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STANDING COMMITTEE ON PETROLEUM & NATURAL GAS (2017-18)

(SIXTEENTH LOK SABHA)

MINISTRY OF PETROLEUM & NATURAL GAS

[Action Taken by the Government on the recommendations contained in the Twentieth Report (Sixteenth Lok Sabha) of the Standing Committee on Petroleum and Natural Gas (2016-17) on Centre for High Technology]

TWENTY SECOND REPORT

LOK SABHA SECRETARIAT
NEW DELHI

January, 2018/Pausha,1939 (Saka)

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Presented to Lok Sabha on 03.01.2018

Laid in Rajya Sabha on 03.01.2018

LOK SABHA SECRETARIAT
NEW DELHI

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COMPOSITION OF THE STANDING COMMITTEE ON PETROLEUM & NATURAL GAS (2017-18)

Sl. No. **Names of Members**

LOK SABHA

Shri Pralhad Joshi - Chairman

2 Shri Rajendra Agrawal
3 Dr. Ravindra Babu Pandula
4 Dr. P. K. Biju
5 Shri Kalikesh N. Singh Deo
6 Smt. Rama Devi
7 Shri V. Elumalai
8 Shri Naranbhai Kachhadiya
9 Dr. Thokchom Meinya
10 Smt. Pratima Mondal
11 Shri Ashok Mahadeorao Nete
12 Smt. Jayshreeben Patel
13 Shri A.T. Nana Patil
14 Shri Arvind Sawant
15 Shri Raju Shetti
16 Dr. Bhola Singh (Begusarai)
17 Shri Ravneet Singh
18 Shri Rajesh Verma
19 Shri Om Prakash Yadav
20 Shri Laxmi Narayan Yadav
21 Shri Santosh Kumar

RAJYA SABHA

22 Shri Bhubaneshwar Kalita
23 Shri Om Prakash Mathur
24 Smt. Ranee Narah
25 Shri Bhaskar Rao Nekkanti
26 Shri Narayan Lal Panchariya
27 Shri Ahmed Patel
28 Shri V. Lakshmikantha Rao
29 Shri V. Vijayasai Reddy
30 Shri A. Vijayakumar
31 Ch. Sukhram Singh Yadav

SECRETARIAT

1	Shri A.K.Singh	-	Additional Secretary
2	Dr. Ram Raj Rai	-	Director
3	Shri H. Ram Prakash	-	Additional Director
4	Shri N. Touthang	-	Committee Officer

(iv)

INTRODUCTION

I, the Chairperson, Standing Committee on Petroleum & Natural Gas having been authorised by the Committee to submit the Report on their behalf, present this Twenty Second Report on Action Taken by the Government on the recommendations contained in the Twentieth Report (Sixteenth Lok Sabha) of the Committee on the subject 'Centre for High Technology (CHT)'.

2. The Twentieth Report of the Standing Committee on Petroleum & Natural Gas was presented to Lok Sabha on 01.08.2017. The Action Taken Replies of the Government to all the recommendations contained in the Twentieth Report were received on 31.10.2017.

3. The Standing Committee on Petroleum & Natural Gas (2017-18) considered and adopted the Report at their sitting held on 27.12.2017.

4. An analysis of the action taken by the Government on the recommendations contained in the Twentieth Report (Sixteenth Lok Sabha) of the Standing Committee on Petroleum & Natural Gas is given in Annexure-II.

5. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in the body of the Report.

6. The Committee place on record their appreciation for the valuable assistance rendered to them by the officers of the Lok Sabha Secretariat attached to the Committee.

New Delhi;
***28 December*, 2017**
7 Pausha, 1939 (Saka)

PRALHAD JOSHI,
Chairperson,
Standing Committee on
Petroleum & Natural Gas.

REPORT

CHAPTER I

This Report of the Standing Committee on Petroleum and Natural Gas deals with the action taken by the Government on the Recommendations contained in the Twentieth Report (Sixteenth Lok Sabha) of the Standing Committee on Petroleum and Natural Gas (2016-17) on 'Centre for High Technology', which was presented to Lok Sabha and laid in Rajya Sabha on 01.08.2017.

2. Action Taken Notes have been received from the Ministry in respect of all the 7 Recommendations/Observations contained in the Report. These have been categorized as per the following:-

(i) Recommendations/Observations that have been accepted by the Government:- Reco. Nos. 3 and 7 (Total 2)

(Chapter- II)

(ii) Recommendations/Observations which the Committee do not desire to pursue in view of the Government's replies:- Reco. No. NIL

(Chapter-III)

(iii) Recommendations/Observations in respect of which replies of the Government have not been accepted by the Committee:- Reco. Nos. 4, 5 and 6 (Total 3)

(Chapter-IV)

(iv) Recommendations/Observations in respect of which final replies of the Government are still awaited:- Reco. Nos. 1 and 2 (Total 2)

(Chapter-V)

3. The Committee desire that the Action Taken Notes on the Recommendations/Observations contained in Chapter-I of this Report and Final Replies in respect of the recommendations for which interim replies have been furnished by the Government (included in Chapter-V), should be furnished expeditiously.

