit for 9 months until February 9, 2009</td>
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</tbody>
</table>

## Addenda to reconnaissance contracts

<table>
<thead>
<tr>
<th>Partners</th>
<th>Zone</th>
<th>Addenda</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MND Morocco Ltd</td>
<td>Missour Ouest</td>
<td>Addendum n°1 to «Doukkala-Abda» reconnaissance contract</td>
<td>Extension of the initial validity period of the reconnaissance license for 6 months until October 27, 2009</td>
</tr>
<tr>
<td>Hunt Overseas Oil Company</td>
<td>Tadla</td>
<td>Addendum n°2 to «Tadla» reconnaissance contract</td>
<td>Extension of the initial validity period of the reconnaissance license for 6 months until November 27, 2009</td>
</tr>
</tbody>
</table>
Other agreements

• San Leon Morocco LTD

Tarfaya South area

Signature, on March 11, 2009, of a MoU concerning the oil shale potential of «Tarfaya South Area». Under this MoU, whose validity period is 36 months extendable, it is expected to carry out the work program necessary to appreciate and test oil shale viability in this zone of interest, for future developments and commercial exploitation, based on San Leon pyrolysis In-Situ Vapor Extraction oil shale technology “IVE”.

• IES Energostoroy Engineering Morocco

Tanger zone

Signature, on April 10, 2009, of a confidentiality agreement between Onhym and IES Energostoroy Engineering Morocco concerning oil shale potential of «Tanger» zone for a pre evaluation of the zone.

• EN Rom Energetica S.R.L.

Timahdit zone

Signature, on May 25, 2009, of a confidentiality agreement between Onhym and EN Rom Energetica concerning oil shale potential of «Timahdit» zone for a pre evaluation of this zone.

• Eesti Energia AS

Tanger zone

Signature, on September 1, 2009, of a confidentiality agreement between Onhym and Eesti Energia AS on oil shale of «Tanger» zone.

Signature of a petroleum agreement with Island on Sidi Moussa and Zag basin permits.
PETROLEUM DRILLINGS AND PRODUCTION

Petroleum Drillings

In 2009, Onhym drilling and hydrocarbon production activities focused on the following:

- Production and commercialization of hydrocarbons in developed oil fields;
- Conduction of workover on MKL-102 well;
- Servicing work using H.525 rig on Somas C-1 cavity;
- Cementing and pumping using HP unit for the benefit of Circle Oil Company;
- Participation in meetings related to oil shale projects;
- Follow-up on management of transit fees related to Maghreb Europe Gas pipeline (MEG).

- Work carried out by Onhym

The main drilling activities are summarized as follows:

- Maintenance and testing of components of the drilling rig H 1700 n°2 by Onhym teams;
- Acquisition of consumables and services required for drilling operations in Boujdour and Meskala;
- Conduction of civil engineering work on the drilling platform and the accessories necessary for the drilling of Boujdour stratigraphic well;
- Workover operations on MKL-102 well using the rig H 1700 n°2 and the pumping unit H.P.

- Work carried out by partners

Services for third parties

- Onhym has provided intervention services for the account of Somas company on cavity C-1 using the rig H.525. Onhym has also rent its equipment and services for the conduction of cementing and pumping services and well testing for the benefit of Circle Oil for KSR-8, DRJ-6, CGD-10 and KSR-9 wells.

Follow-up work

- Follow-up by Onhym of drilling activities carried out by partners, namely «FES-1» and «FES-1 re-entry» by Cabre, «OZW-1» “HR-33bis” and «HKE-1» by TransAtlantic, “DRJ-6”, «HSR-8» “HSR-9” “CGD-9” by Circle Oil Ltd and «TAJ-1» by Dana company;
- Participation in various technical and management committees;
- Moreover, following the discovery of encouraging gas shows in «Anchois-1» well off Larache, several meetings have been held between Onhym, the Ministry of Energy, Mines, Water and Environment and Repsol/Gas Natural group to examine the opportunities of commercialization of the discovered natural gas.

Hydrocarbon Production

- National production

The national production of hydrocarbons reached 41.18 million standard cubic meters for natural gas and 8 358 tons for condensate and crude oil, thereby recording a decline of 17% for natural gas and 6% for condensate and crude, compared to the previous year. This decline is mainly due to the reduction of OCP withdrawals, especially during the first quarter of 2009 during which Meskala unit was almost at a standstill and to the stop of production in OLB-1 and AHF-1 wells, in the Gharb.
Onhym production

<table>
<thead>
<tr>
<th>Production</th>
<th>Condensate/Crude in tons</th>
<th>Natural gas in standard cubic meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKL</td>
<td>5 710</td>
<td>25 937 292</td>
</tr>
</tbody>
</table>

Onhym / partners production

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AHF-1 / Cabre</td>
<td>-</td>
<td>585 969</td>
</tr>
<tr>
<td>ONZ-4 / Circle Oil</td>
<td>-</td>
<td>9 106 874</td>
</tr>
<tr>
<td>ONZ-6 / Circle Oil</td>
<td>-</td>
<td>5 554 511</td>
</tr>
</tbody>
</table>

Samir production

| Sidi Rhalem (RH-2)   | 2 648                    |                                      |

Total production

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 358</td>
<td>41 184 646</td>
</tr>
</tbody>
</table>

Hydrocarbon marketing

The Office deliveries, which remain concentrated on Meskala and Gharb zones, were marked by a drop of 21% due to the shutdown of Ocp facilities in early 2009.

- **Meskala**

  During 2009, natural gas deliveries dropped to 24.68 million standard cubic meters against 32.00 million standard cubic meters forecasted, i.e. 77% of realization rate. This fall is mainly due to the nearly shutdown of Ocp’s mining center that was affected by the international crisis. Likewise, condensate deliveries recorded a realization rate of 77% by registering a volume of 5 381 tons against 7 000 tons forecasted.

