

## **HISTORY**

In the year 1871, Dr. William King of the Geological Survey of India, discovered coal near the village Singareni, Yellandu mandal in Khammam District.

### **Evolution of the SCCL**

- The Hyderabad (Deccan) company Limited, incorporated in England, acquired mining rights in 1886 to exploit the coal found in Yellandu area.
- The Singareni Colliers Company Limited (SCCL) was incorporated in 1920 under the Hyderabad Companies Act, and was floated in the year 1921 as a public limited company acquiring all the assets and liabilities of the Hyderabad (Deccan) Co. Ltd. Best & Co. acted as secretaries and selling agents.
- The state of Hyderabad purchased the majority shares of the Company in 1945. From 1945 to 1949, the Hyderabad Construction Co. Ltd was acting as managing agent.
- In 1949, this function was entrusted to Industrial Trust Fund by the then Government of Hyderabad. The controlling interests of the Company devolved to the Government of Andhra Pradesh in 1956, pursuant to the reorganization of the states.

Thus, the SCCL became a government company under the Companies Act in 1956. Large-scale expansion of Singareni Collieries was undertaken during the initial five-year Plans. The Central Government, in 1960, stated its participation in the equity of the company as also rendering the required loan assistance.

Thus since March, 1960, it has been jointly owned by the Government of Andhra Pradesh and The Government of India. In 1974, the Government of India transferred its share capital to the newly constituted Coal Mines Authority Limited (Coal India Limited). The manner of participation in the company financial assistance for its expansion, by the State Government and the Central Government, was agreed upon in the Four Party Agreements of 1974. Subsequently, the Central Government decided to control its equity directly in SCCL. Accordingly, agreements were concluded on 13th March 1977. The SCCL, the State Government, the Central Government and Coal India Limited were parties to the agreement. These two agreements are popularly called quadripartite agreements.

For financial assistance during VI and VII Plan periods, separate agreements were executed on 31st March, 1985 and 10th February, 1989 between the Government of India, the Government of Andhra Pradesh and SCCL. These Agreements are called Tripartite Agreements.

The Company's accredited function is to explore and exploit the Coal deposits in the Godavari Valley Coalfield, which is the only repository of Coal in South India. Mining activities of SCCL are presently spread over four districts of Andhra Pradesh Viz. Adilabad, Karimnagar, Khammam and Warangal.

## **GEOLOGICAL RESERVES**

The studies of Geological Survey of India attribute as much as 22054.58 million tonnes of coal reserves to the Godavari Valley Coalfield. The inventory covers up to a depth of 1200 meters and it includes reserves Proved (confirmed), indicated as well as inferred.

<b>INVENTORY OF THE COAL RESERVES GODAVARI VALLEY COALFIELD – ANDHRA PRADESH (As on 01.04.2011)</b>					
<b>(After GSI)</b>					
<b>a. Non coking</b>					
Andhra Pradesh – Godavari Valley Coalfield	<b>Depth(m)</b>	<b>Proved*</b>	<b>Indicated</b>	<b>Inferred</b>	<b>Total</b>
	<b>0-300</b>	5971.05	3529.46	147.28	9647.79
	<b>300-600</b>	3316.90	4749.16	653.91	8719.97
	<b>600-1200</b>	8.90	1449.75	2228.17	3686.82
<b>Total for AP</b>	<b>0-1200</b>	<b>9296.85</b>	<b>9728.37</b>	<b>3029.36</b>	<b>22054.58</b>

\* Thickness 0.90m and above

Since the inception of the company, 980 million tonnes of coal has been extracted, by adopting different mining techniques.

## **COAL EXPLORATION**

The exploration for coal is by nature an investigation and developmental activity, undertaken in anticipation of future demand of coal, to enable mine projection and mine development.

Coal plays a major role in world energy scenario and it will continue to do so. It contributes about 26% of the total global primary energy demand and is also a key input for the steel and other industries.

The coal industry has the capability to continue to supply a major share of the world's energy needs. It also has the technology available now, to make major improvements in the critical areas of efficiency and environmental impacts.

The programme for exploration drawn up for XI plan by the Sub- Group -III on Coal and Lignite projected a demand of 657m.t. of coal at the end of the XI plan for whole of India. In view of the same, the exploration agencies are expected to utilise their existing resources/ capabilities to fulfill such projections.

