



कार्यालय प्रभागीय वनाधिकारी, तथई पूर्वी वन प्रभाग, हल्द्वानी

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पत्र संख्या 979/12-1

दिनांक, हल्द्वानी,

16/08 /2022

सेवा में,

वन संरक्षक,
पश्चिमी वृत्त,
हल्द्वानी।

विषय :- Renewal of diversion of forest land 1497 ha of forest land favour of uttarakhand forest Development corporation mining Division, Haldwani for collection of minor Minerals from Gaula river in Haldwani and Tarai east Forest Division, Disti Nainital (Uttarakhand) (Online proposal No. FP/Uk/149754/20210)-reg.

संदर्भ :- पर्यावरण मंत्रालय भारत सरकार, नई दिल्ली की File No.8.61/1999-FC(Pt.IV) date-12.05.2022.

महोदय,

उपरोक्त संदर्भित पत्र के क्रम में प्रयोक्ता अभिकरण (प्रभागीय लौगिंग प्रबन्धक उत्तराखण्ड वन विकास निगम खनन गौला हल्द्वानी प्रभाग, हल्द्वानी) ने अपने पत्रांक-524 दि0-30.06.2022 एवं पत्रांक-715/एफ0 सी0/गौला नदी दि0-06.08.2022 से भारत सरकार द्वारा लगाई आपत्तियों का निराकरण कर इस कार्यालय को प्रेषित किया गया है। जिसका विवरण निम्न प्रकार है:-

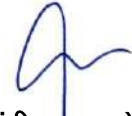
क्र0सं0	आपत्ति	निराकरण
I.	Detail of compensatory afforestation, in lieu of approval accorded for 1497 ha of forest land, undertaken in the past, its survival percentage, year wise detail of expenditure proposed and incurred needs to be submitted by the State along with soft copies of KML/shape files of all sites.	गौला वन भूमि की स्वीकृति के बदले क्षतिपूरक वृक्षारोपण का विवरण एवं KML/Shape files इस कार्यालय के पत्रांक- 797/12-1 दि0-03.08.2022 से आपके कार्यालय में पूर्व में प्रेषित कर दी गयी है।
II.	KML/Shape files of the area proposed for diversion as well as area used for raising compensatory afforestation have not been submitted. The same needs to be submitted to enable in-depth analysis of the proposal using DSS tools.	प्रयोक्ता अभिकरण अपने पत्रांक-715/एफ0 सी0/गौला नदी दि0-06.08.2022 द्वारा अवगत कराया है कि KML/Shape files अपलोड कर दी गयी है।
III.	Proposed land falls within the Shivalik Elephant Reserve and as the substantial extent of river stretch has been proposed for mining, comments of PCCF (Wildlife) And CWLW on the likely impact of the project on wildlife in general and Elephant in particular may be obtained by the State and the same may be intimated to the Ministry.	इस कार्यालय के पत्रांक-802/12-1 दि0-03.08.2022 के द्वारा मुख्य वन्य जीव प्रतिपालक, उत्तराखण्ड देहरादून को अनापत्ति प्रमाण-पत्र उपलब्ध कराने हेतु अनुरोध किया गया है। पत्र की छायाप्रति संलग्न है। (संलग्नक-01)
IV.	Geology and Mining Unit, Directorate of Industry, Government of Uttara hand vide their letter dated 31.05.2021 approved the Mining Scheme for the balance period of lease granted by the State vide order dated 24.01.2013. State Government vide ibid order dated 24.01.2013 had granted the lease for a period of 10 years which is likely to be expired on 23.01.2023. Further, examination of the Mining scheme revealed the following:	

a-	Comments of State on validity of Mining Plan 23.01.2023 i.e. whether any revised Mining Plan and renewal of lease is under consideration or granted by the State for further period after the expiry of the lease.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 द्वारा अवगत कराया है कि 23-01-2023 के बाद आगामी 10 वर्षों हेतु खनन योजना (Mining Plan) बनाने की कार्यवाही प्रगति पर है।
b.	Lease has been granted for a period of 10 years while the Scheme of Mining has been submitted for a period of 2 years. The discrepancy needs to be rectified by the State. File No.8-61/1999-FC(Pt.IV)	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 द्वारा अवगत कराया है कि वर्तमान खनन योजना 05 वर्षों हेतु बनायी गयी थी किन्तु एफ0सी0 (वन स्वीकृति) जनवरी 2023 तक होने के कारण खनन योजना जनवरी 2023 तक स्वीकृत की गयी है। आगामी वर्षों हेतु खनन योजना बनायी जानी प्रस्तावित है।
c.	As per Scheme of Mining total demarcated area of the lease is 1497 ha, out of which mining has been proposed over 748.5 ha only. In case the balance area of 748.5 ha is not required for mining, the justification for not handing over the same back to Forest Department needs to be furnished by the State.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 द्वारा अवगत कराया है कि खनन क्षेत्र में दोनो ओर 25 प्रतिशत भाग को छोड़कर शेष भाग में खनन किया जाता है इस कारण केवल 748.5 है0 क्षेत्र में ही खनन किया जाना प्रस्तावित है।
d.	Land use/Component wise breakup of the area proposed for diversion i.e. area under mining, infrastructure, approach road, storage of top soils, etc. has not been mentioned neither in the proposal nor in the Mining Scheme. The same needs to be furnished by the State.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 द्वारा अवगत कराया है कि खनन क्षेत्र में दोनो ओर 25 प्रतिशत भाग को छोड़कर शेष भाग में खनन किया जाता है इस कारण केवल 748.5 है0 क्षेत्र में ही खनन किया जाता है खनन योग्य क्षेत्र में कोई भी infrastructure नहीं है तथा approach road को माईनिंग प्लान की प्लेट संख्या 06 में दिखाया गया है।
e.	Landuse details provided under chapter-14 of the Mining Plan mention entire area of 1497 ha as undisturbed waste land which does not seem to be tenable in light of facts that production has been realized from the area during the last decade. Considered opinion of the State in the matter may therefore be furnished.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 द्वारा अवगत कराया है कि पुराने माईनिंग प्लान के अध्याय-14 के 14.3 में Landuse Pattern के अन्तर्गत 1497 है0 क्षेत्र को undistributed Land की Category में दर्शाया गया है
f.	Mining Plan essentially has to be prepared in consonance with the provisions of the relevant mineral concession rules and accordingly diversion proposal should be formulated by the State. Mining Plan, if any, prepared and approved for the entire period of 10 years may be submitted by the State providing the full detail of the land use, mining area, its reclamation, etc.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 द्वारा अवगत कराया है कि आगामी वर्षों हेतु खनन योजना बनायी जानी है जिसमें उक्त बिन्दु सम्मिलित कर लिया जायेगा।
V.	Status of District Survey Report, if any, prepared by the State Government in Nainital District in accordance with the Guidelines on Sustainable Sand Mining - 2019 issued by the Ministry vis-à-vis recommendation made thereof on the mining of RBM proposed in the extant proposal.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 से नैनीताल जिले की खनन योजना संलग्न की गयी है। (संलग्नक-02)

VI.	The State Government may also submit its comments whether the report prepared by the Indian Institute of Soil and Water Conservation is in conformity with the Sustainable Sand Mining Guidelines 2019 or otherwise.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 द्वारा अवगत कराया है कि भारतीय मृदा एवं जल संरक्षण संस्थान द्वारा प्रस्तुत की गई रिपोर्ट ds Sustainable Sand Mining Guidelines 2016 अनुरूप है, उनके द्वारा दिया गया पत्र संलग्न है। (संलग्नक-03)
VII.	Estimation of cost benefit ratio has not been provided in the proposal. The same needs to be estimated by accounting all parameters specified in the Guidelines dated 1.08.2017 issued by the Ministry, incorporated at Annexure -III of Handbook of Forest (Conservation) Act, 1980.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 से लागत लाभ अनुपात का अनुमान संलग्न किया है। (संलग्नक-04)
VIII.	As per Supreme Court order dated 28.03.2008, revenue earned from the sale of RBM should be utilized for conservation work. Detail of amount earmarked and incurred on conservation may be provided on annual basis for the last decade.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 द्वारा अवगत कराया है कि सुप्रीम कोर्ट के आदेश दिनांक 28-03-2008 के अनुसार आर0बी0एम0 की बिक्री से अर्जित राजस्व को विभिन्न विभागों को दिया जाता है विगत वर्षों का विवरण संलग्न है। (संलग्नक-05)
IX.	Status of SPV made for the purpose of collection of revenue earned and used for SMC and other conservation works may also be provided.	प्रयोक्ता अभिकरण ने अपने पत्रांक-524 दि0-30.06.2022 से एस0पी0वी0 की धनराशि का विगत वर्षों का विवरण संलग्न किया है। (संलग्नक-06)

अतः इस कार्यालय से अग्रिम कार्यावाही हेतु प्रयोक्ता अभिकरण का पत्र संलग्न सहित प्रेषित किया जा रहा है।

भवदीय



(संदीप कुमार)

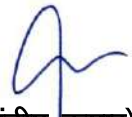
प्रभागीय वनाधिकारी

तराई पूर्वी वन प्रभाग, हल्द्वानी।

पत्रांक 979 / उक्त दिनांकित।

प्रतिलिपि- निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. अपर प्रमुख वन संरक्षक एवं नोडल अधिकारी उत्तराखण्ड देहरादून।
2. महाप्रबन्धक (कु0म0), उत्तराखण्ड वन विकास निगम हल्द्वानी
3. प्रभागीय लौगिंग प्रबन्धक उत्तराखण्ड वन विकास निगम खनन गौला हल्द्वानी प्रभाग, हल्द्वानी



(संदीप कुमार)

प्रभागीय वनाधिकारी

तराई पूर्वी वन प्रभाग, हल्द्वानी।



कार्यालय प्रभागीय वनाधिकारी, तराई पूर्वी वन प्रभाग, हल्द्वानी

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पत्रांक

802 / 12-1

दिनांक, हल्द्वानी,

03/08/2022.

सेवा में,

मुख्य वन्यजीव प्रतिपालक,
उत्तराखण्ड, देहरादून।

विषय :- Renewal of diversion of forest land of 1497 ha of forest land in favour of Uttarakhand Forest Development Corporation Mining Division, Haldwani for collection of Minor Minerals from Gaula River in Haldwani and Tarai East Forest Division, District Nainital (Uttarakhand) (Online proposal no. FP/UK/MIN/149754/20210-reg.

संदर्भ :- भारत सरकार, पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली के पत्रांक 8-61/1999-FC(Pt.IV) दिनांक 12.05.2022।

महोदय,

उपरोक्त विषयक क्रम में भारत सरकार द्वारा संदर्भित पत्र के माध्यम से उक्त प्रस्ताव से सम्बन्धित कतिपय आपत्तियां लगायी गयी हैं, जिसमें आपत्ति संख्या-III में आपके स्तर से आख्या चाही गयी है।

उक्त आपत्ति के निराकरण हेतु प्रमाण पत्र प्रेषित किया जा रहा है कृपया सहमति की दशा में हस्ताक्षर करना चाहें।

संलग्न-उपरोक्तानुसार।

भवदीय

(संदीप कुमार)

प्रभागीय वनाधिकारी
तराई पूर्वी वन प्रभाग, हल्द्वानी

प्रमाण-पत्र

प्रमाणित किया जाता है कि गौला राजि के अन्तर्गत प्रवाहित गौला नदी, गौला रौखड़, लालकुआं एवं खमियां वन ब्लाक, आरक्षित वन का पार्ट है तथा शिवालिक एलीफेन्ट रिजर्व के अन्तर्गत है। वन्य जीवों एवं हाथियों के आवागमन हेतु गौला नदी तल में देवरामपुर गेट के डाउन तथा लालकुआं गेट के अपस्ट्रीम के मध्य में लगभग 2.50 कि०मी० क्षेत्र गौला कॉरीडोर के रूप में चिन्हित है, जो चुगान हेतु प्रतिबन्धित क्षेत्र है, जिसमें वन्यजीवों का आवागमन बना रहता है।



वन क्षेत्राधिकारी
गौला राजि
तराई पूर्वी वन प्रभाग, हल्द्वानी



प्रभागीय वनाधिकारी
तराई पूर्वी वन प्रभाग, हल्द्वानी

प्रमुख वन संरक्षक (वन्यजीव) /
मुख्य वन्यजीव प्रतिपालक
उत्तराखण्ड, देहरादून



कार्यालय- प्रभागीय लौगिंग प्रबन्धक
उत्तराखण्ड वन विकास निगम, खनन गौला हल्द्वानी प्रभाग, हल्द्वानी
निकट-आदित्य बैंक हॉल, गैस गोदाम रोड कुसुमखेडा, हल्द्वानी (नैनीताल)