  However, during the third quarter of 2009, deliveries recorded a net improvement.

- **Gharb**

  During 2009, the drop in production recorded in this zone remains more moderate, compared to Essaouira production. Thus the share of natural gas production registered 6.03 million standard cubic meters against 6.39 expected in 2009, i.e. 94% of expected production.

  The total turnover generated from these sales (natural gas and condensate) is 73.28 million DH as against 98.70 million DH forecast, i.e.74% of expected value.

  This fall is due to the combined effect of drops recorded in hydrocarbon production and oil prices in the course of 2009.

Exploitation

Onhym continued to provide exploitation services for its own account and for the account of its partners, especially Cabre and Circle Oil on AHF-1, ONZ-4 and ONZ-6 fields.

Maghreb Europe Gas Pipeline (Meg)

As a representative of the Moroccan State for the management of the royalty perceived as a result of the transit of Algerian gas through the Moroccan territory, Onhym took part in the working out of the revision project of the State/Europe Maghreb Pipeline (EMPL) for the management of this royalty.
OIL SHALE

Projects situation

• Petrobras/Total joint venture

Timahdit area 2

Petrobras/Total group presented the results of the preliminary technical and economic feasibility study for the project of a retorting plant of 50,000 bbl/d from Timahdit deposit.

East side Tarfaya zone

Petrobras/Total group is continuing studies aimed at carrying out three boreholes in the East side.

• X’Tract

This company has a keen interest in the production of electricity, based on a thermal plant using Tarfaya oil shale as fuel.

• San Leon

After the successful tests on the applicability of the In-situ Vapor Extraction (IVE) pyrolysis process to Tarfaya oil shale, San Leon conducted the basic engineering study of a pilot plant. It also sought the collaboration of Onhym for the cost estimates of 3 drilling boreholes to be used for the pilot plant that will be located in a site that will be chosen during the first quarter of 2010.

• ONE

ONE launched an invitation for expression of interest in view of prequalification of enterprises for a 100 MW power plant project, by direct combustion of Tarfaya oil shale.
MINING EXPLORATION

In the course of 2009, Onhym mining exploration activities have focused on 19 objectives distributed as follows: precious metals (11), base metals and energy substances (7), and rocks and industrial minerals (1). Partnership work has concentrated on 7 objectives: base metals (5), rocks and industrial minerals (1), and uranium (1). Some objectives have reached the resource evaluation phase before undertaking the orientation studies as is the case for Glibat Laphouda project (Fe, Nb, Ta, U and light REE) and Twihanate prospect, located in Awserd province.

In the same region, and following the encouraging results obtained in surface on the two new prospects of Lamlaga and Drag Al Farnan, where preliminary reconnaissance work by core drills was carried out at the end of 2009. Azouggar N'Tilili polymetallic-gold project put in promotion after the conclusive results of the orientation study carried out in 2008, is being transferred to a private company for its development.

In addition, several anomalies of precious metals were tested in the Southern provinces, in Khzama, Tichka east and Kerdous. Research for platinoids was launched for the first time in Awserd region, where research for uranium is ongoing. Prospecting for coal in the Haut Plateaux has formed the subject of modeling work that led to the proposal of 5 drillings and the first one was drilled in the second half of 2009.

Partnership activities have concerned the continuation of the feasibility study of Achmmach tin deposit with the Australian company, Kasbah Resources and Alous copper deposit with the Canadian company Odyssey Resources, research for uranium with the French company Areva and bentonitic clays with the Spanish company Tolsa.

The activity during 2009 has also been marked by the following:

- Conduct of a geochemical survey in the Southern provinces. The first one completed in 2007 showed anomalies that are undergoing a geological control. The second geochemical survey for alluvial soil covered the districts of Mzayazat As Sakkoum, Imlili, Lahjayra Al Bayda and Alfaj, over an area of 5000 km².
- Hyperspectral survey in Sirwa massif covered an area of 10 000 km². This will allow to highlight new research targets based on alteration mapping.

Onhym has also engaged an expert in geophysics for the reprocessing and analysis of airborne geophysical data.

Concerning the Mine laboratory activity, in addition to the production front, the first half of 2009 was marked by the renewal of certification through a follow-up auditing, in accordance with Iso 9001 version 2000. This certification was obtained in 2007.

Precious metals

- **Azouggar N'Tilili (Au, Pb, Zn, Ag)**

In Azouggar N'Tilili polymetallic-gold prospect, situated SW of Low Draa, at 50 km to the east of Tan Tan city, a synthesis of the results of all work carried out was prepared.
The highlighted resources are estimated according to two variants: 452,500 t to 5.8 g/t Au; 5.4% Pb; 5.7% Zn and 44.8 g/t Ag for an average thickness of 1.4 m or 1,056,000 t at 3.6% Zn; 2.3 g/t Au; 2.2% Pb and 19 g/t Ag for an average thickness of 4 m.

This project is being promoted as several companies have shown interest in it.

• Glibat Lafhouda (Nb, Ta, U, REE, Fe)

In Glibat Lafhouda prospect, 75 km SW of Awserd, a geological survey over 10 km² at scale 1/1000 and a reconnaissance survey by gravimetry over 10.2 km² were conducted. This allowed to materialize the deep rootedness of zones of massive carbonatite and iron oxides.

A second survey of 8 core drills totaling 1,042 m was carried out in order to better delineate the geometry of mineralized bodies. The results obtained for all core drills are summarized as follows:

<table>
<thead>
<tr>
<th>Iron oxides</th>
<th>Carbonatites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (m)</td>
<td>Nb₂O₅ (ppm)</td>
</tr>
<tr>
<td>10.23 to 79.00</td>
<td>535 to 7878</td>
</tr>
</tbody>
</table>

For the central zone only, the preliminary estimates led to a tonnage in the range of 49 million tons of iron oxides at 0.4% Nb₂O₅; 265 ppm Ta₂O₅; 500 ppm U₃O₈; 33% Fe₂O₃ and 0.2% light Rare Earth.