4. The Committee will now deal with the action taken by the Government on some of their recommendations.

Recommendation No.3

Budgetary Allocation of CHT

5. The Committee had recommended as under:

"The Committee note that the expenditure of CHT is fully funded by OIDB and it has no other source of revenue generation and CHT is totally dependent on OIDB for its funds. The major capital expenditure of CHT is for funding of R&D projects and for special studies. The revenue expenditure is mainly on account of salaries to its staff. The budgetary allocation was Rs. 16.42 crore in 2014-15 and Rs. 19.31 crore in 2015-16 and expected expenditure is around Rs.21.35 crore during 2016-17. The Committee find that the fund allocated by OIDB is not adequate to handle the important responsibility assigned to CHT to fund capital intensive projects relating to refining sector. Simultaneously, the Committee are worried to observe the trend of expenditure being made by CHT during the last three years. It is surprising to note that CHT is even not able to spend the small allocation of Rs. 10 to 12 crore by OIDB for funding of R&D Projects and the studies in a balanced manner. The Committee, therefore, desire that CHT should scientifically project its estimates to commensurate with the industry requirements and assigned responsibilities and should improve its spending of the allocation during each financial year.

The Committee further observe that CHT does not get any royalty for the technologies developed through CHT funding when it is implemented by the refineries. CHT does not carry out any R&D project incorporating private sector refineries also. The Committee do not find it a happy situation. Being a research sponsoring organization it does not augur well for CHT to depend on one agency for its entire funding and should try to raise resources on its own so as to reduce its dependency on OIDB. Therefore, the Committee recommend that CHT should also incorporate the private sector refineries along with Public Sector ones to carry out advanced studies and their requirements so as to benefit the industry as a whole and on implementation of technologies beneficial to them should try to earn revenues both from public as well as private sector so as to make it more sustainable. CHT can also explore the possibility of selling the technology to private players of the industry and generate revenues".

REPLY OF THE GOVERNMENT

6. The Ministry of Petroleum and Natural Gas has submitted the following reply in this regard:

"The R&D budget utilisation by CHT during the last 3 years is as under:

(Figs. in Rs crore)

	BE	Actual	Utilisation w.r.t. BE
2014-15	3.35	5.99	178.8 %
2015-16	17.97	5.93	33.0 %
2016-17	11.82	9.17	77.6 %

The Budget provision was increased in 2015-16 for the following new/continuing major projects which were recommended by SAC:

Sl. No.	Name of the project	New/ Continuing	Participating Agencies	Budget Provision Rs. crore
1	Parametric Study and Technology development for desalter design	New	EIL R&D and BPCL R&D)	4.00
2	Development of catalyst and process for slurry phase residue Hydrocracking	New	IIP, HPCL(R&D) BPCL (R&D) and EIL (R&D)	8.00
3	Coal-to-Liquid project	Continuing	EIL(R&D), BPCL(R&D) and THERMAX	3.00
4	Development of process know-how for indigenous production of biphenyl for Thermic fluids and other application	New	BPCL (R&D)	1.00

The lower utilisation during 2015-16 and 2016-17 w.r.t. BE was mainly on account of:

2015-16

- Extension of Coal-to-Liquid project by EIL (Rs 2.4 crore)
- Delay in finalisation of specs & procurement of proto-type desalter for Desalter project by EIL (Rs 4.0 crore)
- Delay in reactor procurement for Resid Hydrocraking project by IIP (Rs 4.2 crore)
- Retendering of Pilot Plant for indigenous production of biphenyl for Thermic fluids by BPCL (R&D) (Rs 0.9 crore)

However, the actual was close to RBE of Rs 5.96 crore.

2016-17

The lower utilisation w.r.t. BE was mainly on account of extension of Coal-to-Liquid project by EIL (Rs 2.3 crore).

However, the actual was close to RBE of Rs 9.32 crore.

The projection for R&D expenditure is based on the requirements indicated by the participating agencies. The progress of the projects is reviewed by SAC and considering the challenges in the projects, extension is granted by SAC. As may be seen, the utilisation in 2016-17 has improved to 77.6 % w.r.t. BE.

The technologies developed by the participating agencies through partial funding from CHT have so far been utilised by the participating agencies themselves, including EIL. Royalty will accrue as and when these technologies are utilised by other than participating agencies.

As per the Memorandum of Association & Articles of Association of CHT, the members of the Society, Governing Council and the Executive Committee are only from PSU companies and CSIR, besides senior representatives from MoP&NG. Private sector refineries are not members of CHT or OIDB (which is the funding agency for CHT activities including sponsoring of R&D projects).

Since June 2016, CHT has taken a new initiative on inviting R&D proposals in identified areas through EOI, twice in a year, for broader participation. The proposals from private companies are also considered, if submitted in association with one of the PSU oil companies. The proposals are initially scrutinised by a Steering Committee nominated by Chairman, SAC for further consideration by the SAC".

7. While observing the funding and spending pattern of CHT, the Committee had observed that CHT is totally dependent on OIDB for funding and had specifically desired that CHT should scientifically project its estimates to commensurate with the industry requirements and assigned responsibilities and should improve its spending of the allocation made during each financial year. However, Ignoring the suggestions of the Committee, the Ministry has simply stated the procedure being followed by it for projection for R&D expenditure where the budget requirements are indicated by the participating agencies and the progress of the projects is reviewed and extension is granted by the Scientific Advisory Committee (SAC) without any role of CHT in projection of estimates. The Committee, therefore, reiterate that CHT should play a proactive role in projection of estimates to commensurate with the industry requirements and assigned responsibilities and improve the spending of the allocation.