The Godavari Valley Coalfield (GVCF), which is under the command area of Singareni Collieries Co. Ltd., has its share of coal production and exploration in the projection.

## X & XI FIVE YEAR PLANS

### X PLAN PERIOD (2002-2007)

During X Plan period, a total of 3.346 lakh meters of drilling has achieved by SCCL with average deployment of 25 drills and proved 1030 m.t. of coal reserves in Godavari Valley Coalfield. MECL achieved 0.863 lakh meters of Promotional drilling with 8 drills, to identify new coal bearing areas in various parts of GVCF. GSI also carried out Regional exploration by deploying 4 drills in Godavari Valley Coalfield.

The year-wise target and achievement of Singareni Collieries Co. Ltd., for X plan:

Plan/Year	Target (m)	Achieved (m)	Reserves (m.t.)	Coal Produced (m.t.)
<b>X Plan</b>				
<b>2002-03</b>	56000	57581	147	33.16
<b>2003-04</b>	57000	60032	142	33.85
<b>2004-05</b>	58000	60614	217	35.30
<b>2005-06</b>	80000	68928	130	36.13
<b>2006-07</b>	130000	87469	394	37.71
<b>Total</b>	<b>381000</b>	<b>334624</b>	<b>1030</b>	<b>176.15</b>

### PROGRAMME FOR XI PLAN PERIOD (2007- 2012)

Considering Draft Road Map prepared by Project Planning, the Exploration Programme for XI Plan has been prepared. The details of Exploration Programme for XI Plan are as follows.

Plan/Year	Target (m)	Achieved (m)	Reserves * (m.t.)	Coal Produced (m.t.)
<b>XI Plan</b>				
<b>2007-08</b>	100000	79380.00	170 (187.20)	40.60
<b>2008-09</b>	100000	84686.00	215 (205.52)	44.44
<b>2009-10</b>	100000	92314.00	140 (74.57)	50.42
<b>2010-11</b>	100000	101903.00	100 (51.66)	51.33
<b>2011-12</b>	130000 (Revised)		270	
<b>Total</b>	<b>530000</b>		<b>895</b>	

\*Provisional, ( ) Actual

## **GEOLOGICAL REPORTS:**

One Geological report viz. Gundala Block-II, (North of Yellandu, Khammam district) was submitted.

## **GEOMODELLING OF EXPLORED BLOCKS**

Geological data of coal deposit is the basic requirement for any coal mine. As a part of computerization of exploration data, SCCL procured five Horizon modules of Minex modelling software. The Horizon module of Minex software package is a comprehensive package that synthesises the geological data to arrive at the 3D modelling. So far Geo-models for thirty nine blocks are completed

## **EXPLORATION PROGRAMME 2011-12**

In forthcoming decades, energy requirement will be soaring and likely need will be enormous. The major part of the energy needed will be met from fossil fuels. With the limited resources and foreign exchange component of oil, the dependence on coal in India will not come down in near future.

## **AGENCY-WISE EXPLORATION PROGRAMME**

During 2011-12, regional drilling by GSI, Promotional drilling by MECL and detailed drilling by SCCL will be continued in the identified blocks in tune with the long-term projected workload. A total of 37 drills (30 SCCL+4 MECL+3 GSI) are likely to be deployed (including five new drills likely to be added during the current year by SCCL), to achieve the assigned target and to delineate the new blocks.

## **GEOLOGICAL SURVEY OF INDIA (GSI)**

Regional Exploration by GSI in Utasamudram and Erraguntapalli of West Godavari district and Bugga- Khammamtoogu area (South western continuity of Manuguru Coal field) by deploying 3 rigs.

## **MINERAL EXPLORATION CORPORATION LIMITED (MECL)**

The MECL has been carrying out Promotional drilling, to facilitate the generation of needy regional data, in addition to GSI. The target fixed for the year 2011-12 is 12000m. The drilling operations are likely to continue with the deployment of 1 drill in the Venkatapur Dip side Block (Mulug) and 3 drills in the Repallivada Block.