• Drag Al Farnan (Nb, Ta, U, REE)

In Drag Al Farnan prospect, located at 75 km to the SW of Awserd city, a soil geophysical survey by gravimetry and magnetometry, covering an area of 5.5 km² and a geological survey at 1/2000, covering an area of 7 km² were carried out, and 109 samples taken. The results obtained range from 0.2 to 0.45 Nb₂O₅; 100 to 470 ppm Ta₂O₅ and 100 to 450 ppm U₃O₈. The gravimetry survey highlighted negative residual anomalies corresponding to iron oxides and subject to reconnaissance by 5 core drills totaling 514.6 m. These core drills cut through iron oxide zones on thicknesses ranging from 24 to 90 m. Samples from these zones were taken for chemical analyses purposes.
• **Twirga-Amwaga (Pt, Pd, Au, Ag)**

This new prospect, about 90 km to the WSW of Awserd city, was launched for the control of platinoids anomalies (10 to 26 ppb Pd, 10 to 18 ppb Pt and up to 950 ppm Ni). The work consisted of geological reconnaissance, by mapping at scale 1/20 000 and rock sampling. This enabled to define the interest zones that are being investigated in detail.

• **Twihinate (Nb, Ta, U, Au, Fe)**

Twihinate prospect, about 250 km to the south of Dakhla, was discovered in 2007. In this prospect, a geological survey at scale 1/5 000 over an area of 6.25 km² covered by gravimetry, was conducted in order to control the deep rootedness of mineralization. The surface sampling yielded grades reaching 1.4% Nb₂O₅ and the sum of Rare Earth Elements generally ranges between 0.5 and 1.5% with a maximum of 6%. The grades of total iron are between 50 and 60% and those of gold indices (300 ppb).

Following the encouraging results of the first core drill survey, conducted in 2008 (1 860 to 4 700 ppm Nb₂O₅, 47.7 to 54.4% Fe₂O₃ and 185 to 345 ppm U₃O₈ in iron oxides ; 2 500 to 4 290 ppm Nb₂O₅ and 115 to 650 ppm U₃O₈ in breaches), 8 other core drills totaling 1087 m were carried out during the first half of 2009. These core drills confirmed the positive results obtained by the first survey : 2 270 to 4 600 ppm Nb₂O₅, 36 to 55% Fe₂O₃ and 145 to 235 ppm U₃O₈ in iron oxides ; 3 200 to 5 700 ppm Nb₂O₅, 2500 to 5500 ppm Nb₂O₅ and 2400 ppm Nb₂O₅ in breaches.

• **Lafwila (Au, Ag, Pb, Cu)**

On this project, about 300 km to the South of Dakhla (Awserd province) and following the encouraging results obtained on the trenches carried out in 2007 (10.4 g/t Au over 4 m), a first survey of 4 core drills totaling 531.6 m was carried out in an effort to recognize the down dip of gold-bearing structures. The targeted structures were intercepted with apparent grades of 6 m for the second core drill and 6 m, then 2.5 m for the fourth core drill. The results obtained in these core drills are weak (<0.1 g/t Au).

• **Lamlaga (Fe, Nb, U, REE)**

The structure of Lamlaga, about 250 km to the South of Dakhla, was highlighted, as a result of the integrated teledetection and radiometry interpretation studies. The preliminary sampling showed grades that reached 1.5% REE ; 77% Fe₂O₃ and 2 400 ppm Nb₂O₅. A geophysical survey by magnetometry and gravimetry, conducted on an area of 6 km², showed that this structure is characterized by a gravimetry and magnetic anomaly in the iron oxide and siliceous breach zones. Three core drills, totaling 382.2 m, were conducted on this structure and the samples taken are undergoing chemical analyses.

• **Tichka-East (Au)**

In the project of Tichka East, 140 km South of Marrakech, the work carried out during the first half of 2009 confirmed the results obtained in 2008 with grades ranging between 0.1 to 14 g/t Au and a peak of 33 g/t Au. A geophysical study was also conducted and showed that the structure is deeply rooted. Moreover, the alluvial prospecting covering this sector yielded anomalic grades reaching 22 g/t Au and are currently undergoing control work.
**Bas Draa (Au)**

In the Bas Draa inlier (Guelmim, Tan Tan and Assa Zag provinces), prospecting continued in 2009 and the results confirmed those of 2008 (up to 5.5% in Jbel Tiglidz and 31g/t Au, 2.2% Pb and 0.2% Zn at Toufrite). A geophysical study conducted in Toufrite structure showed that the resistant mass is superficial.

Prospecting is continuing on the remainder of the mining domain of the district in an effort to highlight other mineralized structures.

**Kerdous (Au)**

In the prospect of Assif M’kkorn valley, 120 km NE of Tiznit (Tiznit province), the geological control of soil anomalies by litho-geochemical profiles showed punctual grades reaching 9g/t Au over 3 m and 44g/t Au over 1.5 m. The SW of the district and part of Ammeln valley are the subject of alluvial geochemical work and taking of 380 samples. Some gold anomalic points were recorded with a maximal grade of 367 ppm in Ameln and 8.9g/t Au in the SW.

A pilot study, by conceptual targeting, was carried out as part of an external expert valuation and enabled to identify targets that are undergoing a control by sampling and geological mapping.

**Khzama (Au, Ag, platinoïds)**

In Khzama project, located in Sirwa massive (Ouarzazate province), the control of alluvial geochemical anomalies enabled to localize a fracturation zone with a general N-S to NW-SE orientation, made up of ferruginous quartz, mylonites and gossans with an extension over several hundreds of meters. Most analyzed samples showed gold grades between 2.3 and 3.5 g/t with thicknesses ranging from 2.2 to 6 m. Reconnaissance work by sampling and geological mapping are continuing in this zone and chemical analyses are underway.