524

दिनांक : 30/6/2022

पत्रांक
सेवा में,

प्रभागीय वनाधिकारी
तराई पूर्वी वन प्रभाग हल्द्वानी।

विषय-

जनपद नैनीताल के तराई पूर्वी वन प्रभाग के अन्तर्गत आरक्षित वन क्षेत्र में बहने वाली गौला नदी के वन स्वीकृति (FC) पुर्नप्रस्ताव FP/UK/MIN/149754/2021 में भारत सरकार द्वारा लगाई गई आपत्तियों के निराकरण के सम्बन्ध में।

संदर्भ:-
महोदय,

उपरोक्त विषयगत संदर्भित पत्र के अनुपालन में सादर अवगत करना है कि वन एवं पर्यावरण मंत्रालय भारत सरकार का पत्रांक No.8-61/1999-FC(Pt.IV) दिनांक 12 मई 2022 द्वारा जनपद में तराई पूर्वी वन प्रभाग हल्द्वानी के अन्तर्गत आरक्षित वन क्षेत्र में बहने वाली गौला नदी के वन स्वीकृति (FC) पुर्नप्रस्ताव में भारत सरकार द्वारा लगाई गई बिन्दुवार आपत्तियों का निराकरण कर सूचना मय संलग्नक आपके अवलोकनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित की जा रही है।

संलग्न- उपरोक्तानुसार।


भवदीय,

(वाई0के0श्रीवास्तव)

प्रभागीय लौगिंग प्रबन्धक
उत्तराखण्ड वन विकास निगम
खनन गौला हल्द्वानी प्रभाग, हल्द्वानी।

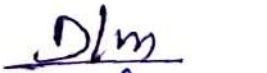
पत्रांक 524 /उक्तदिनांकित।

प्रतिलिपि- निम्नलिखित की सेवा में मय संलग्नक सादर सूचनार्थ प्रेषित:-

1. प्रबन्ध निदेशक उत्तराखण्ड वन विकास निगम देहरादून।
2. क्षेत्रीय कार्यालय पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार देहरादून।
3. अपर प्रमुख वन संरक्षक एवं नोडल अधिकारी, वन संरक्षण, इन्दानगर देहरादून।
4. महा प्रबन्धक(कु0म0) उत्तराखण्ड वन विकास निगम हल्द्वानी।
5. वन संरक्षक(पश्चिमी वृत्त) उत्तराखण्ड हल्द्वानी।
6. क्षेत्रीय प्रबन्धक(कु0क्षे0) उत्तराखण्ड वन विकास निगम हल्द्वानी।


(वाई0के0श्रीवास्तव)

प्रभागीय लौगिंग प्रबन्धक
उत्तराखण्ड वन विकास निगम
खनन गौला हल्द्वानी प्रभाग, हल्द्वानी।



D/m
30/6/22

कार्यालय तराई पूर्वी वन प्रभाग
हल्द्वानी
प्र पिन सं 11309.....
प न सं 12-1.....
दिनांक 30/06/2022

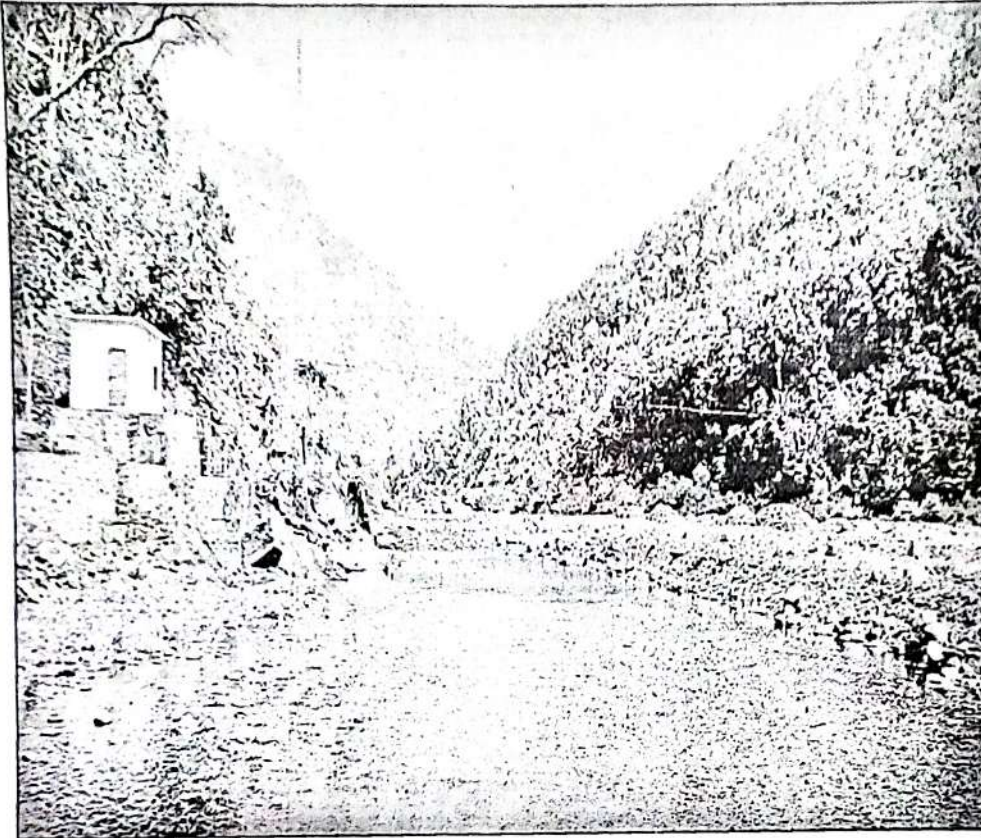
<p>I. Detail of compensatory afforestation, in lieu of approval accorded for 1497 ha of forest land, undertaken in the past, its survival percentage, year wise detail of expenditure proposed and incurred needs to be submitted by the State along with soft copies of KML/shape files of all sites.</p>	<p>गौला वन भूमि की स्वीकृति के बदले क्षतिपूरक वन रोपण का विवरण एवं KML/shape files प्रभागीय वनाधिकारी तराई पूर्वी वन प्रभाग हल्द्वानी के कार्यालय द्वारा अपलोड किया जाना है।</p>
<p>II. KML/Shape files of the area proposed for diversion as well as area used for raising compensatory afforestation have not been submitted. The same needs to be submitted to enable in-depth analysis of the proposal using DSS tools.</p>	
<p>III. Proposed land falls within the Shivalik Elephant Reserve and as the substantial extent of river stretch has been proposed for mining, comments of PCCF (Wildlife) And CWLW on the likely impact of the project on wildlife in general and Elephant in particular may be obtained by the State and the same may be intimated to the Ministry.</p>	<p>इस कार्यालय के पत्रांक 502/ दिनांक 22-06-2022 से PCCF (Wildlife) से उक्त सूचना प्रदान करने हेतु अनुरोध किया गया है। प्राप्त होते ही प्रेषित किया जायेगा। पत्र की छायाप्रति संलग्न है एवं वर्ष 2010 में प्रमुख वन संरक्षक (वन्यजीव) देहरादून द्वारा प्रदान अनापत्ति का पत्र संलग्न है।(संलग्न-1 एवं 2)</p>
<p>IV. Geology and Mining Unit, Directorate of Industry, Government of Uttara hand vide their letter dated 31.05.2021 approved the Mining Scheme for the balance period of lease granted by the State vide order dated 24.01.2013. State Government vide ibid order dated 24.01.2013 had granted the lease for a period of 10 years which is likely to be expired on 23.01.2023. Further, examination of the Mining scheme revealed the following:</p>	
<p>a-Comments of State on validity of Mining Plan 23.01.2023 i.e. whether any revised Mining Plan and renewal of lease is under consideration or granted by the State for further period after the expiry of the lease.</p>	<p>23-01-2023 के बाद आगामी 10 वर्षों हेतु खनन योजना (Mining Plan) बनाने की कार्यवाही प्रगति पर है।</p>
<p>b. Lease has been granted for a period of 10 years while the Scheme of Mining has been submitted for a period of 2 years. The discrepancy needs to be rectified by the State. File No.8-61/1999-FC(Pt.IV)</p>	<p>वर्तमान खनन योजना 05 वर्षों हेतु बनायी गयी थी किन्तु एफ़ोसी0 (वन स्वीकृति) जनवरी 2023 तक होने के कारण खनन योजना जनवरी 2023 तक स्वीकृत की गयी है। आगामी वर्षों हेतु खनन योजना बनायी जानी प्रस्तावित है।</p>
<p>c. As per Scheme of Mining total demarcated area of the lease is 1497 ha, out of which mining has been proposed over 748.5 ha only. In case the balance area of 748.5 ha is not required for mining, the justification for not handing over the same back to Forest Department needs to be furnished by the State.</p>	<p>खनन क्षेत्र में दोनो ओर 25 प्रतिशत भाग को छोड़कर शेष भाग में खनन किया जाता है इस कारण केवल 748.5 है0 क्षेत्र में ही खनन किया जाना प्रस्तावित है।</p>
<p>d. Land use Component wise breakup of the area proposed for diversion i.e. area under mining, infrastructure, approach road, storage of top soils, etc. has not been mentioned neither in the proposal nor in the Mining Scheme. The same needs to be furnished by the State.</p>	<p>खनन क्षेत्र में दोनो ओर 25 प्रतिशत भाग को छोड़कर शेष भाग में खनन किया जाता है इस कारण केवल 748.5 है0 क्षेत्र में ही खनन किया जाता है खनन योग्य क्षेत्र में कोई भी infrastructure नहीं है तथा approach road को माईनिंग प्लान की प्लेट संख्या 06 में दिखाया गया है।</p>
<p>e. Landuse details provided under chapter-14 of the Mining Plan mention entire area of 1497 ha as undisturbed waste land which does not seem to be tenable in light of facts that production has been realized from the area during the last decade. Considered opinion of the State in the matter may therefore be furnished.</p>	<p>पूराने माईनिंग प्लान के अध्याय-14 के 14.3 में Landuse Pattern के अन्तर्गत 1497 है0 क्षेत्र को undistributed Land की Category में दर्शाया गया है</p>

<p>f. Mining Plan essentially has to be prepared in consonance with the provisions of the relevant mineral conservation rules and accordingly diversion proposal should be formulated by the State. Mining Plan, if any, prepared and approved for the entire period of 10 years may be submitted by the State providing the full detail of the land use, mining area, its reclamation, etc.</p>	<p>आगामी वर्षों हेतु खनन योजना बनायी जानी है जिसमें उक्त बिन्दु सम्मिलित कर लिया जायेगा।</p>
<p>V. Status of District Survey Report, if any, prepared by the State Government in Nainital District in accordance with the Guidelines on Sustainable Sand Mining - 2019 issued by the Ministry vis-à-vis recommendation made thereof on the mining of RBM proposed in the extant proposal.)</p>	<p>नैनीताल जिले की खनन योजना संलग्न की जा रही है। (संलग्नक-03)</p>
<p>VI. The State Government may also submit its comments whether the report prepared by the Indian Institute of Soil and Water Conservation is in conformity with the Sustainable Sand Mining Guidelines 2019 or otherwise.</p>	<p>भारतीय मृदा एवं जल संरक्षण संस्थान द्वारा प्रस्तुत की गई रिपोर्ट के Sustainable Sand Mining Guidelines 2016 अनुरूप है, उनके द्वारा दिया गया पत्र संलग्न है। (संलग्नक-04)</p>
<p>VII. Estimation of cost benefit ratio has not been provided in the proposal. The same needs to be estimated by accounting all parameters specified in the Guidelines dated 1.08.2017 issued by the Ministry, incorporated at Annexure -III of Handbook of Forest (Conservation) Act, 1980.</p>	<p>लागत लाभ अनुपात का अनुमान संलग्न किया जा रहा है। (संलग्नक-05)</p>
<p>VIII. As per Supreme Court order dated 28.03.2008, revenue earned from the sale of RBM should be utilized for conservation work. Detail of amount earmarked and incurred on conservation may be provided on annual basis for the last decade.</p>	<p>सुप्रीम कोर्ट के आदेश दिनांक 28-03-2008 के अनुसार आर०बी०एम० की बिक्री से अर्जित राजस्व को विभिन्न विभागों को दिया जाता है विगत वर्षों का विवरण संलग्न है। (संलग्नक-06)</p>
<p>IX. Status of SPV made for the purpose of collection of revenue earned and used for SMC and other conservation works may also be provided.</p>	<p>एस०पी०वी० की धनराशि का विगत वर्षों का विवरण संलग्न है। (संलग्नक-06)</p>

संलग्नक 1-02

DISTRICT SURVEY REPORT

DISTRICT NAINITAL



In Compliance of Ministry of Environment, Forest and Climate Notification

dated: 25.07.2018

1. Introduction

Nainital is a popular hill station in the Indian state of Uttarakhand. Nainital is the judicial capital of Uttarakhand, the High Court being located here, and is the headquarters of the Kumaon division as well as an eponymous district. It also houses the Governor of Uttarakhand, who resides in the Raj Bhavan. Nainital was the summer capital of the United Provinces.