## **SINGARENI COLLIERIES CO.LTD. (SCCL)**

The management of SCCL has fixed a target of 1,30,000 m. of drilling for Exploration Division by deploying 30 drills in two shift operation for the year 2011-12. It is proposed to add five new drills during the current year thus bringing total deployment of drills from 25 to 30.

REGION	EXPLO- RATION	LONGWALL+ PROD.SUPP.	TOTAL
KOTHAGUDEM	1000	33700	34700
RAMAGUNDAM	41250	6400	47650
BELAMPALLI	26500	21150	47650
<b>TOTAL</b>	<b>68750</b>	<b>61250</b>	<b>130000</b>

## **GEOLOGICAL REPORTS:**

Two Geological reports viz. Mallayapalli Block(Mulug coalbelt)and RK New Tech Dipside Block(Somagudem-Indaram coalbelt) with a total of about 300m.t. are proposed to be submitted during the Year 2011-12.

## **WORK PLAN OF 2011-12:**

To achieve the above objectives, the Exploration Division of SCCL is adopting a multi-disciplinary approach to generate all required geological and relevant data with more reliability conforming to the national and international standards.

The confident level of data is being increased by various concurrent studies like geophysical logging and investigations, necessary Hydro geological investigations, collection of Geo-engineering data through sample tests and underground mapping, dependable topographical surveys both for borehole locations and for geological mapping etc. The generated data is synthesized with computer software packages like CEMPGEODOC, Auto CAD and the interpreted coal deposit geometry is modeled in 3D with Minex-Horizon software. Thus documented Geological reports are submitted to Project Planning for further projectization into a mining project.

Issues related to Coal Bed Methane, Underground Coal gasification and Surface Coal Gasification, Captive Coal Mining and Captive Coal Exploration etc., have attained national importance and deserving priority is assigned at SCCL also. Corporate Planning and Business Development dept. are exclusively attending these issues for timely actions and needful follow ups with concerned agencies and Ministries.

Geotechnical investigation for the slope stabilities in RGOC-II, MOCP and PK OC-II (In collaboration with CSIRO, Australia) are being attended at Exploration Division.

## **SIDEX**

SCCL is indigenously developing a web enabled programme named as **SIDex** (Singareni Integrated Data on Exploration) which would help the Exploration Division and Management to query about various aspects of exploration data with a provision to automatically update / upload with the data of Drilling, Chemical, Geophysical, Hydrogeological, Geotechnical & in obtaining required graphic output etc.

## **PROJECT: Integrated Coal Resources Information System (ICRIS)**

The Project proposal "Integrated Coal Resources Information System (ICRIS)" with a total outlay of 20.719 Crores to be funded by Ministry of Coal, Govt of India has been approved by Govt. of India on 14-09-2004 under promotional Exploration in collaboration with CMPDI. CMPDI is the principal implementing agency while SCCL is sub-implementing agency.

The objective of the project is to create, implement and maintain coal resource database of the country from mine-level to prognosticated-resource level, to create geological models and also to classify the reserves as per UNFC guidelines.

Finally the data will be stored into suitably designed database for GIS and Web applications.

Accordingly steps were taken from 9 cells ie., at CMPDIL HQ as well as its 7 regional Institutes (Coal India) and one at SCCL HQ (Kothagudem) for proper functioning of the project at the respective data centers. One senior level executive, three middle level executives and three non-executives were identified for the Project from SCCL. The work under this project was started during 01-04-2005 and the database centre is established during April -2006.

### **Activity-wise, Targets and Achievements of SCCL Coal Database Centre**

S. No	Activity	Project Target	Cumulative as on 01.04.2011				Balance work
			2010-11 T	A	Cum.T	Cum.A	T
1	Bringing Survey reference points to National Grid	154	9	-	154	145	9
2	Correlation Seams in Zones	58	20	20	58	20	38
3	Capture of Salient features	154	120	135	154	135	19
3	Map data capture (Arc GIS Coverages)	600	221	221	600	600	0
4	Creation of Geological Models Zone Wise	58	3	3	58	3	Geo-model Software not yet finalized, however, by using company Software 3 models have been completed.

### **COAL BED METHANE (CBM)**

Emerging importance for clean coal technology has focussed much attention on Coal Bed Methane resources. Though steps were initiated in IX plan period, the progress was not substantial.