**General exploration**

**Anti-Atlas (Au, Ag, Cu, Pb, Zn)**

In Amassine, situated at the corridor of the main accident, East of Tafrent, reconnaissance work focused on the geological control of gold-bearing alluvial anomalies by sampling and geological surveys. The results obtained range between 0.13% and 2.3% Cu and between 1 and 54g/t Ag.

In the Infracambrian carbonate formations, the structures of Sidi Belghzal, about 20 km SE of Tiznit, yielded grades reaching 9% Pb, 156g/tAg, 5.3% Cu and 0.1% Zn also with some gold anomalic grades (up to 0.6g/t).

In the occidental High Atlas South of Amezmiz, the results obtained following the control of gold-bearing alluvial anomalies are indicators (0.3 g/t Au)

**South zone (Au, Platinoids)**

The geological control of soil gold-bearing anomalies continued in Aghracha and Imarkane Lakhdar districts. A preliminary sampling revealed weak traces of palladium (10 to 26 ppb) in a facies of amphibolites located at the base of Eddiab and Awhifrit
ferriferous quartzites. Sections with detailed sampling were carried out in view of intercepting more interesting grades in Pd.

**Base metals**

- **Alous district «Odyssey Resources Ltd» (Cu, Ag)**

In Alous district, located in the western Anti-Atlas, 120 km SE of Agadir (Taroudant province), the lease option agreement between Onhym and the Canadian company Odyssey Resources Ltd was extended by 18 months to complete the feasibility study.

According to the Canadian standard NI-43101, the estimated resources amount to 5,407,000 t at 0.8% Cu and 10 g/t Ag in terms of indicated resources and 2,586,000 t at 0.55% Cu and 4.2 g/t Ag in terms of inferred resources.

Odyssey Resources started the additional program for exploration and development work in this domain, with a view of finalizing the feasibility study.

- **Achmmach «Kasbah Resources Ltd» (Sn)**

In the tin-bearing deposit of Achemmach (El Hajeb province), 50 km NE of central hercynian massive to the South of Meknès, a feasibility study was carried out in partnership with the Australian company Kasbah Resources. The agreement was extended to 2010 to enable Kasbah Resources to complete the feasibility study. Thus, since the start of drilling activity in November 2007 until 2009, 31 drillings totaling 10,028.6 m have been carried out. The analytical results of the last drilling (AD028) completed in December 2008 showed an intersection of 38 m at 0.93% Sn.

Structural surveys were conducted in the whole sector in order to develop a structural model of mineralization. Likewise, a reconnaissance by soil geochemistry was concentrated on east and northwest sectors of the deposit.

The results of metallurgical tests undertaken by SGS Cornwall indicated that yields ranging between 75-80% of tin may be reached using gravitation and flotation tests. The campaign of core drills started again in August 2009 in the central sector aimed at defining 1 to 2Mt of indicated resources within the 6 Mt of inferred resources defined, according to Jorc norm. The results of the first core drills are interesting: 21 m at 0.68% Sn (AD029) and 30 m at 1.49% Sn (AD031).

- **Anti-Atlas «Onhym-Areva draft agreement» (Uranium)**

As part of the draft agreement concluded between Onhym and the French company Areva NC, and as a result of the work related to the implementation of a Geographic Information System (GIS) on the Anti-Atlas dedicated to uranium exploration, 4 regions (Sirwa, Ougnat, Skoura and Ifni) were chosen as priority zones to initiate exploration work.

- **Sud Bani (Fe)**

In Sud Bani prospect (Tan Tan province), a survey of 11 core drills totaling 236.10 m was carried out on West Zini index, 2 of which conducted at the end of 2008 (ZO6 and ZO7 totaling 51 m). These core drills enabled to better define the thorough evolution of ore grades and thicknesses of mineralized strata.
Total ore grades range between 22 and 47% with an average of 35%. SiO2 grades show elevated values, with an average in the order of 25% and P2O5 grades spread between 0.18 m and 1.5%, with an average of 1.14%.

In addition, exploration has continued to the east of traces, known at the level of Jbel Zini and their extension has been identified. Geological surveys coupled with a sampling of mineralized facies were carried out. Total ore grades do not exceed 30%.

**Hauts Plateaux (Coal)**

The exploration program for coal started at the Hauts Plateaux (Jerada province), judged as a potential sector. Following a bibliographic synthesis that enabled to delimit the most potential zones in Morocco, a geological reconnaissance in the Hauts Plateaux district was carried out and 5 boreholes were planted. The first borehole at 1400 m started at the end of September at the level of El Mechtet basin and reached the interval of 444.80 m after having penetrated alternations of red clays, sandstones, limestones, dolomites and marls.

**Southern zone (U, Fe, Cu)**

The exploration program for uranium and iron-copper in Awserd province has focused on the control of airborne geophysical anomalies at the level of the following sectors:

- Lachariyat, where exploration has enabled to delineate radioactive carbonatites over an area of 1 km² with a high radioactivity reaching 7500 c/s. The first results of chemical analyses show grades reaching 3700 ppm Th; 689 ppm U; 6.7% Sr and 4.8% Rare Earth;
- At-Teha and Lahwar, where the soil control has helped to delineate, in addition to carbonatites, hydrothermal anomalies in uranium quartz veins, orthogneiss with radioactive anomalies between 200 and 2000 c/s and calcareous sands that yielded interesting grades ranging between 600 and 1 600 ppm U₂O₅ and between 4.6% and 17.4% Light Rare Earth;
- Al Faj, where geophysical prospecting has highlighted ferruginous quartzites. The analysis by XRF portable technology yielded 33.1% Fe, 950 ppm V, and 1400 ppm Ti. Chemical analyses show Fe grades in excess of 40%;
- Lahjayra, where 5 radiometric anomalies (U) yielded a weak radioactivity;
- Al Aggaya, where 2 radiometric anomalies (U-Th-) with a weak intensity are connected to gneiss;
- Al Ayn Albayda, where both anomalies (U and K), are connected to granitic intrusions.
• **Toundout (Cu, Au, Ag)**

In Toundout sector (Ouarzazate province), located on the southern side of central Haut Atlas, geological, geophysical and structural reconnaissance was carried out. The control of geochemical anomalies enabled to highlight chalcopyrite, cuprite and bornite mineralized structures, disseminated in a stratiform silicified level. However, the analytical results show grades that do not exceed 1% Cu on a very limited extension.