Nainital is located in the Kumaon foothills of the outer Himalayas at a distance of 285 km (177 mi) from the state capital Dehradun and 345 km (214 mi) from New Delhi, the capital of India. Situated at an altitude of 2,084 metres (6,837 ft) above sea level, the city is set in a valley containing an eye-shaped lake, approximately two miles in circumference, and surrounded by mountains, of which the highest are Naina (2,615 m (8,579 ft)) on the north, Deopatha (2,438 m (7,999 ft)) on the west, and Ayarpatha (2,278 m (7,474 ft)) on the south. From the tops of the higher peaks, "magnificent views can be obtained of the vast plain to the south, or of the mass of tangled ridges lying north, bound by the great snowy range which forms the central axis of the Himalayas.

Brief History of the District

The Kumaon Hills came under British rule after the Anglo-Nepalese War (1814–16). Nainital is one of the most beautiful places in Uttarakhand. It finds mention in several ancient texts such as 'Manas Khand' of Skandapurana. Then there is legend of Ma Sati's charred eye falling here to form the Naini Lake, its name taken from the Hindi word Naina which means eye.

Kumaon & Garhwal areas were occupied by the British in 1815. Afterwards, E Gardiner was appointed the commissioner of Kumaon Division in 1815. Mr. G.W. Traill, the second commissioner of Kumaon, was the first European to visit Nainital.

Later, in the year 1839 a British businessman Mr. P Barron (a sugar trader) and his friend, an avid hunter, strayed into the hills while hunting. They got lost and in the process spotted this wonderful place. Barron was so captivated by the place that he left the sugar business and built a European Colony on shores of the Naini Lake. In the year 1841, the discovery of Nainital appeared in an issue of the 'Englishman Calcutta'. The offices gradually started to shift here and a formal Nainital Municipal Corporation was formed in 1850 to provide basic facilities to the residents. Captain Madden of the Bengal Artillery visited Naini Tal, he recorded that "houses were rapidly springing up in most parts of the settlement: some towards the crest of the military ranges were nearly 7,500 ft (2,300 m) above sea level: the rugged and woody Anyarpatta Aashish (Anyar-patt – in Kumaoni means – complete blackout. The reason for this nomenclature by the locals was because there were minimal sun rays due to its location and dense forests) was being gradually planted and that the favourite sites were on the undulating tract of forest land which stretched back from the head of the lake to the base of China and Deopatta (Camel's Hump). The church, St. John (1846) in the Wilderness, was one of the earliest buildings in Nainital, followed by Belvedere, Alma lodge, Ashdale Cottage (1860). Soon, the town became a health resort favoured by British soldiers and by colonial officials and their families trying to escape the heat of the plains. Later, the town became the summer residence of the governor of the United Provinces.

In September 1882 a landslide ('the landslip of 1882') occurred at the north end of the town, burying 151 people. The first known landslide had occurred in 1866, and in 1879 there was a larger one at the same spot, Alma Hill, but "the *great slip* occurred in the following year, on Saturday 18 September 1882.

"Two days preceding the slip there was heavy rain, ... 20 inches (510 mm) to 35 in (890 mm) fell during the 40 hours ending on Saturday morning, and the downpour still lasted and continued for hours after the slip. This heavy fall naturally brought down streams of water from the hill side, some endangering the Victoria Hotel, (which) was not the only building threatened Bell's shop, the Volunteer Orderly Room and the Hindu (Naina Devi) temple were scenes of labour with a view to diverting streams. At a quarter to two the landslip occurred burying those in and around the buildings mentioned above.

The number of dead and missing were 108 Indian and 43 British nationals. (See poem by Hannah Battersby on the page Literary references to Nainital.) The Assembly Rooms and the Naina Devi Temple were destroyed in the disaster. A recreation area known as 'The Flats' was later built on the site and a new temple was erected. To prevent further disasters, storm water drains were constructed and building bylaws were made stricter.

In the latter half of the 19th century a number of "European" schools for boys and girls were founded in Nainital. During the Victorian and Edwardian eras, students in these schools consisted largely of children of the British colonial officials or soldiers. The Diocesan Girls' High School, now known as All Saints' College, was established in 1869, near where the High Court of Uttarakhand stands today. By 1906, there were over half a dozen such schools, including the Diocesan Boys' School (later renamed Sherwood College) and the Philander Smith's college (later renamed Halett War School, currently Birla Vidya Mandir).

St. Joseph's College, Nainital (popularly known as SEM), a day-boarding and residential school built by Irish brothers in 1888, celebrated its 125th anniversary in 2013. Another important school for girls, St. Mary's Convent High School, Nainital (popularly known as Ramnee), was established in 1878, and celebrated its 125th anniversary in year 2003.

Brief Industrial profile of Nainital District

2. Overview of Mining Activity in the District

The knowledge regarding occurrences of minerals in the district is scanty. The geological studies so far carried out in the vicinity of the district, do not indicate significant occurrence of any mineral resource. Though devoid of any major mineral resource, the district is blessed with ample deposits of the river borne material which is mined throughout the district and gets annually replenished. The district is one of the major contributors to the royalty received by Uttarakhand state from the mining of RBM. The RBM mining industry supports a number of the stone crushers and screening plants in and around the district. The mining activity in the region is one of the major means of livelihood in the district, after agriculture.

3. The List of Mining Leases in the District with location, area and period of validity

3.1 जनपद नैनीताल में स्वीकृत खनन पट्टों की सूची -

3.1.1 निजी नाप भूमि के कुल खनन पट्टों की सूची।

क्रम सं०	नदी का नाम	पट्टाधारक का नाम व पता	ग्राम व तहसील	अवधि	खसरा सं०	SEIAA द्वारा निर्धारित मात्रा (टन में)
1.	गौला नदी	मै० देवभूमि स्टोन, श्री राजकुमार गुप्ता, निवासी जजी गेट के सामने, बृज विहार, हल्द्वानी।	ग्राम रौशिल तहसील व जिला नैनीताल	07.11.2013 से 06.11. 2018 तक	खसरा सं० 2821, 2822, 2824, 2825, 2826, 2827, 2828, 2830, 2832, 2854, 2855, 2856, 2858, 2853 (रौली प्रतिबन्धित क्षेत्र) कुल 0. 6371 हैक्टेयर	20,847 टन
2.	गौला नदी	श्री विनोद मेहरा पुत्र श्री एच०एस० मेहरा, निवासी डिफेन्स कालोनी, हरिपुर नायक, कुसुमखेड़ा, हल्द्वानी।	ग्राम अमिया, तह० व जिला नैनीताल।	06.12.2013 से 05.12. 2018 तक	खसरा सं० 579 से 584, 586, 593, 594, 595, 597, 598 एवं 602 क्षेत्रान्तर्गत कुल रकवा 0. 42 हैक्टेयर	21,546 टन
3.	गौला नदी	कु०म०वि०निगम लिमि०, नैनीताल।	ग्राम अमिया, तह० व जिला नैनीताल।	10.01.2014 से 09.01. 2019 तक	खसरा सं० 622, 2.00 है०	1,65,672 टन
4.	गौला नदी	श्री तारादत्त पुत्र श्री पद्मादत्त निवासी ग्राम भौर्सा, पट्टी पिनरो, तह० व जिला नैनीताल	ग्राम भौर्सा, पट्टी पिनरो, तह० व जिला नैनीताल	17.04.2014 से 16.04. 2019 तक	खाता सं० 37, 144, 141, 62, 15 एवं 138 कुल रकवा 0.2024 हैक्टेयर	5,768.4 टन
5.	गौला नदी	श्री किशोर सिंह पुत्र श्री विजय सिंह ग्राम छडायल नायक, तह० हल्द्वानी जिला नैनीताल।	ग्राम पनियाबोर पट्टी रौसिल, तह० जिला नैनीताल	01.04.2014 से 31.03. 2019 तक	खाता सं० 7 के खसरा सं० 599 मध्ये 0.2784 हैक्टेयर	7,934 टन

6.	गौला नदी	श्री आनन्द सिंह दरम्वाल एवं श्री हेमन्त बिष्ट, निवासी ग्राम मानपुर पश्चिम, तह0 हल्द्वानी जिला नैनीताल।	ग्राम पनिया मेहता तह0 व जिला नैनीताल	03.12.2014 से 02.12. 2019 तक	खाता सं0 17 के खेत सं0 5, 7 एवं 84 कुल रकवा 0.186 है0	5,301 टन
7.	गौला नदी	श्री दीपक तिवारी पुत्र स्व0 श्री विशम्भर दत्त तिवारी ग्राम जयपुर पाड़ली, पो0 लामाचौड़, तह0 हल्द्वानी जिला नैनीताल	ग्राम व पट्टी रौशिल तह0 व जनपद नैनीताल	11.02.2015 से 10.02. 2020 तक	खेत सं0 2867,2873,2874,2887 से 2893 तक एवं 2895 से 2899 कुल रकवा 0. 3477 हैक्टेयर	9,909 टन
8.	गौला नदी	कुमाऊँ मण्डल विकास निगम, नैनीताल।	ग्राम भौसा तह0 व जिला नैनीताल	05.04.2016 से 04.04. 2021 तक	खसरा सं0 2519 अ, 8.00 है0	1,76,000 टन
9.	कोसी नदी	श्री वीरेन्द्र सिंह बिष्ट पुत्र श्री मोहन सिंह बिष्ट निवासी गोबिन्दपुर गरवाल हल्द्वानी	ग्राम घघरेटी, पट्टी मल्ला कोश्या, तहसील बेतालघाट, जिला नैनीताल	15.02.2014 से 14.02. 2019 तक	खसरा सं0 3101, 3100, 3099, 3096 एवं 3097 कुल रकवा 1.73 है0	1,45,375 टन
10.	कोसी नदी	श्री शंकर दत्त जोशी पुत्र श्री बी0डी0 जोशी,ग्राम जोशीखोला तह0 व पो0 बेतालघाट जि0 नैनीताल	ग्राम जोशीखोला, तहसील बेतालघाट, जिला नैनीताल	14.03.2014 से 13.03. 2019	खसरा सं0 2791 तथा 2792 कुल रकवा 0.36 है0	10,260 टन
11.	कोसी नदी	श्री अजय गुप्ता पुत्र श्री मंगत राम गुप्ता, निवासी नवाबी रोड, हल्द्वानी जनपद नैनीताल	ग्राम वर्धो, तहसील कोश्याकुटौली जिला नैनीताल	06.03.2014 से 05.03. 2019 तक	खाता सं0 112 खसरा सं0 1319 कुल रकवा 0. 439 है0	12,512 टन
12.	कोसी नदी	श्री पुष्कर सिंह मेहरा पुत्र स्व0 श्री आनन्द सिंह मेहरा, ग्राम	ग्राम मल्ला वर्धो,, तह0 बेतालघाट,	25.03.2014 से 24.03.	खसरा सं0 112 के खेत सं0 1319 मध्ये कुल	29,070 टन

