



BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
WESTERN ZONE BENCH PUNE AT PUNE.
Original Application No 41of 2022(WZ)

Abhay Pandurang Desai Appellants

Versus

State Of Maharashtra & Ors ... Respondents

AFFIDAVIT REPLY ON BEHALF OF RESPONDENT NO.2.

I, Dr V M Motghare, Age 56 Years, Occupation Service, Joint Director (APC) of the Maharashtra Pollution Control Board having my office Kalpataru Point, 3rd Floor, Opp, PVR Cinema Sion Circle, Mumbai-400022, filing this Affidavit as authorized by the Member Secretary of MPCB on behalf of answering Respondent No.2 in compliance order dated 17/4/2023.

I have obtain relevant facts & records from Regional Officer- Kolhapur, MPCB. In compliance of this Hon'ble Tribunal Order dated 17.4.2023, the following clarification is submitted for delay in submission of Joint Committee Report before this Hon'ble Tribunal:-

- i) In compliance of Hon'ble NGT order dtd. 05.09.2022, Board has constituted joint committee vide office order dated 26/9/2022 and site visit was conducted by joint committee on 13/10/2022. A copy of said committee order dated 26.9.2022 is enclosed and marked as an **Annexure "I"**.
- ii) In OA No. 41 of 2022 applicant 'Seeking to

assessment of damage caused to Environment located in Village Kalane due to activity of M/s. Minerals and Metals, Sr. No. 57/1 to 57/4 of Village Kalane, Tal. Dodamarg, Dist. Sindhudurg.
(Respondent No. 6)

- iii) In order to assess the damage cause to the environment due to the heavy rainfall & activities of M/s. Minerals and Metals, Sr. No. 57/1 to 57/4 of Village, Kalane, Tal. Dodamarg, Dist. Sindhudurg., the joint committee comprising 1) Member of Central Pollution Control Board, Pune 2) Sub-Divisional Magistrate, Sawantwadi, 3) District Agricultural Officer, Sindhudurg, 4) Regional Officer, M. P. C. Board, Kolhapur, have visited M/s. Minerals and Metals, Sr. No. 57/1 to 57/4 of Village, Kalane, Tal. Dodamarg, Dist. Sindhudurg on 13/10/2022. Shri Abhay Desai Applicant & Shri Amit Kaisurkar, Mines Manager for M/s. Minerals and Metals were also present during the visit.
- iv) The Committee has asked for additional documents and reports from District Mining Officer, Sindhudurg, District Agricultural Officer, Sindhudurg & Tahasildar, Dodamarg, Tal. Dodamarg, Dist. Sindhudurg vide letter dated 17/10/2022, for damage assessed for household & agricultural land after the incident occurred in mine area. A copy of said letter dated 17.10.2022 is enclosed and



marked as an **Annexure "II"**.

- v) The Respondent Board (2) has received information from District Agricultural Officer, Sindhudurg vide letter dated 19/12/2022 & from Tahsildar, Dodamarg vide letter dated 21/12/202 & same was communicated to Central Pollution Control Board, Pune office through e-mail on 04/01/2023. Further this office has received final draft committee report from Central Pollution Control Board, Pune through e-mail on 28/01/2023 for concurrence of other members and finalization of draft report. A copy of said email dated 28.01.2023 is enclosed and marked as an **Annexure "III"**.
- vi) After detailed discussion with other committee members for finalization of report, District Agricultural officer & Sub-District Magistrate, Sawantwadi raised some queries in the report like variation in assessment for damage to land & criteria used for same. As a nodal agency, the Respondent Board had took rigorous follow up & discussion with other committee members to resolve the queries & for finalization of the report. However, there was no consensus on the calculation of Environment Damage Compensation of all committee members, therefore the report could not be finalized in time.
- vii) In the meantime, in compliance of Hon'ble NGT Order dated 15.12.2023, the joint has decided to take assistance of Dr. Balasaheb Sawant, Konkan Krishi Vidyapeeth,

Dapoli, Tal Dapoli, Dist Ratnagiri for preparation of damaged land restoration plan. Accordingly, the Respondent Board has requested to Vice Chancellor, Dr. Balasaheb Sawant, Konkan Krishi Vidyapeeth, Dapoli, Tal Dapoli, Dist Ratnagiri to prepare land restoration plan in respect of damage caused to agricultural land due to breach of mine pit wall of M/s. Minerals and Metals, Iron Ore Mine situated at Kalane, Tal. Dodamarg, Dist. Sindhudurg vide letter dated 20/03/2023. A copy of said communication dated 20.3.2023 is enclosed and marked as an **Annexure "IV"**.