• **Bou Mimoune (Sn, W, Zn, Pb, Cu)**

In Bou Mimoun sector (Khenifra province), located in central Morocco, 20 km NW of Aguelmous, exploration activities undertaken concentrated on the geological control of geochemical anomalies and consisted in geological surveys and sampling. The work studies allowed to highlight the occurrence of veins of brecciated quartz with intrusive tourmaline, at the edge of the contact between granite and enclosed metamorphous rocks. The first analyses of samples showed grades in tin at some veins, ranging from 363 to 902 ppm SN.

**Rocks and industrial minerals**

• **Aït Ali (fibrous clays)**

In Aït Ali (Taourirt province), 6 core drills totaling 237.5 m crossed attapulgite and sepiolite levels with a thickness of 8 m. Chemical analyses of 155 samples showed carbonated fibrous clays. These samples are being identified by x-rays in order to better define the quality of these clays.

• **General exploration**

The general search for rocks and industrial minerals has continued in the Gharb regions: (Sidi Kacem province) for sepiolite, Ad Doukat (Taza province) for attapulgite and Ras Tarf for diatomite (Nador province). 49 samples and 43 samples for x-rays identification were taken from these regions. The analyses carried out on samples from Arbaoui and Bled Rmel sectors showed sepiolite clays and the first field work in Ad Doukat district enabled to locate fibrous clays. Results of analysed samples from Ras Tarf diamotites showed silica grades, ranging between 60 and 82.36%.
Laboratories’ activity

The Mine laboratories’ activity in 2009 was especially marked by the renewal of ISO 9001 version 2000 certification as a result of the second follow-up and monitoring auditing. The provisions of services related to mineralogical, chemical and mineralurgical studies concentrated on samples from Onhym work sites and third parties.

• Certification and Accreditation

Follow-up and monitoring auditing was conducted with success. This auditing confirmed that the quality management system applied in the Mines Laboratories complies with standard requirements.

• Mineralogy

Sample preparation

In the course of this year, a total of 323 samples comprised of 237 thin sections, 23 polished plates, and 7 polished sections have been prepared.

Table of distribution of samples :

<table>
<thead>
<tr>
<th>Work site</th>
<th>Number of samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onhym work sites</td>
<td>8 353</td>
</tr>
<tr>
<td>Subsidiaries and third parties</td>
<td>2 374</td>
</tr>
<tr>
<td>Tests</td>
<td>138</td>
</tr>
<tr>
<td>Total</td>
<td>10 865</td>
</tr>
</tbody>
</table>

Concentration tests by gravity, magnetic separation and flotation were undertaken on Twihinate Nb ore, U and Rare Earth.

Following the encouraging results obtained, additional tests are planned.

Mineralogical Chemistry

The number of ore grade assays conducted by the Mineral Chemistry Department in 2009 amounted to 156 096. These determinations correspond to 12 399 samples and concentrated on the following :

• Gold analysis by humid and dry method;
• Trace analysis : Ag, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Mg, Mn, Mo, Nb, Ni, Pb, Sb, Sr, V, Y, Zn, Nb, Ta, Th, U, Sn, W;
• Analysis of Rare Earth elements : La, Ce, Sm, Nd, Pr;
- Platinoids analysis: Pt, Pd;
- Major elements analysis: SiO$_2$, Al$_2$O$_3$, CaO, MgO, Na$_2$O, K$_2$O, Fe$_2$O$_3$, FeO, MnO, TiO$_2$, P$_2$O$_5$, and fire loss;
- Analysis by conventional methods of high grades in Cu, Pb, Zn, Fe, CaCO$_3$, BaSO$_4$, SrSO$_4$, CaF$_2$, MnO$_2$, MnO, total Mn, ferric iron, carbonates, sulfur, sulfates, Chlorides, real density of powder, wetness and salt insolubles.

### Distribution

<table>
<thead>
<tr>
<th>Work sites</th>
<th>Number of samples</th>
<th>Number of ore grade assays</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ONHYM work sites</strong></td>
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<td>151 901</td>
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<tr>
<td><strong>Subsidiaries and third parties</strong></td>
<td>620</td>
<td>4 195</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>12 399</td>
<td>156 096</td>
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</tbody>
</table>
Mining Research
Location map of objectives achieved in 2009

- Quaternary
- Mesozoic
- Cenozoic
- Paleozoic
- Proterozoic

**Base metals**
- 12. Guemassa-Haouz (Polym.)
- 13. Jebilet (Polym.)
- 14. Tekna (Polym.)
- 15. Bled Jemila (Pb, Zn, Ag, Au)
- 16. Bou Mimoun (Sn, Pb, Zn, W)
- 17. Rekkam (Pb, Zn, Ag, W)
- 18. Touindout (Cu, Au, Ag)
- 19. Sud Bani (Fe)
- 20. Hauts Plateaux (Charbon)
- 21. Zone Sud Uranium (U, Fe, Cu)
- 22. Achmmach " Kasbah Resources " (Sn)
- 23. Anti-Atlas " ONHYM-AREVA " (U)
- 24. Alous " Odyssey " (Cu)