		मल्ला वर्धो,, तह0 बेतालघाट, जनपद नैनीताल	जनपद नैनीताल	2019 तक	रकवा 1.020 हैक्टेयर	
13.	कोसी नदी	श्री विक्रम सिंह नेगी पुत्र श्री भोपाल सिंह नेगी, निवासी चिलियानौला, रानीखेत, जिला अल्मोड़ा	ग्राम नैनीचक मय पांच चौक, रौलियालग्गा, तह0 बेतालघाट जिला नैनीताल।	04.04.2014 से 03.04. 2019 तक	कुल रकवा 0.5360 हैक्टेयर में से 0.376 है0	10, 716 टन
14.	कोसी नदी	श्री एस0एस0 गड़िया पुत्र श्री मोहन सिंह निवासी गड़िया निवास, मल्लीताल नैनीताल	ग्राम मल्लीपाली तह0 बेतालघाट जिला नैनीताल	02.04.2014 से 01.04. 2019 तक	खाता सं0 34 के खेत सं0 2अ रकवा 2.397 है0 भूमि में से कुल रकवा 1. 377 हैक्टेयर	39,244.50 टन
15.	कोसी नदी	श्री मोहन सिंह पुत्र श्री रूप सिंह निवासी ग्राम हल्सोलगगा बेरोसीर, तह0 बेतालघाट, जनपद नैनीताल	ग्राम हल्सोलगगा बेरोसीर, तह0 बेतालघाट, जनपद नैनीताल	06.06.2014 स 05.06. 2019 तक	खसरा सं0 214 से 280 कुल रकवा 0.449 हैक्टेयर	12,796 टन
16.	कोसी नदी	श्री नन्दाबल्लभ भट्ट पुत्र स्व0 श्री परमानन्द भट्ट, हाल निवासी तल्ली बमौरी, हल्द्वानी.	ग्राम तल्लागांव, पट्टी ऊंचाकोट, तह0 बेतालघाट जनपद नैनीताल	05.06.2014 से 04.06. 2019 तक	खसरा सं0 278अ कुल रकवा 0.550 हैक्टेयर	15,675 टन
17.	कोसी नदी	श्री रमेश सिंह गैडा ,ग्राम मल्ला वर्धो,तह0 बेतालघाट	ग्राम मल्ला वर्धो तहसील बेतालघाट, जिला नैनी0	29.08.2014 से 28.08. 2019 तक	खाता सं0 112 के खसरा सं0 1319 मध्ये कुल रकवा 0.400 है0	11,400 टन
18.	कोसी नदी	श्री सुरेन्द्र सिंह रावत निवासी ग्राम चापड़ तह0 बेतालघाट	ग्राम घंघरेटी	02.08.2014 से 01.08. 2019 तक	खाता सं0 90खसरा नं0 4355 ब कुल रकवा 0. 409 है0	11,656.5 टन
19.	कोसी	श्री देवेन्द्र सिंह पुत्र	ग्राम सेठी बेलगांव,	11.12.2014	खसरा सं0 266, 272,	42,237 टन

	नदी	श्री अनूप सिंह ग्राम चापड़ परगना धनियाकोट, तहसील बेतालघाट, जनपद नैनीताल	तहसील बेतालघाट, जनपद नैनीताल	से 10.12. 2019 तक	273, 274, 275, 276, 280, 280/5114, 204ब, 205ब, 206ब, 207ब, 208ब, 277, 278, 278/5110, 278/5111, 279/5112, 279, 280/5113, 264, 202ब, 203, 267, 268, 269, 258, 261, 263, 265, 270, 271म0, 264, 264/5107, 275/5109, 265/5102 कुल रकवा 1.482 हैक्टेयर	
20.	कोसी नदी	श्री पुष्कर त्रिपाठी पुत्र श्री लीलाधर त्रिपाठी निकट विरला स्कूल, ग्राम बधान, तह0 रानीखेत	ग्राम सोनगांव, तह0 कोश्याकुटौली, जनपद नैनीताल	18.11.2015 से 17.11. 2020 तक	खाता सं0 51 के खसरा सं0 31 कुल रकवा 0. 6733 है0	14,400 टन
21.	कोसी नदी	श्री दिव्य प्रकाश पुत्र श्री गोपाल सिंह रावत, ग्राम सोनी पड़ाव, पो0 सौनी, तह0 रानीखेत जिला अल्मोड़ा।	ग्राम सेठी मझगांव सेठी धारकोट तह0 बेतालघाट	22.12.2016 से 21.12. 2021 तक	खसरा सं0 26 से 33 तक, 38 से 54 तक, 56 एवं 57 ,113 से 119 एवं 123 से 133, कुल रकवा 1.026 है0	21,930.75 टन
22.	कोसी नदी	श्री बहादुर सिंह पुत्र श्री गोपाल सिंह एवं श्री राजेन्द्र चौधरी पुत्र श्री मनोहर चौधरी	ग्राम थापली, तह0 बेतालघाट, जिला नैनीताल	12.10.2017 से 11.10. 2022 तक	खेत सं0 1289 से 1301, खेत सं0 1312, खेत सं0 1334 व खेत सं0 1335, कुल रकवा 1.987 हैक्टेयर	49,178 टन
निजी नाप भूमि में कुल स्वीकृत खनन पट्टों की संख्या - 22						8,39,428.15 टन
कुल स्वीकृत उपखनिज निकासी मात्रा - 8,39,428.15 टन						

नोट:- उक्त 22 खनन पट्टों में से निजी नाप भूमि के 16 खनन पट्टों की समयावधि समाप्त हो चुकी है जिनके नवीनीकरण के सम्बन्ध में कोई कार्यवाही वर्तमान में नहीं हुई है।

3.1.2 जनपद नैनीताल के तह0 बेतालघाट/कोश्याकुटौली में कोसी नदी अन्तर्गत वर्तमान अवधि में निजी नाप भूमि में स्वीकृत/संचालित खनन पट्टों का विवरण।

क्रम सं०	नदी का नाम	पट्टाधारक का नाम व पता	खनन पट्टा क्षेत्र का स्थान	खनिज का नाम	क्षेत्रफल हैक्टेयर में	शासनादेश	स्वीकृत उपखनिज की मात्रा प्रतिवर्ष	खनन पट्टे की अवधि
1.	कोसी नदी	श्री देवेन्द्र सिंह पुत्र श्री अनूप सिंह ग्राम चापड़ परगना धनियाकोट, तहसील बेतालघाट, जनपद नैनीताल	ग्राम सेठी बेलगांव, तहसील बेतालघाट, जनपद नैनीताल	रेता, बजरी, बोलडर	खसरा सं० 266, 272, 273, 274, 275, 276, 280, 280/5114, 204ब, 205ब, 206ब, 207ब, 208ब, 277, 278, 278/5110, 278/5111, 279/5112, 279, 280/5113, 264, 202ब, 203, 267, 268, 269, 258, 261, 263, 265, 270, 271म0, 264, 264/5107, 275/5109, 265/5102 कुल रकवा 1.482 है०	शासनादेश सं० 2741/VII-1/224 -ख /2013 दिनांक 25 फरवरी, 2014	42,237 टन	11.12.2014 से पांच वर्ष
2.	कोसी नदी	श्री पुष्कर त्रिपाठी पुत्र श्री लीलाधर त्रिपाठी निकट विरला स्कूल, ग्राम बधान, तह० रानीखेत	ग्राम सोनगांव, तह० कोश्याकुटौली, जनपद नैनीताल	-तदैव-	खाता सं० 51 के खसरा सं० 31 कुल रकवा 0.6733 है०	शासनादेश सं० 669/VII-1/57-ख /2015 दिनांक 02 जून, 2015	14,400 टन	18.11.2015 से पांच वर्ष
3.	कोसी नदी	श्री दिव्य प्रकाश पुत्र श्री गोपाल सिंह रावत, ग्राम सोनी पड़ाव, पो० सौनी, तह० रानीखेत जिला	ग्राम सेठी मझगांव सेठी धारकोट तह० बेतालघाट	-तदैव-	खसरा सं० 26 से 33 तक, 38 से 54 तक, 56 एवं 57, 113 से 119 एवं 123 से 133, कुल रकवा 1.026 है०	शासनादेश सं० 444/VII-1/125 -ख/2015 दिनांक	21,930.75 टन	22.12.2016 से पांच वर्ष

		अल्मोड़ा।				29 मार्च , 2016		
4.	कोसी नदी	श्री बहादुर सिंह पुत्र श्री गोपाल सिंह एवं श्री राजेन्द्र चौधरी पुत्र श्री मनोहर चौधरी	ग्राम थापली, तह0 बेतालघाट, जिला नैनीताल	-तदैव-	खेत सं0 1289 से 1301, खेत सं0 1312, खेत सं0 1334 व खेत सं0 1335, कुल रकवा 1.987 हैक्टेयर	शासनादेश सं0 2338/VII-1/ 94-ख/2013 दिनांक अक्टूबर , 2013	49,178 टन	12.10.2017 से पांच वर्ष
5.	गोला नदी	श्री आनन्द सिंह दरमवाल एवं श्री हेमन्त बिष्ट, निवासी ग्राम मानपुर पश्चिम, तह0 हल्द्वानी जिला नैनीताल।	ग्राम पनिया मेहता तह0 व जिला नैनीताल	रेता,बजरी, बोल्डर	खाता सं0 17 के खेत सं0 5, 7 एवं 84 कुल रकवा 0.186 है0	शासनादेश सं0 898/VII- 1/97-ख/2013 दिनांक 27 मई, 2014	5,301 टन	03.12.2014 से पांच वर्ष
6.	गोला नदी	श्री दीपक तिवारी पुत्र स्व0 श्री विशम्भर दत्त तिवारी ग्राम जयुपर पाड़ली, पो0 लामाचौड़, तह0 हल्द्वानी जिला नैनीताल	ग्राम व पट्टी रौशिल तह0 व जनपद नैनीताल	-तदैव-	खेत सं0 2867,2873,2874,2887 से 2893 तक एवं 2895 से 2899 कुल रकवा 0.3477 हैक्टेयर	शासनादेश सं0 868/VII- 1/81-ख/2014 दिनांक 27 मई, 2014	9,909 टन	11.02.2015 से पांच वर्ष
कुल पट्टे		- 06						
स्वीकृत क्षेत्रफल		- 5.534 है0						
कुल स्वीकृत मात्रा		- 1,42,955.75 टन						

3.1.3 जनपद नैनीताल के तहसील नैनीताल में वर्तमान में राजस्व भूमि में कु0म0वि0 निगम के पक्ष में स्वीकृत/संचालित खनन पट्टों का विवरण

क्रम सं०	नदी का नाम	पट्टाधारक का नाम व पता	खनन पट्टा क्षेत्र का स्थान	खनिज का नाम	क्षेत्रफल हैक्टेयर में	शासनादेश	स्वीकृत उपखनिज की मात्रा प्रतिवर्ष	खनन पट्टे की अवधि
1	2.	3	4	5	6	7	8	9
1.	गोला नदी	कुमाऊँ मण्डल विकास निगम, नैनीताल ।	ग्राम भौसा तह0 व जिला नैनीताल	रेता, बजरी, बोल्टर	खसरा सं० 2519अ, 8.00 है०	शासनादेश सं० 1910 /VII-I/ 133 -ख /2015 दिनांक 22 जनवरी, 2016	1,76,000 टन	05.04.2016 से 04.04. 2021 तक
2.	गोला नदी	कुमाऊँ मण्डल विकास निगम, नैनीताल ।	ग्राम अमिया तह0 व जिला नैनीताल	रेता, बजरी, बोल्टर	2.00 हे०	शासनादेश सं० 2194 (1)/VII-1/2019, दिनांक 12 अक्टूबर, 2019	1,65,672 टन	12.10.2019 से आगामी 05 वर्ष हेतु।

3.1.4 जनपद नैनीताल में वर्तमान खनन सत्र में आरक्षित वन क्षेत्र में स्वीकृत खनन पट्टों का विवरण -

क्रम सं०	नदी का नाम	पट्टाधारक का नाम	तहसील	स्वीकृत क्षेत्रफल	स्वीकृत मात्रा (E.I.A. के अनुसार)
1-	गौला नदी (आरक्षित वन क्षेत्र)	उत्तराखण्ड वन विकास निगम, हल्द्वानी,	हल्द्वानी/लालकुआँ	1497 है०	1,17,00,000 टन
2-	कोसी नदी (आरक्षित वन क्षेत्र)	उत्तराखण्ड वन विकास निगम, रामनगर,	रामनगर	254 है०	36,54,000 टन
3-	दाबका नदी (आरक्षित वन क्षेत्र)	उत्तराखण्ड वन विकास निगम, रामनगर	रामनगर	223 है०	15,28,000 टन
4-	नन्दौर नदी (आरक्षित वन क्षेत्र)	उत्तराखण्ड वन विकास निगम, हल्द्वानी,	हल्द्वानी	468 है०	46,20,000 टन

4. Details of Royalty or Revenue received in last three years

Cumulative Revenue (Royalty from Mining Leases, Govt. Agency, illegal mining, Stone Crusher, Bhandaran, Application Fee. etc. are included)

S. No.	Year	Cumulative Revenue (Rs. crore)
1.	2016-17	118.78
2.	2017-18	135.86
3.	2018-19	150.64
	TOTAL	405.28

5. DETAIL OF PRODUCTION OF RIVER BED MATERIAL (RBM) IN LAST THREE YEARS (EXISTING RBM LOTS ONLY).

S. No.	Year	Production of RBM (Ton)
1.	2016-17	2,20,64,091.8
2.	2017-18	1,16,43,713.9
3.	2018-19	1,14,99,911.29
4.	TOTAL	4,52,07,716.99

6. Process of Deposition of Sediments in the rivers of the District

In the earth system, water may be thought of as the water flowing downhill after a splash of rain, which carries with it some amount of soil that has been eroded by the action of flowing water. The flowing water of river moving down to the ocean also carries huge amounts of sediment which have been accumulated from other smaller streams joining the river.