GoI desired the study of available data on coal seams from different coalfields for determination of potentiality in regards to CBM.

The methane gas naturally occurring in coal beds has been largely a hazard to the mining industry. However, of late, this methane gas has been recognized as economically viable source of energy in certain optimum conditions.

In the underground mines of the coalfield, there has been no record of emission of gas and the seams mined so far contain coal of low to moderate rank. Accordingly, no effort was made earlier to ascertain the gassiness of coal seams of GVCF. In recent years some data have been generated which show that the seams at depth store some amount of desorbable gas. This provided the impetus for carving out a prospective block for CBM exploration / exploitation in the down dip side of the working collieries with the aim at exploring coal bed methane resources in a pilot block in the deeper part of the largest Gondwana basin of the country and if found to be encouraging, may be extended to other areas of this master basin in future. Accordingly following two blocks were identified.

CBM block viz. KG (East)-CBM-2005/III covering an area of 750sq.km in the south eastern part of the Godavari valley basin. The CBM resource of the block is estimated at 57.2 BCM (2.02 TCF).

CBM block viz. GV (North)-CBM-2005/III covering an area of 386 sq.km. in the north western part of the Godavari Gondwana basin. The resource of this CBM block is estimated at 29.65 BCM (1.05 TCF) within a depth range of 600 to 1500m.

The above CBM blocks of SCCL have been allotted to the following bidders:

<b>Bidder</b>	<b>Name of the blocks allotted</b>
i. Consortium of RNRL, Reliance Energy Ltd., and Geopetrol Resources of France	: KG (East) – CBM-GVCF/ AP
ii. Coal Gas Mart / US Adinath Exim Resources Ltd., Deep Industries Ltd.	: GV (North) – CBM-GVCF/AP

### **Underground Coal Gasification (UCG)**

Underground Coal Gasification (UCG) is an emerging technology in which coal can be burnt in a controlled manner and gasified under insitu conditions to harness its energy.

Surface coal gasification is a process which converts coal into combustible and non combustible gases at high temperature and pressure at surface. The product known as syngas can be used for power generation and/or as chemical feedstock.

In India, UCG was taken up as national project in the early 80's. ONGC is engaged in the UCG activities, as ONGC is having the required expertise in deeper drilling, 3D seismic imaging, directional drilling and underground ignition/ combustion. The available exploration data is perused by ONGC. MNG Shaft Block-II, has been tentatively identified to be suitable for UCG in SCCL command area & hydro-geological data is to be generated for this block.

SCCL and ONGC deliberated on the details for a pilot project in GVCF without financial commitment. SCCL and ONGC intend to cooperate in the Service, Operation, Process development and Research related to UCG, SCG and CBM. SCCL has entered into MoU with M/s. Carbon Energy Pvt. Ltd., Australia on 15.11.2006 for studies on UCG in SCCL Command area with funding from Australian Government and Asia Pacific Partnership. SCCL floated for EOI to work as Business partner with SCCL for UCG project in the state of A.P. Five firms have submitted their EOI and the technical evaluation is completed.

### **Captive Mines of SCCL**

Following seven Blocks of Godavari Valley Coalfield are identified for Captive mining for Private parties.

<b>NAME OF BLOCK</b>	<b>AREA (sq.km)</b>	<b>GEOLOGICAL RESERVES (M.T.)</b>	<b>ALLOTTED TO</b>
1. Anisettipalli-UG	5.000	27	APGENCO
2. Cherla-OC	0.663	13	-
3. Cherla-(South Block)	1.990	16	-
4. Penagadapa	2.700	111	APGENCO
5. Punukulachilka	2.420	20	APGENCO
6. Tadicherla Block-I	4.500	48 (Revised)	APGENCO (GR SOLD)
7. Tadicherla Block-II	18.750	277 (Indicated)	-

### **OUTSOURCING EXPLORATION ACTIVITIES**

Considering the increasing demand for coal, SCCL decided to quicken the exploration works through outsourcing the drilling activities for early geological report preparation and further projectisation.