**Precious metals**
- 1. Azougg n’Tilili (Au, Zn, Pb)
- 2. Glibat lahouda (Nb, Ta, U, Fe)
- 3. Drag-Al Farnan (Nb, Ta, U, Fe)
- 4. Twirga-Amwaga (Pt, Pb, Au)
- 5. Twhinate (Nb, REE, Fe, U, Au)
- 6. Lafwila (Au)
- 7. Lamлага (Nb, REE, Fe, U, Au)
- 8. Tichka-Est (Au)
- 9. Bas Draa (Au, Ag, Zn)
- 10. Kerdous (Au)
- 11. Khzama (Au, Ag, Pt)

**Rocks and industrial Minerals**
- 25. Tertiary basins (clays)
- 26. Atlali (clays)
Objectives Achieved in 2009

<table>
<thead>
<tr>
<th>Precious metals</th>
<th>Commodity</th>
<th>Provinces</th>
<th>Work carried out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azougar N’Tili</td>
<td>Au, Zn, Pb, Ag</td>
<td>Tan Tan</td>
<td>Signature of a cession agreement underway</td>
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<tr>
<td>Glibat Lahfouda</td>
<td>Nb, Ta, REE</td>
<td>Awserd</td>
<td>Geology, geophysics, topography, resources evaluation</td>
</tr>
<tr>
<td>Drag Al Farnan</td>
<td>Nb, Ta, REE, U, Fe</td>
<td>Awserd</td>
<td>Geology, sampling, geophysics, drillings : 514.6 m</td>
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<tr>
<td>Twirga Amwaga</td>
<td>Pt, Pd, Au, Ag</td>
<td>Awserd</td>
<td>Geology, sampling</td>
</tr>
<tr>
<td>Twihinate</td>
<td>Nb, Ta, REE, U, Au</td>
<td>Awserd</td>
<td>Geology, geochemistry, drillings : 1087 m</td>
</tr>
<tr>
<td>Lafwila</td>
<td>Au, Ag, Cu, Zn</td>
<td>Awserd</td>
<td>Geology, sampling</td>
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<tr>
<td>Lamlaga</td>
<td>Nb, Ta, REE, U, Au</td>
<td>Awserd</td>
<td>Geology, sampling, geophysics, drillings : 382.2 m</td>
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<td>Tichka-East</td>
<td>Au</td>
<td>Al Haouz</td>
<td>Geology, sampling, geophysics, topography, alluvial geochemistry</td>
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<tr>
<td>Bas Draa</td>
<td>Au, Ag, Cu</td>
<td>Guelmim, Tan Tan, Assa Zag</td>
<td>Geology, sampling, alluvial geochemistry</td>
</tr>
<tr>
<td>Kerdous</td>
<td>Au, Ag, Cu, Pb, Zn</td>
<td>Tiznit</td>
<td>Geochemistry, geology, soil and rock sampling</td>
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<tr>
<td>Khzama</td>
<td>Au, Ag, platinoïdes</td>
<td>Ouarzazate</td>
<td>Geology, sampling</td>
</tr>
<tr>
<td>RG- MP- Anti Atlas</td>
<td>Au, Ag, Cu, Pb, Zn</td>
<td>Chichaoua, Ouarzazate</td>
<td>Geochemistry, geology, sampling</td>
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<tr>
<td>RG- MP- South Zone</td>
<td>Au, Pt</td>
<td>Awserd</td>
<td>Geochemistry, geology, sampling</td>
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<table>
<thead>
<tr>
<th>Base metals</th>
<th>Commodity</th>
<th>Provinces</th>
<th>Work carried out</th>
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<tr>
<td>Alous District «Odyssey»</td>
<td>Cu, Ag</td>
<td>Taroudant</td>
<td>Extension of partnership agreement and continuation of the feasibility study</td>
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<tr>
<td>Achmmach «Kasbah Resources»</td>
<td>Sn</td>
<td>El Hajeb</td>
<td>Extension of the period of partnership agreement and start of a new drilling survey</td>
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<tr>
<td>Anti-Atlas «Onhym-Areva»</td>
<td>U</td>
<td>Ouarzazate</td>
<td>GIS processing ; selection of 4 priority zones for exploration work</td>
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<tr>
<td>Sud Bani</td>
<td>Fe</td>
<td>Tan Tan</td>
<td>Geology, lithogeochemistry, drillings : 185.10 m</td>
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<td>Hauts Plateaux</td>
<td>Coal</td>
<td>Jerada</td>
<td>Bibliographic synthesis, geology, drilling planting</td>
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<tr>
<td>South zone uranium</td>
<td>U, Fe, Cu</td>
<td>Awserd</td>
<td>Geology, radiometry, sampling</td>
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<tr>
<td>Bou Mimoune</td>
<td>Sn, W, Zn, Pb, Cu</td>
<td>Khenifra</td>
<td>Geology, sampling</td>
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<tr>
<td>Toundout</td>
<td>Cu, Pb, Zn, Ag</td>
<td>Ouarzazate</td>
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<tr>
<td>RG.SMB</td>
<td>Fe, Pb, Zn, W, Cu</td>
<td>Guelmim, Taourirt</td>
<td>Geology, sampling</td>
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<th>Rocks and industrial minerals</th>
<th>Commodity</th>
<th>Provinces</th>
<th>Work carried out</th>
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<tr>
<td>Aït Ali</td>
<td>Fibrous clays</td>
<td>Taourirt</td>
<td>Geology, sampling, drillings : 237.5 m</td>
</tr>
<tr>
<td>RG. RMI</td>
<td>Fibrous clays, dolomites, quartz</td>
<td>Taza, Nador, Sidi Kacem</td>
<td>Geology, sampling, chemical and mineralogical analyzes</td>
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</table>
MINING PARTNERSHIPS AND COOPERATION

Partnership for mining exploration and development witnessed a new dynamic in 2009. The promotion efforts made for promoting mining prospects have led to the signature of two new agreements, 2 draft agreements, 3 Memoranda of Understanding (MoU), and 5 amendments.