In general, the water moving over the land surface is the dominant agent of land space alteration. Near surface weathering provide sediment load for the flowing streams. Some of the load gets deposited along the path of the river and only a fraction of the total material waste from the lands is carried by the rivers to the sea. In fact, the land space evolves essentially due to the water flowing over it in small rills and gullies, joining to form small streams, which combine to form rivers. The process of these watercourses eroding and conveying water is a continuous process and has been going on since the formation of this planet and the elements surrounding it. Hence rivers are ever changing but in a man's lifetime it may not be much depending on the land space through which it passes. The general adjective fluvial (from Latin fluvial meaning river) is applied for the work done by river and

fluvial system applies to all the area draining a particular river extending from the drainage divides in the source areas of water and sediment, through the channels and valleys of the drainage basin, to depositional area such as the coasts.

District Nainital has a dense network of the drainage pattern. The rivers of the district belong to Kosi, and Gola rivers and their tributaries are Dabka, Sawaldeo, Bour, Nandhour, Bhak, Kailash etc. drain the district. The unique feature of the area is debouching of major rivers into the plains from Lower Himalayas. The overall flow direction of these rivers generally north-south trend or northeast-southwest and flows to south till its confluences with the Ganga River. The major rivers are perennial, whereas their tributaries originating from sub-Himalayan zone are ephemeral and remain dry during the non-monsoon season; Overall drainage pattern in the district is sub dendritic to sub parallel.

The river fluvial systems in the district:

Conceptually the fluvial system of the river valley can be divided into three main zones and described as under:

1. An erosional zone of runoff production and sediment source
2. A transport zone of water and sediment conveyance, and
3. A depositional zone of runoff delivery and sedimentation

Sediment erosion, transport and deposition by any river in the district, It is amply clear that since rivers lay a decisive role in land form evolution, the force of water is intricately connected to the dislodging of soil and rock particles or sediment and their conveyance. Where the power of water becomes less, it is forced to deposit the particles on its way, in the district there are few type of depositional system may occurs.

- 1- **Channel aggradation** may also occur in the many rivers of the district where river reach if due to geological reasons (say, increase of erosion of the catchment) the sediment load being conveyed to the river increases than that can be carried by the river in equilibrium. As a result the riverbed rises and forces the channel to carve out its path in a braided fashion.
- 2- **Braided rivers**, there is a tendency for stream to widen and become very shallow with bars subjected to rapid changes in morphology. At high flows braided streams have a low sinuosity and often appear to be straight at low flows, numerous small channels weave through the exposed bars.

Aggradation also occurs in a channel when there is a decrease of bed slope for example as the river emerges from the hills and enters relatively flat land. This has occurred markedly in the river Kosi, which has forced the river to change its course by more than a hundred kilometer westward in the last 200 years, but in the frame of district it can be found in the Bhabar region also.

- 3- **Bars** refer to large bed forms on the bed of a river that are often exposed during low flows in the river system, these deposited segment mounds are not static and often get transported under high

flows. They may again appear when the flow subsided but may not necessarily at the same location as the earlier ones.

Alternate bars form in straight channels with deposits alternation from right bank to left bank. Point bars form due to the presence of secondary flow of river bends, there is a perceptible flow in a plane perpendicular to the river flow direction. At the outer bank the secondary flow causes erosion and at the inner bank it causes deposition, thus giving rise to point bar formation. The locus of the deepest points of the river along the length is called the thalweg. Most thalwegs pass through a succession of pools in the channel bed that are separated by riffles which might be sedimentary bed forms or bed rock ledges. The pools and riffles of the streambed cause the thalweg to have an irregular slope, rising and falling in the downstream direction.

4- **Meandering**, A river that winds a course not in a straight line but in a sinusoidal pattern is called a meandering river. It is the continued action of the secondary flow developed on the river bends that cause further erosion on the outer bank and deposition on the inner bank. The meandering action increases the length of the stream or river and tends to reduce the slope.

A river tends to build a steeper slope by depositing the sediment on the bed when the sediment load is in excess of that required for equilibrium. This increase in slope reduces the depth and increases the width of the river channel if the banks do not resist erosion. Only a slight deviation from uniform axial flow is then required to cause more flow towards one bank than the other. Additional flow is immediately attracted towards the former bank, leading to shoaling along the latter ascending the curvature of the flow and finally producing meanders in its wake.

Channel meandering is a result of an ongoing bed and bank deformation by the flow in a self-formed alluvial channel thus the meander sinuosity increases with the passage of time, Bank erosion consists of the detachment of grains or assemblages of grains from the bank, followed by fluvial entrainment. Though the riverbed may be composed of non-cohesive alluvial material the banks, on the other hand, may be composed of cohesive or non-cohesive soils. Cohesive, fine-grained bank material is easily eroded by the entrainment of the aggregates or the crumbs of the soil rather than individual particles, which are bound tightly together by electro-mechanical cohesive forces. Non-cohesive bank material is usually detached grain by grain and may leave a pronounced notch marking peak stage achieved.

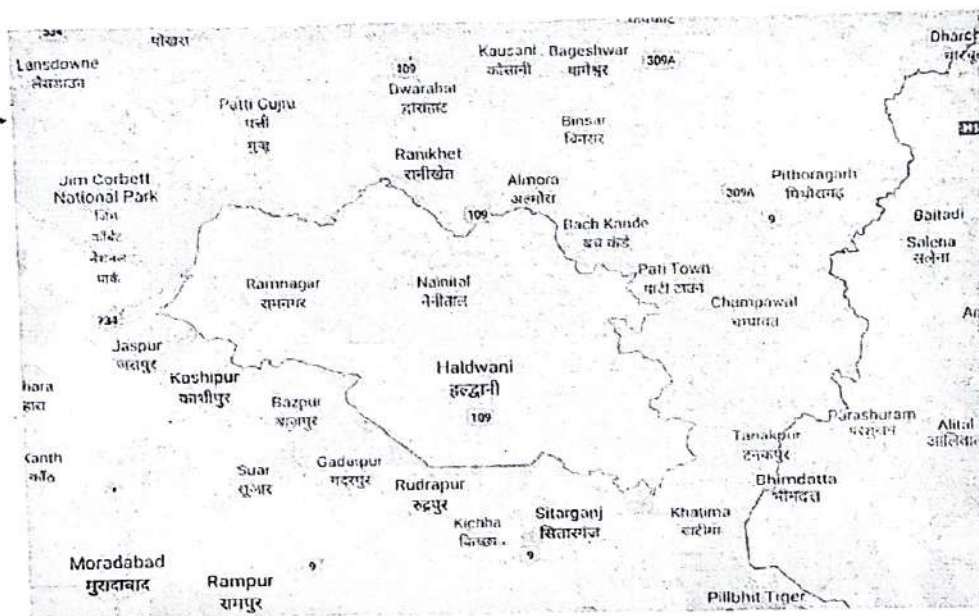
7. General Profile of the District

1. District at a glance

S.No	Particular	Year	Unit	Statistics
1	Geographical features			
(A)	Geographical Data			
	i) Latitude	2001		29°05' north
	ii) Longitude	2001		80°14' and 78°80' east

	iii) Geographical Area	2001	Sq KM	3422
(B)	Administrative Units			
	ii) Tehsils	2011	No.	08
	iv) Community Developmental blocks	2011	No.	08
	v) Nayaya Panchayat Simitis		No.	44
	vi) Municipal Corporation	2011	No.	01
	vii) Municipal Board	2011	No.	03
	viii) Gram Panchayats	2011	No.	460
	xi) Total villages	2011	No.	1082
	x) Assembly Area	2011	No.	06
2.	Population			
(A)	Sex-wise			
	i) Male	2011		494115
	ii) Female	2011		461013
(B)	Rural Population	2011		583237
3.	Agriculture			
A.	Land utilization			
	i) Total Area	2006-07	Hectare	406475
	ii) Forest cover	2006-07	"	298336
	iii) cultivable Barren land	2006-07	"	23403
4.	Forest			
	(i) Forest		Ha.	298336
5.	Livestock & Poultry			
A.	Cattle			
	i) Cows	2003	Nos.	170583
	ii) Buffaloes	2003	Nos.	123106
B.	Other livestock			
	i) Goats	2007	Nos.	63386
	ii) Pigs	2007	Nos.	1166
	iv) Railways			
	i) Length of rail line	2010-11	Kms	38
	V) Roads			
	(a) National Highway	2006-07	Kms	131
	(b) State Highway	2007-08	Kms	128
	(c) Main District Highway	2007-08	Kms	95
	(d) Other district & Rural Roads	2010-11	Kms	1790
	(e) Rural road/ Agriculture Marketing Board Roads/others	2007-8	Kms	1090

(VI) Communication			
(a) Telephone connection	2007-08	nos	81686
(b) Post offices	2007-08	Nos.	168
(f) PCO Rural	2010-11	No.	524
(VII) Public Health			
(a) Allopathic Hospital	2010-11	No.	49
(b) Beds in Allopathic hospitals	2010-11	No.	1759
(c) Ayurvedic Hospital	2010-11	No.	39
(d) Beds in Ayurvedic hospitals	2010-11	No.	112
(e) homeopathic hospitals	2010-11	No.	13
(f) Family welfare centers	2010-11	No.	6
(g) Primary health centers	2010-11	No.	22
(h) Family welfare Sub Centre	2010-11	No.	143
(VIII) Banking commercial			
(a) Commercial Bank		Nos.	54
(b) rural Bank		Nos.	12
(c) Co-Operative bank		Nos.	25
Branches			
(d) other bank Branches		Nos.	1
(IX) Education			
(a) Primary school	2010-11	Nos.	1272
(b) Middle schools	2010-11	Nos.	373
(c) Secondary & senior secondary schools	2010-11	Nos.	210
(d) Colleges		Nos.	03
(e) Technical University		Nos.	00



Map of District Nainital

8. Land Utilization Pattern in the district: Forest, Agriculture, Horticulture, Mining etc.

Based on the land use dynamics data rates of change in different land use/land cover categories in different towns of district Nainital were worked out. The results are presented in table 7.1. Using these current rates of change in different land categories the land use pattern of the towns of district Nainital was projected for the year 2020 which is presented in table 7.2. Based on these projected land use pattern prospect and plan for different towns of district Nainital the prospect and plan of towns of district Nainital which is presented in the following paragraphs.

Table 7.1: Rates of change of different land use/land cover (in km²/year) of various towns of the study area.

Towns	Land use/land cover					
	Built-up	Vegetation	Agriculture	Water body	Sand bar	Open space
Haldwani	1.24	-0.48	-0.81	-0.07	0.12	0.00
Ramnagar	0.14	-0.15	-0.01	-0.04	0.06	0.00
Nainital	0.09	-0.09	-0.004	0.00	0.00	0.001
Bhimtal	0.16	-0.04	-0.02	0.00	0.00	0.00
Bhowali	0.02	-0.01	-0.007	0.00	0.00	0.00

Table 7.2: Projected land use/land cover (in km²) under different categories up to 2020 in different towns of district Nainital.

Towns	Land use/land cover					
	Built-up	Vegetation	Agriculture	Water body	Sandy area	Open space
Haldwani	44.55	-81.82	-95.26	-3.79	12.43	0.00
Ramnagar	5.49	-8.79	-15.95	-1.86	3.89	0.00
Nainital	5.35	-6.99	-1.09	0.00	0.00	0.23
Bhimtal	5.77	-12.49	-678	0.00	0.00	0.00
Bhowali	1.12	-1.56	-0.65	0.00	0.00	0.055

7.1 PROSPECT AND PLAN

Land use/land cover pattern of the Haldwani town reveals that out of the total town area 15.24% (32.06 km) is under built-up area, 36.57% (76.93 km) under vegetation, 41.43% (87.16 km) under agricultural land, 1.44% (3.03 km) under water body and 5.32% (11.16 km) under sandy area (Table 4.1). Land

use/ land cover dynamics (Table 7.1) suggest that the built-up area in the town is increasing at the rate of 1.24 km /year. Based on this current increasing rate of built-up area, it can be extrapolated that by the end of 2020, the built-up area of the town shall reach up to 44.55 km (Table 7.2). Due to increase in the built-up area, the process of agricultural land is decreasing in the town. At present about 41.43% (87.16 km) area of the town falls under agricultural land. The study reveals that the agricultural land of the town is decreasing at the rate of 0.81 km /year (Table 7.1). If this rate continuous, it is estimated that by the end of 2020 about 95.26 km agricultural land shall be reduced and shall be converted in to built-up area.