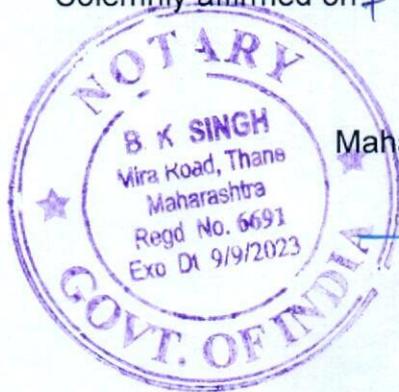
- viii) In response to the said communication Dr. Balasaheb Sawant, Konkan Krishi Vidyapeeth, Dapoli (KKVD) appointed two scientist for the survey of the damaged area & survey carried out on 15/05/2023 & report is submitted by KKVD on 16.06.2023 Accordingly committee member discussed the report received from KKVD & submitted the joint committee report before this Hon'ble Tribunal on 28.06.2023. A copy of report submitted by KKVD dated 16.6.2023 is enclosed and marked as an **Annexure "V."**
- ix) It is submit that incidence of breach of mine pit wall was occurred on 29/07/2021 & said OA No 41 of 2022 has been filed in July 2022. The Agriculture Department & Revenue Department has already imposed Agriculture as



well as household damage compensation therefore, it becomes very difficult to assess the Environmental damage after one year of said incident. The Respondent Board is member of the Joint Committee & also being Nodal agency of committee, had continuously taken follow up with the committee members for visit & compilation of information as well to obtain consensus for final Joint committee Report.

2. I say and submit in compliance of this Hon'ble Tribunal order dated 17.4.2023, the Respondent Board being nodal agency has filed Joint Committee report before this Hon'ble Tribunal on 28.6.2023.

Solemnly affirmed on 4th July 2023.



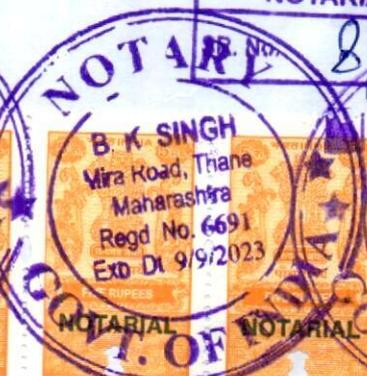
For and on behalf of Maharashtra Pollution Control Board

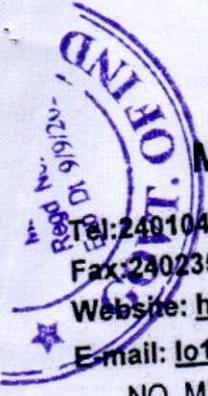
(Dr. Vidyanand M Motghare)
Joint Director (APC)

BEFORE ME
[Signature]
B. K. SINGH
NOTARY
MAHARASHTRA
(Govt. of India)

Advocate for Respondent No. 2

B. K. SINGH (Notary Govt. of India)
NOTARIAL REGISTER





MAHARASHTRA POLLUTION CONTROL BOARD

Tel: 24010437/24020781

Fax: 24023516/24024068

Website: <http://mpcb.gov.in>

E-mail: lo1@mpcb.gov.in

NO. MPCB/JD(WPC)/B-220926 fts0094



Kalpataru Point, 2nd - 4th Floor

Opp. Cine Planet Cinema,

Near Sion Circle, Sion (E)

Mumbai- 400 022.

Date: 26/09/2022

OFFICE ORDER

Sub: Constitution of Committee to ascertain damage caused to the environment due to M/s Minerals and Metals, Sr No 57/1 to 57/4 Village, Kalane, Tal Dodamarg, Dist- Sindhudurg, Maharashtra.