### Agreements

<table>
<thead>
<tr>
<th>Partners</th>
<th>Country</th>
<th>Description</th>
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<tr>
<td>Mectp Group</td>
<td>Morocco</td>
<td>Leasing of Ncop deposit for talc exploitation</td>
<td>04/03/2009</td>
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<tr>
<td>Agm</td>
<td>Morocco</td>
<td>Execution of work and tests for the transfer of Tizegouine gold deposits, Structure 107 and Moumjoud</td>
<td>23/10/2009</td>
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<td>Agricola</td>
<td>Great Britain</td>
<td>Execution of work aimed at developing and exploiting Ain Kerma gold-bearing indicators</td>
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### Draft agreements

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<td>Mauritanian Office for Geological Research (OMRG)</td>
<td>Mauritania</td>
<td>Cooperation in mining exploration, training and exchange of experiences</td>
<td>16/02/2009</td>
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<td>Jiangxi</td>
<td>China</td>
<td>Transfer terms for Bouissafen zircon deposit</td>
<td>04/12/2009</td>
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### Memoranda of Understanding (MoU)

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<td>22/04/2009</td>
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<td>Jiangxi</td>
<td>China</td>
<td>Execution of tests and work aimed at the transfer of Bouissafen zircon deposit</td>
<td>26/05/2009</td>
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<td>Ghassoul group/ Damrec</td>
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<td>Execution of tests and work aimed at the transfer of Sidi Bou Othmane andalusite deposit</td>
<td>22/06/2009</td>
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## Amendments

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<td>Mauritanian Office for Geological Research (OMRG)</td>
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<td>17/02/2009</td>
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<td>Odyssey</td>
<td>Canada</td>
<td>18 – month extension of the validity period of the agreement on the transfer of Alous district copper deposit</td>
<td>12/03/2009</td>
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<td>Kasbah Resources Ltd</td>
<td>Australia</td>
<td>24 – month extension of the validity period of the agreement on the transfer of Achmmach tin deposit</td>
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</tbody>
</table>

Other transfers relating to Oumjerane copper deposit in Errachidia region, Zgouder silver deposit in Taroudant region and Azouggar N'Tilili polymetallic gold deposit in Tan Tan region south of Agadir are under negotiation with private companies.
In 2009, the volume of drilling work reached 3,952.65 m, recording a decline of 68%, compared to 2008.

This fall in volume was accounted for by the drop of studies undertaken with Onhym’s own resources, the partial realization of the work program scheduled in partnership with CMG and Tolsa companies that saw their programs slowed down as a result of the financial crisis. The fall in Onhym’s activity is specifically related to the stop of coal research (that constituted 50% of 2009 program) based on the first negative results obtained, to the campaigns undertaken to promote Glibat Lafhouda and Bas Draa prospects and to the weak results obtained on Lafwila, Kerdous and Toundout prospects.

**Realizations**

In 2009, the mining drilling teams operated in 7 work sites, 6 of which were for Onhym’s benefit and 1 was for the benefit of third parties.

The drilling teams carried out the following activities:

**MINING DRILLINGS**

<table>
<thead>
<tr>
<th>Work sites</th>
<th>Main operator</th>
<th>Province</th>
<th>Number of drillings</th>
<th>core drills (ml)</th>
<th>Rotary (ml)</th>
<th>Total (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work commited by ONHYM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sud Bani</td>
<td>Onhym</td>
<td>Tan Tan</td>
<td>9</td>
<td>185.10</td>
<td></td>
<td>185.10</td>
</tr>
<tr>
<td>Aït Ali</td>
<td>Onhym</td>
<td>Taourirt</td>
<td>6</td>
<td>237.50</td>
<td></td>
<td>237.50</td>
</tr>
<tr>
<td>Twihinate</td>
<td>Onhym</td>
<td>Awserd</td>
<td>8</td>
<td>1,087.45</td>
<td></td>
<td>1,087.45</td>
</tr>
<tr>
<td>Lamlaga</td>
<td>Onhym</td>
<td>Awserd</td>
<td>3</td>
<td>382.10</td>
<td></td>
<td>382.10</td>
</tr>
<tr>
<td>Drag Al Farnane</td>
<td>Onhym</td>
<td>Awserd</td>
<td>5</td>
<td>514.60</td>
<td></td>
<td>514.60</td>
</tr>
<tr>
<td>Hauts Plateaux</td>
<td>Onhym</td>
<td>Jerada</td>
<td>1</td>
<td>441.80</td>
<td>3.00</td>
<td>444.80</td>
</tr>
<tr>
<td><strong>Total work by ONHYM</strong></td>
<td></td>
<td></td>
<td><strong>32</strong></td>
<td><strong>2,848.55</strong></td>
<td>3.00</td>
<td><strong>2,851.55</strong></td>
</tr>
<tr>
<td><strong>Work for third parties</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tarfaya Atlantic margin</td>
<td>Kiel University</td>
<td>Tarfaya</td>
<td>4</td>
<td>1,098.10</td>
<td>3.00</td>
<td>1,101.10</td>
</tr>
<tr>
<td><strong>Total work for third parties</strong></td>
<td></td>
<td></td>
<td><strong>4</strong></td>
<td><strong>1,098.10</strong></td>
<td>3.00</td>
<td><strong>1,101.10</strong></td>
</tr>
<tr>
<td><strong>Total mining drillings</strong></td>
<td></td>
<td></td>
<td><strong>36</strong></td>
<td><strong>3,946.65</strong></td>
<td>6.00</td>
<td><strong>3,952.65</strong></td>
</tr>
</tbody>
</table>
HUMAN RESOURCES

Staff

As of December 31, 2009, Onhym staff counted 955 agents of whom 203 engineers and managers, 414 supervisors, 23 employees and 315 workers.