Land use/land cover pattern of the Ramnagar town reveals that out of the total town area 12.79% (or 4.08 km²) under built-up land, 22.85% (or 7.29 km²) under vegetation, 49.67% (or 15.84 km²) under agricultural land, 4.46% (or 1.42 km²) under water body and 10.23% (or 3.26 km) under sandy area (Table 4.3). Land use/ land cover dynamics (Table 7.2) suggest that the built-up area in the town is increasing at the rate of 0.14 km /year. Based on this current increasing rate of built-up area, it can be extrapolated that by the end of 2020, the built-up area of the Haldwani town shall reach up to 5.49 km (Table 7.2). Due to increase in the built-up area, the process of agricultural land is decreasing in the town. At present about 49.67% (or 15.84 km) area of the town falls under agricultural land. The study reveals that the agricultural land of the town is decreasing at the rate of 0.01 km /year (Table 7.1). If this rate continues it is estimated that by the end of 2020, about 15.95 km agricultural land shall be reduced which shall be converted in to built-up area. Land use/land cover pattern of the Ramnagar town reveals that out of the total town area 35.93% (4.38 km) is under built-up land, 49.71% (6.06 km) under vegetation, 8.62% (1.05 km) under agricultural land, 3.94% (0.48 km) under water body and 1.80% (0.22 km) under open space (Table 4.5). Land use/land cover dynamics (Table 7.1) suggest that the built-up area in the town is increasing at the rate of 0.09 km /year. Based on this current increasing rate of built-up area, it can be estimated that by the end of 2020, the built-up area of the town shall reach up to 5.35 km (Table 7.2). Due to increase in the built-up area, the process of agricultural land is decreasing in the town. At present about 8.62% (1.05 km) area of the town under agricultural land. The study reveals that the agricultural land of the town is decreasing at the rate of 0.004 km /year (Table 7.1). If this rate continues, it is estimated that by the end of 2020 about 1.09 km agricultural land shall be reduced and shall be converted in to built-up area.

Land use/land cover pattern of the Bhimtal town reveals that out of the total town area 17.51% (4.11 km) falls under built-up land, 51.47% (12.07 km) under vegetation, 27.70% (6.50 km) under agricultural land and 3.32% (0.78 km) underwater body (Table 4.6). Land use/land cover dynamics (Table 7.1) suggest that the built-up area in the town is increasing at the rate of 0.16 km /year. Based on this current increasing rate of built-up area, it is estimated that by the end of 2020, the built-up area of the town shall reach up to 5.77 km . Due to increase in the built-up area, the process

of agricultural land is decreasing in the town. At present about 3.32% (0.78 km) area of the town under agricultural land. The study reveals that the agricultural land of the town is decreasing at the rate of 0.02 km /year (Table 7.1). If

this rate continues, it is estimated that by the end of 2020 about 6.78 km agricultural and shall be reduced and shall be converted in to built-up area.

Land use/land cover pattern of the Bhowali town reveals that out of the total town area 30.88% (0.92 km) under built-up land, 47.98% (1.43 km) under vegetation, 19.0% (0.58 km) under agricultural land and 1.68% (0.05 km) under open space (Table 4.7). Land use/land cover dynamics (Table 7.1) suggest that the built-up area in the town is increasing at the rate of 0.02 km /year. Based on this current increasing rate of built-up area, it can be extrapolated that by the end of 2020, the built-up area of the town shall reach up to 1.12 km . Due to increase in the built-up area, the process of agricultural land is decreasing in the town. At present about 9.0% (0.58 km) area of the town falls under agricultural land. The study reveals that the agricultural land of the town is decreasing at the rate of 0.007 km /year (Table 7.1). If this rate continues, it is estimated that by the end of 2020 about 0.65 km agricultural land shall be reduced and shall be converted in to built-up area.

The new built-up area in all the towns of district Nainital is being developed in unplanned way. Government should take steps for systematic town planning adopting master plan to solve the emerging problems of traffic congestion, sewage, slums and other problems such as pedestrian and market areas etc. The agricultural land which is being converted in to built-up land which is highly fertile land. Therefore, government should develop new urban policy to protect this fertile agricultural land.

9. Physiography of the District

The foothill area of the district is known as Bhabhar. The name Bhabhar is derived from a tall growing grass growing in the region. The underground water level is very deep in this region. Kosi is the main river of the district. River Kosi arising out of Koshimool near Kausani flows on the western side of the district. There are number of smaller rivulets like Gaula, Bhakra, Dabka, Baur etc . Most of these have been dammed for irrigation purposes. Nainital district has good received good rainfall in recent years. As per 1999 records total average rainfall of district was 1338.08 MM while total average rainfall up to Aug. 2000 was 1602.69 MM.

- i) Latitude 29°00' and 29°05' north
- ii) Longitude 80°14' and 78°80' east
- iii) Geographical Area 3422 Sq.KM
- iv) Average Rain Fall 1602.69mm

v) Temperature range 40.2 to -5.4

(A) The Piedmont fan deposits known as Bhabar

These zones spread in northeast – southwest direction all along the foothills of the Siwalik formation having a maximum width of less than 30 km. The general gradient towards south varies from 9 to 17 m/km. The slope gradually decreases towards south in the Tarai region and becomes almost flat close to the boundary between Tarai and Central Ganga plains, which exists few km south of the southern boundary of the study area. The geomorphology of an area plays a very significant role in the groundwater movement and its occurrences.

The soil types are controlled by the topography and rock types, the Bhabar soils lay at the northern extremity of Khatima and Bazpur blocks, part of the alluvial fan deposits. Soils are shallow with sandy to loamy texture, poorly sorted, comprising mainly of gravel, sand, silt, clay with pebbles etc, rather than this the Tarai soils run all along the northern extremity of the district, form continuous fringe with the Bhabar Zone.

(B) The Tarai Alluvium

Bhabar formation is found in extreme northern parts of the Khatima and Bazpur blocks, boundary demarcated by the contact of Tarai and Bhabar. The Tarai belt is 8–25 km in width, and the general slope is <1% towards south. Soil is calcareous, moderately productive and suitable for extensive cultivation of high yielding variety of crops like rice and sugar cane.

10. Rainfall: month-wise rain fall data of last five year, District Nainital: (source IMD)

The monthly average of minimum and maximum temperature varied from 10C to 140C and 210C to 290C in 2006; 00C to 16.390C and 15.65 to 28.50C respectively in 2007. The hottest month was June and slight decrease in the temperature was recorded from July onwards. January, February, March and December were the coldest months in the both years. Snowfall was recorded in the month of January in 2006 and in the month of January and February in 2007.

Rainfall starts from mid may onwards in 2006 and 2007. The maximum monthly rainfall was 554mm in August 2006 and 782.6mm in August 2007. The total rainfall of 1872.2mm and 2773.1mm was recorded in the year 2006 and 2007 respectively. In 2007, February was unsettled because of winter rainfall. The local rainfall was common in summer season. Rainfall was observed throughout the year except February in 2006 and November in 2007. However, more rainfall was observed at Nainital than Almora. It may be ascribed due to high hills of Nainital and Nainital Lake in the heart of Nainital district, Uttarakhand. also revealed rainfall data distributed almost throughout the year for 2006 and 2007. Higher rainfall was observed at Nainital meteorological station.

Table showing rain fall data-

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F
2014	86.2	73.3	51.8	15.5	39.4	84	799.5	366.8	167.7	65.6	0	83.5
2015	68.4	39.9	180.3	98.4	42.4	313.4	497.1	388.3	70	31.7	5.8	2.2
2016	1.4	17.2	60.7	5.8	143.3	224.7	714.8	407.1	197.9	14	0	0.3
2017	51.1	13.5	21.9	15.6	162	176.3	654.7	506.8	413.1	0	0	3.5
2018	15.2	7.2	10.4	80.6	32.1	192.6	450.4	606.4	298.4	5.7	15.7	0.9

11. Geology and Mineral Wealth

The Nainital hills represent the southeastern part of a strip of enechelon basins of the Krol belt, which stretches southeastward from Solan (Himachal) to Nainital (Uttaranchal). Middlemiss (1890), Auden (1934), Gansser (1964), Rupke (1974), Valdiya (1980, 1988, and 1998) models of the Krol belt visualize the ~6 km thick pile of Chandpur-Nagthat-Blani-Krol-Tal succession in the outer belt of Lesser Himalaya (Table 1) (Figs.1). The Chandpur and Nagthat formations have been grouped in Jaunsar Group; however the younger Blani-Krol-Tal formations exposed in Nainital Syncline have been grouped in Mussoorie Group (Valdiya, 1980, 1988).

The southern limit of the Krol belt is delineated by the highly tectonized rocks of the Amritpur granites (Valdiya, 1980), which have been brought up along Main Boundary Thrust (MBT). The sedimentary succession of Krol belt in Nainital area begins with the Nagthat Formation of the Jaunsar Group, which is sharply overlain by the Blaini Formation, which in turn gives way to Krol and Tal formations (Fig. 2). These outer Lesser Himalayan rocks are sandwiched between the Main Boundary Thrust (MBT) in the south, which separates them from the Neogene Siwalik and Ramgarh thrust in the north marking a faulted contact with crystallines rocks of the Almora Nappe (Fig. 1). The rocks are dipping north to northeast at angles ranging 10° to 60° .

The Almora hills represent the central sector of the Almora Nappe, stretching west from Dandeldhura (western Nepal) to Dudhatoli in Garhwal (Heim and Gansser, 1939, Gansser, 1964, Valdiya, 1980). Geologists have recognized the Almora Nappe a thick pile of metasedimentaries and granites, representing central crystallines (Heim and Gansser, 1939, Gansser, 1964, Valdiya, 1980). Valdiya (1980) designated Saryu Formation, Gwalikhet Formation and Champawat granitoid as the Almora Group, and the lower Nathuwakhan Formation and Ramgarh (Dev guru)

Porphyry as Ramgarh Group (Fig. 3). The litho stratigraphic scheme (Fig. 1 and 2) has been followed after by Valdiya (1980, 1988, and 1998).



Figure 4. Sketch map showing major thrust faults that define the lithotectonic-physiographic terranes in Kumaun Himalaya and the transverse tear faults (modified after Valdiya^{12,23}). Boxes show the locations of the study areas discussed.

CURRENT SCIENCE VOL. 81, NO. 11, 10 DECEMBER 2001

1491

Fig no 1, Map showing structural details of kumaun himalayes

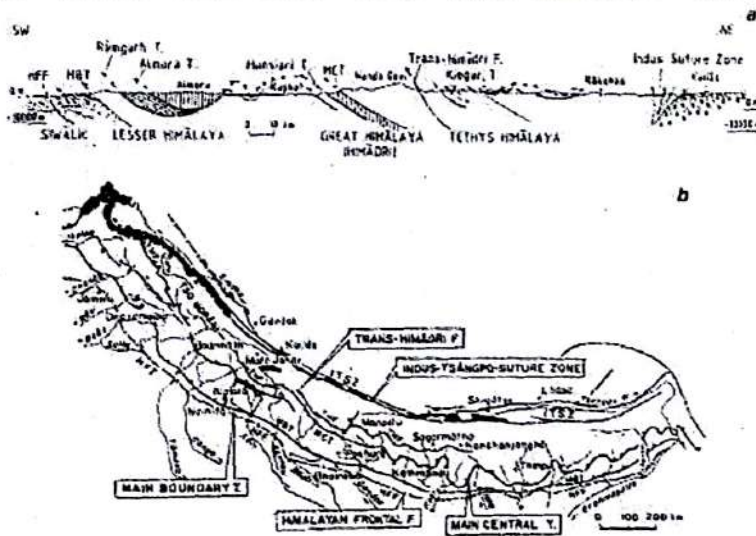


Figure 3. a. Cross-section across the Kumaun Himalaya showing major tectonic planes that define the boundaries of its lithotectonic-physiographic terranes (modified after Gansser¹⁴). MCT, Main Central Thrust. b. Lateral extent of the terrane-defining boundary thrusts of the Himalaya.