In response to recommendation of the Committee regarding providing R&D services to private sector and generation of revenues therefrom, the Ministry has replied that the technologies developed by the participating agencies through

partial funding from CHT have so far been utilised by the participating agencies themselves, including EIL. Royalty will accrue as and when these technologies are utilised by other than participating agencies. The Ministry in their reply have further stated that as per the Memorandum of Association and Articles private sector refineries are not members of CHT or OIDB, therefore, they are not using it. However, since June 2016, CHT has started inviting R&D proposals in identified areas through EOI, twice in a year and the proposals from private companies are also considered, if they are submitted in association with one of the PSU oil companies. The Committee do not approve such conditional participation of private sector and desire that the Ministry should make systemic changes in order to facilitate R&D projects for private sector refineries also. The Committee are also disappointed to note that the Ministry has not spelt out any concrete proposal to make CHT raise more revenues on its own rather than remain dependent on grants from OIDB. The Committee, therefore, reiterate their earlier recommendation that the Ministry to take steps to bring appropriate changes in the mandate of the CHT to ensure that projects from private sector are also taken so that the CHT will generate revenues on its own.

Recommendation No.4

<u>Manpower of CHT</u>

8. The Committee had recommended as under:

> "The Committee note that CHT functions as a technology cell of the MoP&NG with a small manpower of 14 technical officers and 7 HR/Finance officers drawn from Oil PSU on deputation. Retired officers from PSU oil companies are also engaged as advisors. The Committee further note that there is no permanent staff or officers on the rolls of CHT. This is a very undesirable situation of functioning of such an important organization responsible for advising the Ministry on futuristic requirements, assess, develop and adopt technologies in refinery processes and petroleum products. The Committee have not been given any convincing reason for not recruiting engineers, scientists, staff on a permanent basis in CHT. The Committee have been assured that the Ministry is open for appointing people from open market to CHT. The Committee, therefore, desire that CHT should attract people from other research organisations like CSIR, IIT etc. to work on specific projects in a time-bound manner. The Committee also desire that the Ministry should approach the manpower

requirements in CHT with an open mind to have a mix from PSUs and open market and devise a suitable policy in CHT to attract the people from scientific and technical background with research experience from open market along with officials on deputation from Oil PSUs".

REPLY OF THE GOVERNMENT

9. The Ministry of Petroleum and Natural Gas has submitted the following reply in this regard:

"While sponsoring R&D projects to various institutes, including CSIR & IITs, the cost associated with engaging of specialists to work on the specific projects are included in the CHT grant.

Governing Council of CHT has powers for engaging specialists from outside the oil companies as consultants on contract, if necessary".

10. Realising a very small manpower availability and that too mostly on deputation in CHT, the Committee had desired that the CHT should attract people with scientific and technical background from other Research Organizations like CSIR, IIT etc. to work on specific projects in a time-bound manner. The Committee had also desired that the Ministry should approach the manpower requirements in CHT with an open mind so that it has a mix of people from PSUs and open market. The Committee are dismayed to note the justification given by the Ministry that while sponsoring R&D projects to various institutes, including CSIR & IIT's, the cost associated with engagement of specialists to work on the specific projects are included in the CHT grant and also that the Governing Council of CHT has powers for engaging specialists from outside the oil companies as consultants on contract, if necessary. The Committee are also unable to understand that how can the technology cell of the Ministry and most important R&D institution in the petroleum sector be allowed to run in such a lackadaisical manner without having its own manpower which in the view of the Committee is an important deficiency in CHT. The Committee feel that an Institution such as CHT ought to have a core workforce of its own which may be supplemented with personnel coming on deputation from other PSUs and appropriate number of personnel being hired from the open market and therefore,

reiterate that the Ministry should take appropriate steps to ensure that the CHT have a mix of staffing from PSUs, open market and some permanent staff of its own.

Recommendation No.5

Coal to Liquid Project (CTL)

11. The Committee had recommended as under:

"The Committee note that CHT has funded a R&D project on Coal to Liquid (CTL) Fuels Technology Development by EIL, BPCL & Thermax at a cost of Rs. 33 crore (including Rs. 14.84 crore funding by CHT). The Committee further note that this project was first considered during 2007 and then a modified proposal was considered in April 2008. MoU between CHT, BPCL (R&D) and EIL (R&D) has been signed in March 2009. The Committee have noted that the project has been completed to the extent of 94 per cent so far and the SAC has reviewed and granted time extension upto June 2017 for completion of the project.

The Committee consider that by development of indigenous clean coal technology for conversion of Coal to Liquid will certainly help the country in harnessing the coal reserves in an environment friendly manner and the break through in this technology would contribute in strengthening the energy security of the country. Therefore, the Committee recommend that the Ministry and the SAC should closely monitor the project at regular intervals and ensure that any difficulty being faced by the concerned agencies is remedied and the project reaches its successful completion by the extended time positively".

REPLY OF THE GOVERNMENT

12. The Ministry of Petroleum and Natural Gas has submitted the following reply in this regard:

"As technology is not available to gasify high ash Indian coal in efficient manner, SAC approved the project at a cost of Rs 33.00 crore with CHT contribution of Rs 14.84 crore in March 2009 with EIL as nodal agency. The technology is highly technical as well as capital intensive and involves lot of challenges in development. The project has been reviewed and closely monitored by SAC. Considering the various challenges faced in the execution, the project has been extended by SAC from time to time, as under:

- Upto April 2014 (72nd meeting): As commercial gasifier was not available, M/s Thermax was roped in as development partner for gasifier.