SCCL is actively practicing the outsourcing of all non-core activities i.e., security, way making, sump digging, drilling of large dia boreholes required for Hydro-geological investigations in the proposed blocks and for other purposes like sand stowing, dewatering etc. These steps would facilitate the drilling crew to exclusively concentrate on exploration of priority blocks for timely completion of investigation to prove additional coal reserves

The out sourcing of peripheral jobs has also helped us in reducing the manpower from 777 in 2001-02 (for 29 Drills) to 430 as on 1-4-2011(for 25 drills), and achieving higher drilling productivity.

#### **▪ BVC-ISO Certification**

Bureau Veritas Certification (India) Limited awarded ISO 9001:2000 Certification to Exploration Division with effect from 31st October 2006 for a period of 3 years i.e. upto 31.10.2009.

The department is recertified after carrying out surveillance audit with ISO9001:2008 certificate which is valid upto October 2012.

## THE TRACK RECORD

- SIR WILLIAM KING FIRST DISCOVERED COAL IN THE YEAR 1871, NEAR SINGARENI VILLAGE, LOCATED CLOSE TO YELLANDU TOWN.
- THE FIRST MINE WAS STARTED AT YELLANDU IN THE YEAR 1886 BY THE HYDERABAD DECCAN COMPANY, PREDECESSORS OF THE SINGARENI COLLIERIES COMPANY LIMITED.
- IN THE INAUGURAL YEAR (1889), A TOTAL OF 56671 TONNES OF COAL WAS PRODUCED AND DURING 2010-11, THE PRODUCTION TOUCHED A HIGH OF 51.33 MILLION TONNES.
- A TOTAL AREA OF 599 SQ.KM (EXCLUDING OLD ABANDONED MINES) HAS BEEN COVERED BY DETAILED EXPLORATION IN GODAVARI VALLEY COALFIELD, BY THE COMPANY, INCLUDING 235 sq.km. AREA COVERED BY MINES.
- 50 MINES ARE IN OPERATION IN THE COMPANY. OF THESE, 36 ARE UNDERGROUND MINES AND 14 ARE OPENCAST MINES.
- SINCE THE INCEPTION OF THE COMPANY, 980 MILLION TONNES OF COAL HAS BEEN EXTRACTED, BY ADOPTING DIFFERENT MINING TECHNIQUES.
- A TOTAL OF 9487 MILLION TONNES OF COAL RESERVES HAS BEEN PROVED SO FAR, THROUGH DETAILED EXPLORATION BY THE COMPANY.
- THE COMPANY HAS COMPLETED A TOTAL OF 24, 95,249m, OF DRILLING IN 12684 BOREHOLES.
- ABOUT 1728276m OF DRILLING HAS BEEN COMPLETED BY THE COMPANY IN THE LAST TWENTY FIVE YEARS ALONE (i.e. FROM 1-4-1986 TO 31-3-2011), ENABLING THE COMPANY TO ESTABLISH A PROVED RESERVE OF 5483 MILLION TONNES, WHICH VOUCHES FOR THE QUANTUM INCREASE IN EXPLORATION ACTIVITIES OF THE COMPANY.
- HIGHEST AVERAGE PRODUCTIVITY OF 340m./ DRILL/ MONTH WAS ACHIEVED DURING THE YEAR 2010-11.
- A TOTAL OF 4641 BOREHOLES INVOLVING A METREAGE OF 10,99,084 WERE GEOPHYSICALLY LOGGED BY SCCL SINCE COMMISSIONING OF LOGGERS IN 1985 IN GODAVARI VALLEY COALFIELD.

- A TOTAL OF 207.72 LINE kms WERE COVERED WITH RESISTIVITY PROFILING AND 1030 VERTICAL ELECTRICAL RESISTIVITY SOUNDINGS WERE CARRIED OUT BY SCCL IN GODAVARI VALLEY COALFIELD.
- A CUMULATIVE TOTAL OF 669 BOREHOLES WERE STUDIED FOR GEO-ENGINEERING PROPERTIES FROM VARIOUS MINES / BLOCKS OF GODAVARI VALLEY COALFIELD.
- A CUMULATIVE TOTAL OF 433 RMR REPORTS (423 BY SCCL & 10 BY NIRM) WERE PREPARED FOR VARIOUS WORKING SECTIONS OF SEAMS FROM DIFFERENT MINES IN GODAVARI VALLEY COALFIELD.