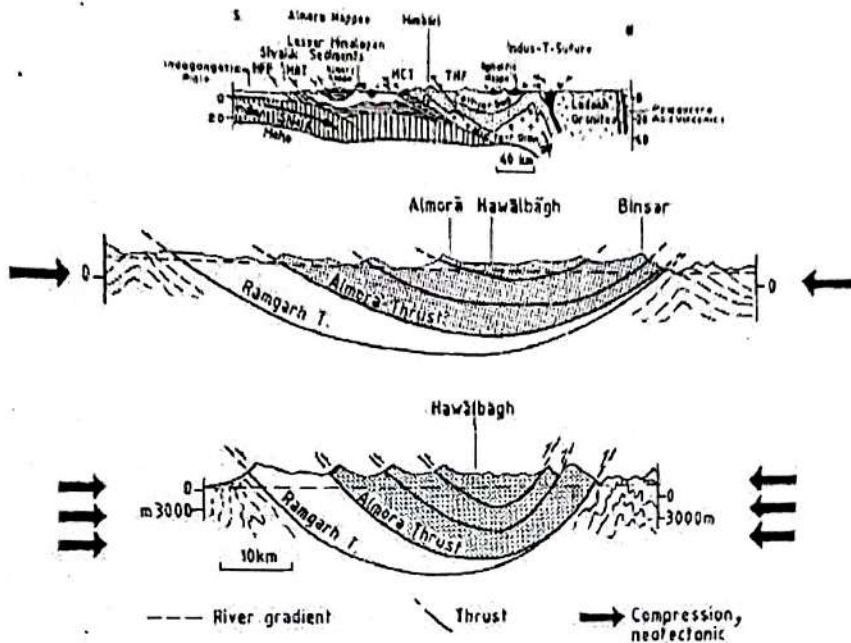


Figure 13. Reactivation of the Almora Thrust and the subsidiary thrusts and faults is attributed to the compression experienced by the Almora Nappe due to the underthrusting of the Indian plate beneath the Himalaya. The upper section, after Gansser⁴³, shows the structure of the Himalaya and the dynamics of the Indian plate sliding under the Himalaya.

Fig no 2, Map showing structural details of kumaun himalayas

Nagthat Formation: -

It comprises of assemblage of purple, fawn and greyish quartzarenites with locally developed conglomerates and slates with pencontemporaneous volcanics (Auden, 1934). The Formation in general, lies over the Amritpur granite (1900±100 m.y.) exposed towards south of Bhimtal. It is further sub classified into members viz. Bhimtal Volcanics and Bhawali Quartzites. Bhimtal Vocanics are represented by basic volcanics. Their volcanics comprise dominantly of basalt and tuffites. The basalt exhibits at places amygdaloidal structure and largely comprises chlorite schists of spillitic nature (Diwaker, Rao *et al.*, 1974) along with maroon purple slates. It is followed by thick sequence which comprise of quartzarenite. These quartzarenites belong to Bhawali Quartzite and are in intimate association with pencontemporaneous Bhimtal volcanics in the area of investigation (Table 1.1). The Bhawali quartzite comprises of pink, purple fine to coarse grained quartzarenites and siltstone, shale and conglomerate horizon. Pant and Shukla, (1998) recognized seven lithofacies and on the basis of its physical character concluded that Nagthat Formation's sedimentation occurred in progradational barrier island system. The Nagthat Formation exhibit a progressive upward increase in grain size. A number of workers have assigned plaeozoic age to

Nagthat Formation (Auden, 1934; Raina and Dungrakoti, 1975; Valdiya, 1980). On the basis of regional geological setting and recent fossils in Krol rocks Nagthat is considered to be as early upper Proterozoic age.

Blaini Formation: -

It seeks its nomenclature from its type section exposed along Baliana nala near Dhanaulti located on Mussoorie-Tehri road (Valdiya, 1980). Blaini Formation comprises of polymictic conglomerates, siltstones, quartzites, greywacke and grey olive green slates with lenticular beds of purple to pink dolomitic limestone. The rocks are well exposed in the north and north eastern part of the area under study (Fig. 1.9). Which extend from Kilberry- Ghughukhan- Binayak- Badanthali- Naunia Binayak- Kunjakharak and continuous further westward. The Blaini Formation is completely developed in the mentioned extension and overlies the Nagthat with sharp contact. On the basis of physical characteristic and lithological characteristics of the Blaini Formation is sub classified into four members (Table 1.2). Keeping in view the recent fossil founding from Infra krol and Tal, the Blaini has been assigned late Precambrian (Azmi *et al.*, 1981; Azmi, 1983; Kumar 1984; Singh and Rai, 1977)

Krol Formation: - It rests over the Blaini Formation with gradational contact. The Krol Formation with dominance of calcareous sediments has been further sub-classified into six members (Table 1.2). This sub-classification is based on the diversity in lithology and mode of sedimentation (Valdhya, 1980). On the basis of available ambiguous fauna, the Krol Formation has been assigned ages from Precambrian to Cretaceous (Auden, 1934, 1937; Sitholey *et al.*, 1954; Ghosh and Srivastava, 1962; Singh and Rai, 1977). The recent finding of Conodonts by (Azmi and Pancholi, 1983) from the Phosphatic beds at the base of Krol D at Durmala in the Mussoorie Hill, places the Upper Krol in the earliest Cambrian (Tomotion). The assemblage comprises of *Protohertzina unguiliformis*, *P. siciformes* a *Hyalolithids* such as *Circotheca aff obesa*, *bryozoans Eoscharophora* etc.

Tal Formation: - The Tal Formation rests over the Upper Krol with transitional contact which comprises a sequence of carbonaceous shales interbedded with dolomite exhibiting cryptalgalmats and phosphatic nodules (Tiwari, 1995). This is followed by purple green slates interbedded with cross bedded fine grained sandstone and siltstone. These rocks are known as Tal Formation (Valdiya, 1980) have been further classified in two members (Table 1.2). The Tal Formation forms the core of syncline and dominantly comprise of Giwalikhet Member in the area of investigation. The Formation is well exposed to the west of Nainital around Narayannagar, Gairkhet, Timalpani and Titkhet. The Giwalikhet Member comprises of siltstone, slates and has been correlated with Chert phosphate and argillaceous member of Mussoorie hills. The Narayannagar Member is co-relatable with arenaceous sequences of Tal Formation of Mussoorie syncline (Shankar, 1971; Bhargava, 1976; Kumar, *et al.*, 1993). Further, the summary of the regional correlation of the rock of area is given in (Fig. 1.10).

Mineral Wealth

Mineral Wealth

Bhabar Zone: Bhabar is highly porous and permeable alluvial tract lying in an elongated form along the Siwalik foothills. It has northwest-southeast elongation and forms a highly potential hydro-geologic unit. Bhabars deposits are poorly sorted, unconsolidated sediments viz., boulders, cobbles, pebbles, and granules, coarse to fine sand, silt and clay. The Bhabar merges gradually with the Tarai occurring in the south. The contact between these two hydrogeomorphic units is characterized by the change in slope and groundwater effluents, which form the spring line. These channels debouch the sediments at the downhill, over the foothills of the sub-Himalayan zone.

The sediments are deposited in the form of triangular alluvial fans and cones, by the braided streams. The alluvial cones join together to form an extensive piedmont plain. This Bhabar zone is highly productive on account of these sediments deposits which can be use as good building material which has high demand at the present time. The Bhabar zone acts as a recharge front for the Tarai belt while in Tarai belt fine alluvium deposits are found, where mostly sand fine silt and clay is found to expose. The vast ground water stored below the Tarai region of Udham Singh Nagar also contributes to the natural asset of the district.

a) District wise detail of river or stream and other sand source

नदी का नाम	जिले से कुल दूरी (किमी०)	उदगम स्थल	उदगम स्थान पर ऊंचाई	निकासी क्षेत्र (वर्ग किमी०)	अभ्युक्ति
1	2	3	4	5	6
कोसी नदी	105.00	कौसानी-अल्मोड़ा	1357 मीटर	60.3750	आर०बी०एम०
शिप्रा नदी	18	भवाली-नैनीताल	1705 मीटर	0.4680	आर०बी०एम०
निहाल नदी	13.50	नैनीताल की पहाड़ियां	1635 मीटर	3.8475	आर०बी०एम०
बौर नदी	28.50	नैनीताल की पहाड़ियां	843 मीटर	3.8475	आर०बी०एम०
गौला नदी	30	खन्स्यू नैनीताल	1219 मीटर	1.3500	आर०बी०एम०
नन्चौर नदी	45	पतलोट-नैनीताल	600 मीटर	2.2500	आर०बी०एम०
भाखड़ा नदी	18	नैनीताल की पहाड़ियां	723 मीटर	1.9080	आर०बी०एम०
दाबका नदी	11	नैनीताल की पहाड़ियां	760 मीटर	1.7600	आर०बी०एम०
ढेला नदी	15	बिजलानी के जंगल रामनगर	301	2.4000	आर०बी०एम०
स्वालदे नदी	10	रामनगर के जंगल	773	2.2000	आर०बी०एम०

b) District wise availability of sand or gravel or aggregate resources (other than existing RBM Mining leases)

जनपद व तहसील नैनीताल में ई-नीलामी/L.O.I. पर निर्गत पट्टों का विवरण

क्रम सं०	नाम व पता	खनन पट्टा क्षेत्र का स्थान	खनिज का नाम	क्षेत्रफल हेक्टेयर में	आशय पत्र	स्वीकृत उपखनिज की मात्रा प्रतिवर्ष
1	2	3	4	5	7	8
1.	श्री सत्येन्द्र कुमार तोमर , ग्राम बमौरी, तल्ली ,खाम तहसील हल्द्वानी नैनीताल	ग्राम भौसा, तह० व जिला नैनीताल।	रेता, बजरी ,बोल्डर	8.00 है०	सं० 799/VII- I/2018/6 ख/2018 दिनांक 15 मई, 2018	60,000 घनमी०
2-	श्री हरीश सिंह निवासी ग्राम काठगोदाम,तहसील हल्द्वानी, नैनी०	ग्राम तल्लाकोट तहसील कोशयाकुटौली	रेता, बजरी ,बोल्डर	1.720 है०	सं० 3042/VII- I/2019/02 (137) /18 दिनांक 17 जनवरी 2019	17,200 घनमी०

जनपद स्तर पर ई-टेण्डर के माध्यम से आवंटित किये जाने वाले नदी तल उपखनिज के खनन पट्टे (पूर्व में ई-नीलामी प्रक्रिया से आवंटन ना हो पाने तथा निगमों के द्वारा समर्पित उपखनिज के खनन पट्टे)

क्रम सं०	प्रस्तावित खनन लॉट	प्रस्तावित क्षेत्रफल	आंकलित उपखनिज की मात्रा।
01	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लॉट नं० 01	4.00	132000
02	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लॉट नं० 02	3.50	115500
03	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 03	4.80	158400
04	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 04	1.50	49500
05	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 05	1.50	49500

06	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 06	1.20	39600
07	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 07	1.20	39600
08	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 08	3.50	115500
09	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 09	2.20	72600
10	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 10	1.50	49500
11	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 11	4.50	445500
12	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 12	2.75	90750
13	तहसील हल्द्वानी के हल्द्वानी वन प्रभाग छकाता रेंज सूखी नदी लाट नं० 13	2.70	89100
14	निहाल नदी	100.00	मात्रा का आंकलन ई० आई० ए० के उपरान्त।
15	भाखड़ा नदी	170.08	मात्रा का आंकलन ई० आई० ए० के उपरान्त।
16	बोर नदी	255.00	मात्रा का आंकलन ई० आई० ए० के उपरान्त।
17	चौसला	36.00	मात्रा का आंकलन ई० आई० ए० के उपरान्त।
18	धूना	15.88	मात्रा का आंकलन ई० आई० ए० के उपरान्त।

जनपद नैनीताल के तहसील नैनीताल/बेतालघाट एवं कोश्याकुटौली में कोसी नदी में चिन्हित किये गये नये राजस्व उपखनिज खनन स्थलों की सूची

क्रम सं०	ग्राम का नाम	तहसील	खसरा सं०	क्षेत्रफल	उपखनिज की सम्भावित मात्रा	उपखनिज का प्रकार
1.	कटीमी	बेतालघाट	982	1.60 है०	16000 घनमी०	आर०बी०एम०
2.	कटीमी	बेतालघाट	1666, 1692, 1752	2.98 है०	29,800 घनमी०	आर०बी०एम०
3.	कटीमी	बेतालघाट	1319, 1320, 1324	1.30 है०	13,000 घनमी०	आर०बी०एम०
4.	सेठी धारकोट	बेतालघाट	3103, 3073/4893	1.540 है०	15,400 घनमी०	आर०बी०एम०
5	मझेड़ा	कोश्याकुटौली	1/4171	0.120 है०	ई० आई० ए० के उपरान्त	आर०बी०एम०
6	नैना	कोश्याकुटौली	--	3.888 है०	ई० आई० ए० के उपरान्त	आर०बी०एम०
7	रोपा	बेतालघाट	156	11.132 है०	ई० आई० ए० के उपरान्त	आर०बी०एम०
8	मल्लीपाली	बेतालघाट	1 व 2	1.442 है०	ई० आई० ए० के उपरान्त	आर०बी०एम०
9	जोशीखोला	बेतालघाट	2827, 2828, 2829	3.200 है०	ई० आई० ए० के उपरान्त	आर०बी०एम०
10	चापड़	बेतालघाट	2078	5.605 है०	ई० आई० ए० के उपरान्त	आर०बी०एम०
11	वर्घी	बेतालघाट	893	0.320 है०	ई० आई० ए० के उपरान्त	आर०बी०एम०
12	डहरा	नैनीताल	173	3.785 है०	37,850 घनमीटर	आर०बी०एम०

Mineable Potential with respect of drainage

Portion of the River or Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in Km)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in sq. meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
कोसी नदी	105-00	225	23625000	46777500
शिप्रा नदी	18	30	540000	1069200
निहाल नदी	13-50	100	1350000	2673000
बौर नदी	28-50	30	855000	1692900
गौला नदी	30	120	3600000	7128000
नन्धौर नदी	45	110	4950000	9801000
भाखड़ा नदी	18	40	720000	1425600
दाबका नदी	105-00	125	13125000	25987500
ढेला नदी	18	30	540000	1069200
स्वालदे नदी	13-50	30	405000	801900

NOTE: The above data are tentative.