- Upto June 2015 (74th meeting): As per expected delivery schedule of gasifier and syn-gas clean up in July 2014 and subsequent activities of commissioning & operation.
- Upto June 2016 (77th meeting): Gasifier commissioned in combustion mode. Additional time approved by SAC for operation of gasifier in gasification mode.

- Upto March 2017 (78th meeting-Aug'16): To address concerns in continuous running of pilot plant due to frequent choking, etc., and to build confidence before sizing bigger unit. Extended further upto June 2019 (79th meeting-March'17) due to choking of downstream and agglomeration.

  SAC, during its 80th meeting held in Sept'17 constituted an Expert Group. The group held its meeting on 11th October 2017 to discuss operational issues and has suggested short term & long term forward plan for sustained operation".

13. Considering the importance of indigenous Coal to Liquid Project, the Committee had recommended that the Ministry and the Scientific Advisory Committee (SAC) should closely monitor the Project at proper regular intervals and ensure that any difficulty being faced by the concerned agencies is remedied so that it reaches its successful completion by the extended time of June, 2017 positively. The Committee find that SAC has further extended the time upto June, 2019 and have discussed the operational issues and suggested about short term and long term forward plan for sustained operation.

The Committee are concerned that a project as important as the present one is being handled in such a casual manner by the Ministry causing long delays. The Committee after its approval in 2009 in Committee's view, the delays appear more to be a result of poor planning and execution rather than due to complexity of the project and such situations could have been easily avoided. In this situation, the Committee would like to reiterate their recommendation that the project should be expeditiously completed with proper planning and execution and in no case later than the newly fixed timeline of June 2019 and if required, by engaging other institutions which may help in reducing challenges in execution and achieve timely completion.

Recommendation No.6

Performance Benchmarking of Refineries

14. The Committee had recommended as under:

> "The Committee note that CHT undertakes studies on behalf of PSU refineries for performance benchmarking, performance improvement programmes and energy efficiency improvement. The performance benchmarking of the PSU refineries is done by engaging M/s Solomon Associates on various parameters. The Committee further note that Solomon benchmarking is the main benchmarking in the world and it studies about 200 plus refineries and tells about where particular refinery stands at the world level. The Committee observe that in benchmarking, the main focus is on energy efficiency where Indian refineries are not performing well. Moreover, most of the Indian PSU refineries are old ones and have several complexities and an improvement in their performance at par with global standards will be a tough and challenging task. The Committee also note that the fuel quality in the country has been upgraded to BS-IV norms since April, 2017 and the Government has decided to skip BS-V and go to BS-VI fuel quality directly by the year 2020. For meeting the BS-VI quality norms, the refineries have to modernize the units quickly by introducing new technology. The Committee would, therefore, recommend that CHT by regularly carrying out performance improvement programmes should ensure that the old PSU refineries are modernized quickly and reach the desired standards in their performance and become ready to produce BS-VI fuel by 2020".

REPLY OF THE GOVERNMENT

15. The Ministry of Petroleum and Natural Gas has submitted the following reply in this regard:

> "Performance improvement studies including Benchmarking is carried out for all PSU refineries, including old refineries.
>
> Oil industry has assured readiness to supply BS-VI fuel by 2020".

16. Since CHT assists the refineries in performance improvement and promoting R&D through funding of R&D projects, the Committee, had recommended that CHT should ensure that the old PSU refineries are modernized quickly so as to reach the desired performance level and become ready to produce BS-VI fuel by 2020. The Ministry, in its reply, has only stated that performance improvement studies including Benchmarking is being carried out

for all PSU refineries, including old refineries and has also mentioned that the Oil industry has assured that it will be in readiness to supply BS-VI fuel by 2020.

The Committee express their dissatisfaction with the reply of the Ministry as it does not mention anything about the measures being taken to ensure that the performances of oil refineries are in line with global standards and improvement programmes being executed properly to ensure that they will be ready for rolling out of BS-VI in 2020 or even before that deadline. The Committee, therefore, simply reiterate that CHT should focus to undertake proper benchmarking and assist the refineries in performance improvement so that they can attain global standards and the Ministry should ensure to make them ready for production/supply of BS-VI fuel as per targets.

Recommendation No.7

Research on Alternative Energy Sources

17. The Committee had recommended as under:

"The Committee note that CHT is also the nodal agency for taking up hydrogen projects and related activities from the Hydrogen Corpus Fund (HCF). The objectives of HCF are to develop hydrogen as an alternative energy source, facilitate R&D activities, synergise hydrogen development activities between Oil companies and institutions and facilitate training and capability building. Initial Hydrogen Corpus Fund of Rs. 100 crore has been created with contribution of Rs. 40 crore by OIDB and Rs. 16 crore each by IOC, ONGC and GAIL and Rs. 6 crore each by HPCL and BPCL and the fund will be managed by OIDB. All proposals under the HCF will be received by CHT and put up to Scientific Advisory Committee for approval. But the Committee find that CHT has not undertaken any serious activity relating to H_2 projects except the single project relating to coal gasification. Further, the Committee also observe that CHT has no research programme on bio fuels which is an important area for Indian scenario.