**STATUS OF EXPLORATION**  
**GODAVARI VALLEY COAL FIELD**  
(As on-31.03.2011)

1.	CUMULATIVE BASIN AREA.....	17400 sq.km
2.	PROGNOSTICATED COAL BEARING AREA.....	11000 sq.km.
3.	AREA CONSIDERED NON-POTENTIAL FOR DETAILED EXPLORATION.....	9,300 sq.km
4.	TOTAL POTENTIAL AREA FOR REGIONAL EXPLORATION.....	1,700 sq.km
5.	AREA COVERED BY REGIONAL EXPLORATION.....	1310 sq.km
6.	AREA TO BE COVERED BY REGIONAL EXPLORATION.....	390 sq.km
7.	AREA COVERED BY DETAILED EXPLORATION AND MINES.....	599 sq.km
8.	PROVED GEOLOGICAL RESERVES AS ON 31-3-2011.....	9487 m.t.
9.	AREA COVERED BY DETAILED EXPLORATION DURING X PLAN.....	60 sq.km
10.	RESERVES PROVED DURING X PLAN .....	1030 m.t..
11.	AREA IDENTIFIED FOR DETAILED EXPLORATION DURING XI PLAN.....	69 sq.km
12.	RESERVES TO BE PROVED DURING XI PLAN.....	895 m.t.
13	RESERVES PROVED DURING XI PLAN (2007-11).....	519 m.t.

**DISTRICT WISE RESERVES OF GVCF**

As on 01.04.2011

District	Depth (m)	GRADE							Total (m.t.)
		A	B	C	D	E	F	G	
<b>ADILABAD</b>	0-300	0.06	25.89	279.82	702.30	427.29	509.80	67.29	2012.45
	300-600	0.06	21.45	253.20	476.86	333.29	332.26	9.92	1427.04
	>600								
	<b>TOTAL</b>	<b>0.12</b>	<b>47.34</b>	<b>533.02</b>	<b>1179.16</b>	<b>760.58</b>	<b>842.06</b>	<b>77.21</b>	<b>3439.49</b>
<b>KARIMNAGAR</b>	0-300		45.43	417.09	306.71	292.88	52.03	0.66	1114.80
	300-600	0.15	67.70	133.86	390.01	299.73	34.84	0.10	926.39
	>600								
	<b>TOTAL</b>	<b>0.15</b>	<b>113.13</b>	<b>550.95</b>	<b>696.72</b>	<b>592.61</b>	<b>86.87</b>	<b>0.76</b>	<b>2041.19</b>
<b>WARANGAL</b>	0-300	32.27	90.19	144.96	98.47	198.27	232.25	24.28	820.69
	300-600	18.98	45.78	69.95	48.00	63.78	97.34	3.01	346.84
	>600	1.21	0.37	1.15	1.12	0.54			4.39
	<b>TOTAL</b>	<b>52.46</b>	<b>136.34</b>	<b>216.06</b>	<b>147.59</b>	<b>262.59</b>	<b>329.59</b>	<b>27.29</b>	<b>1171.92</b>
<b>KHAMMAM</b>	0-300	17.83	73.47	398.29	177.53	334.18	755.86	407.37	2164.53
	300-600	6.84	41.72	233.24	127.25	108.21	113.65	39.40	670.31
	>600								
	<b>TOTAL</b>	<b>24.67</b>	<b>115.19</b>	<b>631.53</b>	<b>304.78</b>	<b>442.39</b>	<b>869.51</b>	<b>446.77</b>	<b>2834.84</b>
<b>TOTAL</b>	0-300	50.16	234.98	1240.16	1285.01	1252.62	1549.94	499.60	6112.47
	300-600	26.03	176.65	690.25	1042.12	805.01	578.09	52.43	3370.58
	>600	1.21	0.37	1.15	1.12	0.54	0.00	0.00	4.39
<b>GRAND TOTAL</b>		<b>77.40</b>	<b>412.00</b>	<b>1931.56</b>	<b>2328.25</b>	<b>2058.17</b>	<b>2128.03</b>	<b>552.03</b>	<b>9487.44</b>