Mineral Potential

River	Boulder (MT)	Bajri (MT)	Sand (MT)	Total Mineral (MT)	Mineable Potential
कोसी नदी	9355500	28066500	9355500		46777500
शिप्रा नदी	427680	427680	213840		1069200
निहाल नदी	1069200	1069200	534600		2673000
बौर नदी	338580	677160	338580		1692900
गौला नदी	1782000	3207600	2138400		7128000
नन्धौर नदी	2450250	4410450	2940300		9801000
भाखड़ा नदी	356400	641520	427680		1425600

दाबका नदी	9095625	11694375	5197500	25987500
ढेला नदी	374220	481140	213840	1069200
स्वालदे नदी	320760	240570	240570	801900
NOTE: The above data are tentative.				

Annual Deposition

River	Boulder (MT)	Bajri (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)
कोसी नदी	9355500	28066500	9355500	46777500
शिप्रा नदी	427680	427680	213840	1069200
निहाल नदी	1069200	1069200	534600	2673000
बौर नदी	338580	677160	338580	1692900
गौला नदी	1782000	3207600	2138400	7128000
नन्धौर नदी	2450250	4410450	2940300	9801000
भाखड़ा नदी	356400	641520	427680	1425600
दाबका नदी	9095625	11694375	5197500	25987500
ढेला नदी	374220	481140	213840	1069200
स्वालदे नदी	320760	240570	240570	801900
NOTE: The above data are tentative.				

Grand Total of mineable mineral potential (Existing and Identified RBM deposits)

S. No.	River or Stream	Portion of the river stream recommended for mineral concession	Length of area recommended for mineral concession (in Km)	Average width of area recommended for mineral concession (in meter)	Area recommended for mineral concession (in sq. meter)	Mineable mineral potential (in MT) (60% of total mineral potential)
1	कोसी नदी	कोसी नदी	105.00	225	23625000	46777500

2	शिप्रा नदी	शिप्रा नदी	18	30	540000	1069200
3	निहाल नदी	निहाल नदी	13.50	100	1350000	2673000
4	बौर नदी	बौर नदी	28.50	30	855000	1692900
5	गौला नदी	गौला नदी	30	120	3600000	7128000
6	नन्धौर नदी	नन्धौर नदी	45	110	4950000	9801000
7	भाखड़ा नदी	भाखड़ा नदी	18	40	720000	1425600
8	दाबका नदी	दाबका नदी	105.00	125	13125000	25987500
9	ढेला नदी	ढेला नदी	18	30	540000	1069200
10	स्वालदे नदी	स्वालदे नदी	13.50	30	405000	801900
Total for the District			394.50	840.00	4,97,10,000	9,80,87,220
NOTE: The above data are tentative.						

GENERAL RECOMMENDATIONS/CONCLUSIONS

During the preparation of the present report prominent rivers/ streams has been studied in detail, as the rest of the streams/rivers either have very insignificant annual replenishment/ approachability problem or are very narrow at most of the places and as such are not fit for grant of mineral concession for mineral based industries, however it is also important to mention here that because of the regular demand of sand, stone and bajri for the developmental activities in the respective areas, such streams are prone to illegal mining. It is suggested that the auctions of quarries be done regularly to meet out the local demand subject to the approval from the joint Inspection Committee as Uttarakhand Minor Mineral Concession Rule, 2001. These mineral concessions shall also reduce demand load and will be helpful to minimize illegal extraction of minerals, failure of which may result in to illegal mining at odd hours and shall be haphazard and more detrimental to the local ecology. Irrespective of it, following geo-scientific consideration should also be taken into account during the river bed mining in a particular area:

1. Abandoned stream channels or terrace and inactive floodplains may be preferred rather than active channels and their deltas and floodplains.
2. Stream should not be diverted to form inactive channel.
3. Mining below sub-terranean water level should be avoided as a safeguard against environmental contamination and over exploitation of resources.
4. Large rivers and streams whose periodic sediment replenishment capacities are larger, may be preferred than smaller rivers.

5. Segments of braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.
6. Mining at the concave side of the river channel should be avoided to prevent bank erosion. Similarly meandering segment of a river should be selected for mining in such a way as to avoid natural eroding banks and to promote mining on naturally building (aggrading) meander components.
7. Continued riverbed material mining in a given segment of the river will induce seasonal scouring and intensify the erosion activity within the channel. This will have an adverse effect not only within the mining area but also both in upstream and downstream of the river course. Hazardous effects of such scouring and enhanced erosion due to riverbed mining should be evaluated periodically and avoided for sustainable mining activities.
8. Mining area should be demarcated on the ground with Pucca pillars so as to avoid illegal unscientific mining.
9. It is recommended that Sub Divisional Level Committee may take into consideration all its relevant aspects / data while scrutinizing and recommending the application for EC to the concerned Authority.

Ravi Singh Negi
26.10.2019

Asstt. Geology
सहायक भू-वैज्ञानिक
भूतत्व एवं खनिकर्म इकाई
उद्योग विभाग, उ०
पैदावा विभा. इकाई

संलग्नक :- 03



भाकृअनुप-भारतीय मृदा एवं जल संरक्षण संस्थान (भामृजसंस)
२१८ कौलागढ़ रोड, देहरादून-२४८ १९५ (उत्तराखंड)
ICAR-Indian Institute of Soil & Water Conservation (IISWC)
218, Kaulagarh Road, Dehradun 248 195 (Uttarakhand)



इं० एस०एस० श्रीमाली
वरिष्ठ वैज्ञानिक
Er S.S. Shrimali
Senior Scientist

F.No. Khanan Consultancy
Dated: March 24th, 2022

The Regional Manager,
UKFDC,
Ramnagar

In response to the query of MOEF para iii, this is intimated that the survey report has been prepared based on the pre and post monsoon survey of defined river reaches. The estimation of RBM for extraction has been confined to the 50 percent of the existing river width leaving the ample scope of bank protection and maintaining the profile of the river. The extraction recommended is less than 3m hence the report is as per Guide lines- 2016 mentioned for river bed mining.

This for your information and further action.

(S.S. Shrimali)

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Twitter : <https://twitter.com/icariiswc>

संलग्नक :- 04

Cost of Project:-

Name of project:- Collection of the minerals from the Gaula River

Uttarakhand forest Development Corpoation, Haldwani(Nainital)

Sr.No.	Paticulars	Approx Amount (in lakhs)	Remarks
1	Total Cost(Investment incurred)for 10 years	13152.00	
(A)	Construction Cost of the Projects	13152.00	
(B)	N.P.V Amount to be deposited @--- lakh/Ha	N/A	
(C)	Substitute/Alternative Plantation Cost to be Deposited:-	N/A	
	Total (A+B+C)	13152.00	
2	Benefits:- Benefits from taking age of Projects as 10 Years	105152.00	
(A)	Economics Benefits-Market Development Taking	13152.00	
(B)	Direct Employment of Labours-	72000.00	About 5000 labours will be working for 240 days @Rs 600=72000 Lakh. These Labours are directly paid by buyer.
(C)	Employment Generation Due to other activities	20000.00	Truck Owner + Machinic Workers.
(D)	Therefore construction of Economically viable and social beneficial		
	Total(A+B+C+D)	105152.00	

Note:-Total expenditure SI No 1=13152.00(In Lakhs)

Benefit SI No2=105152.00 (In Lakhs)

There, Benefits/cost Ratio=105152.00/13152.00=7.995

Therefore the project is economically viable socially beneficial


Divisional Manager(Mining)
Uttarakhand Forest Development Corporation,
Khanan Haldwani Division(Nainital)

संलग्नक :- 05 586

कार्यालय- प्रभागीय लीमिंग प्रबन्धक, उत्तराखण्ड वन विकास निगम खनन गीला हल्द्वानी प्रभाग हल्द्वानी
वित्तीय वर्ष 2011-12 से 2021-22 तक विभिन्न विभागों को भुगतान किये गये राजस्व का वर्षवार विवरण।

क्र.सं.	वर्ष	उत्तराखण्ड सरकार को विभिन्न स्रोतों में प्रदत्त राजस्व						वन विभाग को प्रदत्त धनराशि						कुल भुगतान धनराशि
		अतिरिक्त/ वार्षिक कर का भुगतान	आयकर का भुगतान	खनन विभाग को भुगतान	स्टॉर्न ह्यूटी	जिला जॉर्ज फाउण्डेशन	उत्तराखण्ड सरकार की कुल प्रदत्त धनराशि	सतिपूरक वर्गीकरण	सुरक्षा एवं सीमांकन	सर्वे एवं काचर पुड सप्लाय	रिवर ट्रेनिंग	कार्पस फण्ड/ सामाजिक (एनपीएचए)	वन विभाग को कुल प्रदत्त धनराशि	
1	2	3	4	5	6	7	(3+4+5+6+7) 8	9	10	11	12	13	(8+10+11+12+13) 14	(8+14) 15
1	2011-12	53191935.00	17970686.00	284753942.00	22780275.00	-	378696838.00	69094800.00	35750302.00	-	71537482.00	60705657.00	237088241.00	615785079.00
2	2012-13	19131507.00	8161575.00	151067864.00	12085428.00	-	190446374.00	21259835.00	9779354.00	-	37773347.00	16315370.00	85127906.00	275574280.00
3	2013-14	149676209.00	38756211.00	624679477.00	49974358.00	-	863086255.00	90710431.00	38730905.00	-	156170623.00	67465510.00	353077469.00	1216163724.00
4	2014-15	27381701.00	26928206.00	372689503.00	29815159.00	-	456814569.00	60179775.00	23106960.00	-	93173196.00	40250627.00	216710558.00	673525127.00
5	2015-16	126488244.00	38287607.00	589528474.00	38572504.00	-	792876829.00	79599319.00	10693199.00	-	74344726.00	62584067.00	227221311.00	1020098140.00
6	2016-17	148416532.00	44932016.00	798008242.00	16642617.00	-	1007999407.00	103556819.00	20000000.00	-	93178253.00	80054284.00	296789356.00	1304788763.00
7	2017-18	103892764.00	43689956.00	775270288.00	15470343.00	-	938323351.00	115918263.00	-	-	116140107.00	77351725.00	309410095.00	1247733446.00
8	2018-19	101595792.00	51305389.00	821918584.00	16420940.00	58115654.00	1049356359.00	122846145.00	67020671.00	-	123465532.00	82104711.00	395437059.00	1444793418.00
9	2019-20	63161309.00	33154889.00	497493759.00	9986532.00	124626149.00	728422638.00	74776868.00	26755884.00	-	17870420.00	49750104.00	169153276.00	897575914.00
10	2020-21	81233882.00	33128223.00	646013900.00	12920455.00	161883171.00	935179631.00	97281774.00	38002844.00	-	-	64602285.00	199886903.00	1135066534.00
11	2021-22	72158230.00	35463835.00	538894505.00	10778205.00	135040847.00	792335622.00	81151114.00	31700032.00	-	-	53891018.00	166742164.00	959077786.00
	महायोग:-	946328105.00	371778593.00	6100318538.00	235446816.00	479665821.00	8133537873.00	916375143.00	301540151.00	0.00	783653686.00	655075358.00	2656644338.00	10790182211.00

प्रभागीय लीमिंग प्रबन्धक
खनन गीला हल्द्वानी प्रभाग
उत्तराखण्ड वन विकास निगम, हल्द्वानी