The management rate, set at 21%, remains below the standards of bodies dedicated to research. The objective is to reach, in the medium term, a rate of 30% of the whole staff.

Staff evolution

The Office staff recorded a regular decrease in the last decade as a result of the combined effect of departures for retirement, limited recruitments and voluntary departure operation.

Nonetheless, recruitments are effected on the basis of positions provided by the outline law of 2009, i.e. 39 engineers and executives and supervisors.

The number of departures recorded at the end of December 2009 reached 26: 19 retired persons, 5 resignations and 2 deceases.
Consolidation actions of organizational basis

- **Project mode**

A sustained training program and transverse workshops led by consultants have enabled to base the principles and practices of a methodology of project management, based on Project Management Institute (PMI) standards, adjusted to Onhym context, and to standardize all the documentation in accordance with the best practises.

- **Human Resources Information System (HRIS)**

In addition to the setting up of Enterprise Resource Planning (ERP), the acquisition of the HRIS modules were initiated to help to optimise the use of resources and to enhance the quality of internal services.

**Social activities**

- **Housing loans**

Granting of loans for housing and equipping for the total amount of 3 million DH.

- **Summer time centers**

200 employees benefited from stays in summer time centers of Cabo-Negro, Ifrane and Kettara.

- **Summer camps**

323 children of Onhym or affiliates personnel benefited from the summer camps, organized in Ben Smim and Tanger.

- **Cultural activities for children**

120 children of Onhym personnel registered for the year 2009-2010 and benefited from several activities: language courses, IT, civic education, chess, creation, sewing and manual work, music, educational excursions and associative actions.

- **Pilgrimage**

14 employees were taken in charge by the Office and sent to the Holy place of Islam.

- **Medical assistance**

- Provided medical examinations : 334
- Coverage for hospitalization, biological checks and X-rays : 3 227
- Collective medical care : 2 176
- Hepatitis test : 461
- Flu vaccines : 480
- Systematic visits : 58
- Breast cancer test : 25
- Ophthalmology examinations : 31

**Training**

- **Key indicators**

In 2009, the training program enabled to carry out 150 continuous training actions totaling 3 289 men/day/training, representing a total cost of 7 619 KDH.

The following table shows the physical and budgetary indicators related to the training activity from January 1, through December 31, 2009:

- Key indicators
### Distribution of training data-domain

<table>
<thead>
<tr>
<th>Areas of training</th>
<th>Number of actions</th>
<th>Number of attendees</th>
<th>Number of men/days of training (M/D/T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congress, forum, colloquium and seminars</td>
<td>28</td>
<td>66</td>
<td>245</td>
</tr>
<tr>
<td>Exploration, exploitation processing and technical subjects</td>
<td>29</td>
<td>192</td>
<td>611</td>
</tr>
<tr>
<td>Data processing - Office automation and IS(*)</td>
<td>35</td>
<td>273</td>
<td>684</td>
</tr>
<tr>
<td>Management - personnel development and human resources management</td>
<td>15</td>
<td>248</td>
<td>545</td>
</tr>
<tr>
<td>Quality, security and environment</td>
<td>7</td>
<td>48</td>
<td>68</td>
</tr>
<tr>
<td>Management techniques and other subjects(*)</td>
<td>25</td>
<td>78</td>
<td>276</td>
</tr>
<tr>
<td>Long-term training</td>
<td>2</td>
<td>3</td>
<td>675</td>
</tr>
<tr>
<td>English classes</td>
<td>9</td>
<td>37</td>
<td>185</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>945</strong></td>
<td><strong>3 289</strong></td>
</tr>
</tbody>
</table>

(*) Including collective training actions carried out in 2009 from 2008 budget: 10 secretarial technical sessions, and office automation, 19 training sessions on MS Office 2007 softwares, i.e. a total of 670 of MDT for a cost of 170 KDH.

### Training related actions

- Organization and supervision of 300 trainees from various training institutions, 145 of whom were from higher education (Schools, Faculties and Institutes);
- Granting of 890 scholarships to 430 Onhym staff children for a total cost of 130 KDH.
The implementation of the Information System Master Plan (ISMP) continued in 2009 by the carrying on of projects scheduled as part of 2007-2011 Information System Plan.

The leading projects for the setting up of the Information system have reached their implementation phase and have been conducted in project mode in the form of several workshops, training and sensitization actions in an effort to mobilize human resources at all hierarchical levels. This objective is to prepare the implementation of Onhym system information in accordance with the concepts and orientations adopted as a result of the organisational study.

Workshops and training actions focused on projects like project management methodology, web site revision, analytical accounting revision, set up of integrated management software, GIS, and technical softwares.

As part of the project aimed at setting up and developing management mode by project, the workshops and work undertaken led to the set up of a project management methodology and to project portfolios based on international standards.

**Mines and Oil**

The development of the Information System of the hydrocarbon Pole (GIS) is continuing in normal conditions.

The other projects of the core business whose objective is to digitize, secure and organize the heritage of data, generated by mining and petroleum exploration work were completed.

**Financial management**

The structuring projects of ISMP initiated in 2008 continued in 2009, such as the restructuring of analytical accounting, the setting up of the Enterprise Resource Planning (ERP) for the implementation of management information system.

The main objectives set by the three projects are as follows:

- Support the evolution of the organization;
- Encourage the setting up and development of project management concept, established as a new operating mode;
- Encourage the eligibility of the Office to the State control.

**Human resources**

The implementation of the urbanization project (HRIS), which is underway, will build renovated managerial practices.

**Common means**

Onhym’s new site was launched in December 2009.

At the same time, the intranet, set up in 2007 and 2008, has been enriched with other services involving other domains like human resources and finance.

**Infrastructure**

In order to meet the scalability of the data and technical softwares to be used, a project for upgrading storage facilities and high speed network (fiber optic) has been implemented.
Petroleum exploration permits and reconnaissance licenses map