The Committee feel that the projects relating to hydrogen as an alternative energy source are very important not only for the Government and CHT but also for the country as a whole as this is an advanced area of research and any breakthrough in this direction will strengthen the energy security of the country. The Committee, therefore, recommend that the Ministry should accord top priority to H_2 projects and bio-fuel projects and expect CHT to play a pro-active role in taking up these projects and related activities by proper guidance, regular

monitoring and necessary funding in every area so that all the projects are completed in a time-bound manner".

REPLY OF THE GOVERNMENT

18. The Ministry of Petroleum and Natural Gas has submitted the following reply in this regard:

"The recommendations of the Committee has been noted. However, it is submitted that eight projects have been undertaken under HCF with a total expenditure of Rs 28.42 crore".

19. The Committee had recommended that the CHT, being the nodal agency for taking up hydrogen projects and related activities from the Hydrogen Corpus Fund credited with initial corpus of Rs. 100 crore should accord top priority to those projects by issuing proper guidance, monitoring and necessary funding so that these are completed in a time-bound manner. The Committee had also recommended that bio-fuel projects should also be pro-actively taken up by the CHT. In its reply, the Ministry has stated that the recommendations of the Committee have been noted with a submission that eight projects have been undertaken under the Hydrogen Corpus Fund (HCF) with a total expenditure of Rs 28.42 crore.

The Committee observe that only eight projects have been undertaken in regard to research in Hydrogen fuels, but find them at very primitive stage. The Ministry needs to do much more in the field. In many of the countries, Hydrogen fuel technology is well developed and necessary cooperation with such countries can be initiated for quick progress. Similarly, the Committee feel that there has to be a multi-dimensional approach to address the issue of energy security and the HCF needs to promote other alternative energy sources also such as bio-fuels through appropriate financial and technological interventions. Only then, the goal of reducing the use of fossil fuel without compromising on development can be realised.

CHAPTER II

RECOMMENDATIONS/OBSERVATIONS WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT

RECOMMENDATION NO. 3

Budgetary Allocation of CHT

The Committee note that the expenditure of CHT is fully funded by OIDB and it has no other source of revenue generation and CHT is totally dependent on OIDB for its funds. The major capital expenditure of CHT is for funding of R&D projects and for special studies. The revenue expenditure is mainly on account of salaries to its staff. The budgetary allocation was Rs. 16.42 crore in 2014-15 and Rs. 19.31 crore in 2015-16 and expected expenditure is around Rs.21.35 crore during 2016-17. The Committee find that the fund allocated by OIDB is not adequate to handle the important responsibility assigned to CHT to fund capital intensive projects relating to refining sector. Simultaneously, the Committee are worried to observe the trend of expenditure being made by CHT during the last three years. It is surprising to note that CHT is even not able to spend the small allocation of Rs. 10 to 12 crore by OIDB for funding of R&D Projects and the studies in a balanced manner. The Committee, therefore, desire that CHT should scientifically project its estimates to commensurate with the industry requirements and assigned responsibilities and should improve its spending of the allocation during each financial year.

The Committee further observe that CHT does not get any royalty for the technologies developed through CHT funding when it is implemented by the refineries. CHT does not carry out any R&D project incorporating private sector refineries also. The Committee do not find it a happy situation. Being a research sponsoring organization it does not augur well for CHT to depend on one agency for its entire funding and should try to raise resources on its own so as to reduce its dependency on OIDB. Therefore, the Committee recommend that CHT should also incorporate the private sector refineries along with Public Sector ones to carry out advanced studies and their requirements so as to benefit the industry as a whole and on implementation of technologies beneficial to them should try to earn revenues both from public as well as private sector so as to make it more sustainable. CHT can also explore the possibility of selling the technology to private players of the industry and generate revenues.

REPLY OF THE GOVERNMENT

The R&D budget utilisation by CHT during the last 3 years is as under:

(Figs. in Rs crore)

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2014-15	3.35	5.99	178.8 %
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The Budget provision was increased in 2015-16 for the following new/continuing major projects which were recommended by SAC:

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3	Coal-to-Liquid project	Continuing	EIL(R&D), BPCL(R&D) and THERMAX	3.00
4	Development of process know-how for indigenous production of biphenyl for Thermic fluids and other application	New	BPCL (R&D)	1.00

The lower utilisation during 2015-16 and 2016-17 w.r.t. BE was mainly on account of:

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- Retendering of Pilot Plant for indigenous production of biphenyl for Thermic fluids by BPCL (R&D) (Rs 0.9 crore)

However, the actual was close to RBE of Rs 5.96 crore.

2016-17

The lower utilisation w.r.t. BE was mainly on account of extension of Coal-to-Liquid project by EIL (Rs 2.3 crore).

However, the actual was close to RBE of Rs 9.32 crore.

The projection for R&D expenditure is based on the requirements indicated by the participating agencies. The progress of the projects is reviewed by SAC and considering the challenges in the projects, extension is granted by SAC. As may be seen, the utilisation in 2016-17 has improved to 77.6 % w.r.t. BE.

The technologies developed by the participating agencies through partial funding from CHT have so far been utilised by the participating agencies themselves, including EIL. Royalty will accrue as and when these technologies are utilised by other than participating agencies.

As per the Memorandum of Association & Articles of Association of CHT, the members of the Society, Governing Council and the Executive Committee are only from PSU companies and CSIR, besides senior representatives from MoP&NG. Private sector refineries are not members of CHT or OIDB (which is the funding agency for CHT activities including sponsoring of R&D projects).

Since June 2016, CHT has taken a new initiative on inviting R&D proposals in identified areas through EOI, twice in a year, for broader participation. The proposals from private companies are also considered, if submitted in association with one of the PSU oil companies. The proposals are initially scrutinised by a Steering Committee nominated by Chairman, SAC for further consideration by the SAC.

M/o Petroleum & Natural Gas
F.No. 27011/02/2016-OR-I/46488/E-15323 dated 31-10-2017

Comments of the Committee
(Please see Para No. 7 of Chapter-I)

RECOMMENDATION NO. 7

Research on Alternative Energy Sources

The Committee note that CHT is also the nodal agency for taking up hydrogen projects and related activities from the Hydrogen Corpus Fund (HCF). The objectives of HCF are to develop hydrogen as an alternative energy source, facilitate R&D activities, synergise hydrogen development activities between Oil companies and institutions and facilitate training and capability building. Initial Hydrogen Corpus Fund of Rs. 100 crore has been created with contribution of Rs. 40 crore by OIDB and Rs. 16 crore each by IOC, ONGC and GAIL and Rs. 6 crore each by HPCL and BPCL and the fund will be managed by

OIDB. All proposals under the HCF will be received by CHT and put up to Scientific Advisory Committee for approval. But the Committee find that CHT has not undertaken any serious activity relating to H_2 projects except the single project relating to coal gasification. Further, the Committee also observe that CHT has no research programme on bio fuels which is an important area for Indian scenario.

The Committee feel that the projects relating to hydrogen as an alternative energy source are very important not only for the Government and CHT but also for the country as a whole as this is an advanced area of research and any breakthrough in this direction will strengthen the energy security of the country. The Committee, therefore, recommend that the Ministry should accord top priority to H_2 projects and bio-fuel projects and expect CHT to play a pro-active role in taking up these projects and related activities by proper guidance, regular monitoring and necessary funding in every area so that all the projects are completed in a time-bound manner.

REPLY OF THE GOVERNMENT

The recommendations of the Committee has been noted. However, it is submitted that eight projects have been undertaken under HCF with a total expenditure of Rs 28.42 crore.

M/o Petroleum & Natural Gas
F.No. 27011/02/2016-OR-I/46488/E-15323 dated 31-10-2017
Comments of the Committee
(Please see Para No. 19 of Chapter-I)

CHAPTER III

RECOMMENDATIONS/OBSERVATIONS WHICH THE GOVERNMENT DO NOT DESIRE TO PURSUE IN VIEW OF THE GOVERNMENT'S REPLIES

-NIL-

CHAPTER IV

RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH REPLIES OF THE GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE

RECOMMENDATION NO. 4

Manpower of CHT

The Committee note that CHT functions as a technology cell of the MoP&NG with a small manpower of 14 technical officers and 7 HR/Finance officers drawn from Oil PSU on deputation. Retired officers from PSU oil companies are also engaged as advisors. The Committee further note that there is no permanent staff or officers on the rolls of CHT. This is a very undesirable situation of functioning of such an important organization responsible for advising the Ministry on futuristic requirements, assess, develop and adopt technologies in refinery processes and petroleum products. The Committee have not been given any convincing reason for not recruiting engineers, scientists, staff on a permanent basis in CHT. The Committee have been assured that the Ministry is open for appointing people from open market to CHT. The Committee, therefore, desire that CHT should attract people from other research organisations like CSIR, IIT etc. to work on specific projects in a time-bound manner. The Committee also desire that the Ministry should approach the manpower requirements in CHT with an open mind to have a mix from PSUs and open market and devise a suitable policy in CHT to attract the people from scientific and technical background with research experience from open market along with officials on deputation from Oil PSUs.

REPLY OF THE GOVERNMENT

While sponsoring R&D projects to various institutes, including CSIR & IITs, the cost associated with engaging of specialists to work on the specific projects are included in the CHT grant.

Governing Council of CHT has powers for engaging specialists from outside the oil companies as consultants on contract, if necessary.

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F.No. 27011/02/2016-OR-I/46488/E-15323 dated 31-10-2017

Comments of the Committee
(Please see Para No. 10 of Chapter-I)

RECOMMENDATION NO. 5

Coal to Liquid Project (CTL)

The Committee note that CHT has funded a R&D project on Coal to Liquid (CTL) Fuels Technology Development by EIL, BPCL & Thermax at a cost of Rs. 33 crore (including Rs. 14.84 crore funding by CHT). The Committee further note that this project was first considered during 2007 and then a modified proposal was considered in April 2008. MoU between CHT, BPCL (R&D) and EIL (R&D) has been signed in March 2009. The Committee have noted that the project has been completed to the extent of 94 per cent so far and the SAC has reviewed and granted time extension upto June 2017 for completion of the project.

The Committee consider that by development of indigenous clean coal technology for conversion of Coal to Liquid will certainly help the country in harnessing the coal reserves in an environment friendly manner and the break through in this technology would contribute in strengthening the energy security of the country. Therefore, the Committee recommend that the Ministry and the SAC should closely monitor the project at regular intervals and ensure that any difficulty being faced by the concerned agencies is remedied and the project reaches its successful completion by the extended time positively.

REPLY OF THE GOVERNMENT

As technology is not available to gasify high ash Indian coal in efficient manner, SAC approved the project at a cost of Rs 33.00 crore with CHT contribution of Rs 14.84 crore in March 2009 with EIL as nodal agency. The technology is highly technical as well as capital intensive and involves lot of challenges in development. The project has been reviewed and closely monitored by SAC. Considering the various challenges faced in the execution, the project has been extended by SAC from time to time, as under:

- Upto April 2014 (72nd meeting): As commercial gasifier was not available, M/s Thermax was roped in as development partner for gasifier.

- Upto June 2015 (74th meeting): As per expected delivery schedule of gasifier and syn-gas clean up in July 2014 and subsequent activities of commissioning & operation.
- Upto June 2016 (77th meeting): Gasifier commissioned in combustion mode. Additional time approved by SAC for operation of gasifier in gasification mode.

- Upto March 2017 (78th meeting-Aug'16): To address concerns in continuous running of pilot plant due to frequent choking, etc., and to build confidence before sizing bigger unit. Extended further upto June 2019 (79th meeting-March'17) due to choking of downstream and agglomeration.

SAC, during its 80th meeting held in Sept'17 constituted an Expert Group. The group held its meeting on 11th October 2017 to discuss operational issues and has suggested short term & long term forward plan for sustained operation.

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Comments of the Committee
(Please see Para No. 13 of Chapter-I)

RECOMMENDATION NO. 6

Performance Benchmarking of Refineries

The Committee note that CHT undertakes studies on behalf of PSU refineries for performance benchmarking, performance improvement programmes and energy efficiency improvement. The performance benchmarking of the PSU refineries is done by engaging M/s Solomon Associates on various parameters. The Committee further note that Solomon benchmarking is the main benchmarking in the world and it studies about 200 plus refineries and tells about where particular refinery stands at the world level. The Committee observe that in benchmarking, the main focus is on energy efficiency where Indian refineries are not performing well. Moreover, most of the Indian PSU refineries are old ones and have several complexities and an improvement in their performance at par with global standards will be a tough and challenging task. The Committee also note that the fuel quality in the country has been upgraded to BS-IV norms since April, 2017 and the Government has decided to skip BS-V and go to BS-VI fuel quality directly by the year 2020. For meeting the BS-VI quality norms, the refineries have to modernize the units quickly by introducing new technology. The Committee would, therefore, recommend that CHT by regularly carrying out performance improvement programmes should ensure that the old PSU refineries are modernized quickly and reach the desired standards in their performance and become ready to produce BS-VI fuel by 2020.

REPLY OF THE GOVERNMENT

Performance improvement studies including Benchmarking is carried out for all PSU refineries, including old refineries.

Oil industry has assured readiness to supply BS-VI fuel by 2020.

M/o Petroleum & Natural Gas
F.No. 27011/02/2016-OR-I/46488/E-15323 dated 31-10-2017
Comments of the Committee
(Please see Para No. 16 of Chapter-I)

CHAPTER V

RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH FINAL REPLIES OF THE GOVERNMENT ARE STILL AWAITED

RECOMMENDATION NO. 1

Mandate and Function of CHT

The Committee note that Centre for High Technology (CHT) was established in 1987 as a dedicated technology cell of the Ministry of Petroleum and Natural Gas. The major functions of CHT include assessment of technology requirement, operational performance evaluation and improvement of the refineries. CHT acts as a focal point of oil industry for centralized technical assistance, knowledge dissemination, performance data base, exchange of information and experience sharing. The Committee further note that CHT functions under the overall guidance and supervision of the Governing Council (GC) headed by the Secretary, MoP&NG as the Chairman.

The Committee also find that the refining capacity in the country at present is about 240 MMTPA and the refining sector has seen a significant participation from private sector like Reliance, Essar etc. and also there are joint venture companies like HMEL and BORL in that business. The Committee further note that the country is importing 80 per cent of its crude oil requirements and at the same time there is significant exploration activities yet to be done in the country. There is a need for technological requirements in deep water exploration, high pressure-high temperature exploration, shale gas etc. in the country. Also, the country has recently identified gas hydrates resources which have immense potential to meet its energy requirements. However, there is no technology available within the country or at global level also as except US and Japan no other country seems to be interested in this energy source. The Committee find that CHT basically looks at performance assessment and experience sharing with select R&D projects relating to public sector refineries on recommendation of Scientific Advisory Committee on hydrocarbons and the technology developed through CHT funding is implemented at various refineries as per their requirement. The Budget available with CHT for funding such R&D projects and special studies is very small i.e. around Rs.10 crore every year. The Committee, are therefore, not satisfied with the narrow mandate of CHT limited to assist the refineries in performance improvement and promoting a few R&D projects carried out by dedicated R&D institutes with analytical and pilot plant facilities available with R&D centres of OMCs and not developing it as a dedicated technology cell of the Ministry covering the technological requirements of whole oil industry including both the upstream and downstream sectors. Therefore, the Committee recommend that MoP&NG should conduct a thorough review either by itself or through any external agency with an objective to redefine the role of CHT and widen its mandate so as to justify its name and include research areas of upstream sector also

of the petroleum industry in addition to its role of improvement in the performance by technological innovation in refining sector.

REPLY OF THE GOVERNMENT

Presently Technological needs of upstream sector are looked after by DGH and downstream by CHT. The domain expertise and area of actions are different for upstream and downstream sector. However, a High Level Committee (HLC) has been constituted under the chairmanship of Sh. Anil Kakodker, Ex-chairman, Atomic Energy Commission to examine various issues inter-alia including preparation of action plant to create synergy among R&D centers of Oil PSUs. The HLC would be requested to look into the aspect of strengthening and widening of mandate of CHT and submit a report to this Ministry.

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RECOMMENDATION NO. 2

R&D infrastructure with CHT

The Committee note that CHT assists refineries in performance improvement and promoting R&D through funding of R&D projects as recommended by Scientific Advisory Committee on Hydrocarbons. While performing the role in improving the performance of refineries, CHT actually engages consultant to carry out the studies and benchmark the performance of refineries. Moreover, CHT neither has any laboratory nor there is any mechanism to coordinate with any national or international research organization in R&D Projects. As a matter of fact, in case of funded projects, R&D work is carried out by the R&D Institutes of grantee organisations/institutes like IOCL-R&D, EIL-R&D, HPCL-R&D, BPCL-R&D, IIP, IIT etc. Therefore, CHT is actually not working as a dedicated technology cell of Ministry which prepares R&D Projects based on assessment of technology requirements of the industry, rather R&D activities of PSU refineries are only coordinated and supported by CHT. Projects are undertaken on the advice of Scientific Advisory Committee which receives the proposals from various research related institutes and also from the refineries. Moreover, CHT has no control over the intellectual property generated through the R&D Projects but CHT works as the cross learning platform through which the notes and benefits are exchanged with each other.

While going through this working of CHT, the Committee observe that with this present design, CHT is not actually able to justify with its mandate. In Committee's view, the Refining technology development require focused efforts and dedicated R&D Centre with analytical and pilot plant facilities which is not there with CHT. The Committee, therefore, desire that CHT should be developed as platform working for while oil industry with high profile team of experts and an independent fully developed R&D

laboratory capable to cater the needs of technological advancement of oil industry. The Committee further desire that CHT should also tie up with petroleum institutes within the country as well as abroad for their R&D activities. The Committee, therefore, hope that MoP&NG will strengthen CHT accordingly so that it can be able to work as a technical cell of the Ministry.

REPLY OF THE GOVERNMENT

A High Level Committee (HLC) has been constituted under the chairmanship of Sh. Anil Kakodker, Ex-chairman, Atomic Energy Commission to examine various issues inter-alia including preparation of action plant to create synergy among R&D centers of Oil PSUs. The HLC would be requested to look into the aspect of strengthening and widening of mandate of CHT and submit a report to this Ministry.

M/o Petroleum & Natural Gas
F.No. 27011/02/2016-OR-I/46488/E-15323 dated 31-10-2017

New Delhi;
***28 December*, 2017**
7 Pausha,1939 (Saka)

PRALHAD JOSHI,
Chairperson,
Standing Committee on
Petroleum & Natural Gas.

Annexure I

MINUTES

STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS
(2017-18)

SEVENTH SITTING
(27.12.2017)

The Committee sat on Wednesday, the 27 December, 2017 from 1600 hrs. to 1630 hrs. in Committee Room No. '139', PHA, New Delhi.

PRESENT

Sh. Pralhad Joshi - Chairperson

MEMBERS

LOK SABHA

2. Shri Rajendra Agrawal
3. Smt. Rama Devi
4. Shri Elumalai V.
5. Shri Naranbhai Kachhadiya
6. Dr. Thokchom Meinya
7. Shri Ashok Mahadeorao Nete
8. Smt. Jayshreeben Patel
9. Shri A.T. Nana Patil
10. Shri Arvind Sawant
11. Shri Rajesh Verma
12. Shri Laxmi Narayan Yadav

RAJYA SABHA

13. Shri V. Lakshmikantha Rao

SECRETARIAT

1. Shri A.K.Singh - Additional Secretary
2. Dr. Ram Raj Rai - Director
3. Shri H. Ram Prakash - Additional Director

2. xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx.

3. Thereafter, the Committee took up for consideration, draft Action Taken Report on the recommendations contained in the Twentieth Report (16th Lok Sabha) on the subject 'Centre for High Technology' and adopted the same without any modifications.

4. The Committee then authorised the Chairperson to present/lay the Report in both the Houses of Parliament.

The Committee then adjourned.

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xxx: Matter not related to the subject.

Annexure II

(Vide Para 4 of the Introduction)

ANALYSIS OF THE ACTION TAKEN BY THE GOVERNMENT ON THE RECOMMENDATIONS CONTAINED IN THE TWENTIETH REPORT (SIXTEENTH LOK SABHA) OF THE STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS (2016-17) ON 'CENTRE FOR HIGH TECHNOLOGY (CHT)'.

I	Total No. of Recommendations	7
II	Recommendations/Observations which have been accepted by the Government (Vide Recommendations at Sl. Nos. 3 and 7)	2
	Percentage to Total	28.57%
III	Recommendations/Observations which the Committee do not desire to pursue in view of Government's (Vide Recommendations at SI. No. NIL)	NIL
	Percentage of Total	0
IV	Recommendations/Observations in respect of which replies of the Government have not been accepted by the Committee (Vide Recommendations at SI. Nos. 4, 5 and 6)	3
	Percentage of Total	42.86%
V	Recommendations/Observations in respect of which final replies of the Government are still awaited (Vide Recommendations at Sl. Nos. 1 and 2)	2
	Percentage of Total	28.57%