Ref: Order dated 5/9/2022 passed by Hon'ble NGT in Original Application No.41 2022 filed by Abhay Pandurang Desai Vs. State of Maharashtra & Ors.

Abhay Pandurang Desai has filed an Original Application No.41 of 2022 against State of Maharashtra & Ors, seeking restitution of damage to the agricultural land, kalane river alongwith the other water steam located in Village Kalane due to M/s Minerals and Metals, Sr No 57/1 to 57/4 of Village, Kalane, Tal Dodamarg, Dist-Sindhudurg.

In order to assess the damage cause to the environment due to the activities of Respondent No 6, the joint committee has been constituted by Hon'ble NGT vide order dated 5/09/2022 consisting of the following members: -

- | | |
|---|--------|
| 1. Regional Director
Central Pollution Control Board
Pune | Member |
| 2. District Magistrate,
Dist- Sindhudurg | Member |
| 3. District Agricultural Officer
Dist-Sindhudurg | Member |
| 4. J S Salunke Regional Officer
MPCB, Kolhapur | Member |

The terms of reference of the Committee are as under:

1. The Committee shall conduct joint inspection after informing the parties and submit a factual and action taken report with regard to assessment of damage caused to the environment within two months.
2. The report in the matter to be filed by the committee by email at ngt-pune@gov.in in PDF form.
3. Maharashtra State Pollution Control Board is nodal agency for coordination and logistic support.

This is issued with the approval of Member Secretary of the Board

(Dr. Y. B. Sontakke) 26/9/2022
Joint Director (WPC)

: 2 :

Copy submitted to: -

1. Regional Director, Central Pollution Control Board, Pune
2. District Magistrate Sindhudurg, Maharashtra.
3. District Agricultural Officer, Sindhudurg, Maharashtra.
4. Regional Officer, MPCB, Kolhapur – He is directed to provide logistic and infrastructure support being nodal agency.

Copy to: Law officer (P&L Divn.II), MPCB, Mumbai- for information.

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

उप-प्रादेशिक कार्यालय, रत्नागिरी.

दूरध्वनीक्र. (02352)220813
फॅक्सनं.: (02352)220813
E-mail : sroratnagiri@mpcb.gov.in

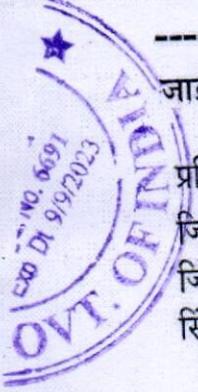


“आपली सेवा आमचे कर्तव्य”

मध्यवर्ती प्रशासकीय इमारत - 2,
दुसरा मजला, जिल्हाधिकारी
कार्यालय रत्नागिरी,
जि. रत्नागिरी - 415612

जाक्र.: मप्रनि/उप्राकार/221017-PTS-0268

दि. 17/10/2022



प्रति,
जिल्हा कृषी अधिकारी,
जिल्हा कृषी कार्यालय,
सिंधुदुर्ग.

विषय :- मे. मिनरल्स अँड मेटल्स, कळणे, ता. दोडामार्ग, जि. सिंधुदुर्ग यांच्या
दि. 29.07.2021 रोजी खाणीची भिंत फुटून त्यातील पाण्यामुळे झालेल्या गावातील
शेतीच्या नुकसानीबाबत...

संदर्भ :- 1) दि. 29.07.2021 रोजी कळणे माईन येथे झालेला अपघात.

2) मा. हरित लवाद मूळ अर्ज क्र. 41/2022 नूसार दि. 05.09.2022 रोजीचा समिती
गठीत आदेश.

3) दि. 13.10.2022 रोजीची समितीची संयुक्तिक पाहणी.

महोदय,

उपरोक्त विषयास अनुसरून मा. हरित लवाद मूळ अर्ज क्र. 41/2022 नूसार दि. 05.09.2022 च्या
आदेशान्वये समिती गठीत करण्यात आली होती. सदर समितीची पाहणी दि. 13.10.2022 रोजी झाली होती.
पाहणी दरम्यान झालेल्या चर्चेनुसार मे. मिनरल्स अँड मेटल्स, कळणे, ता. दोडामार्ग, जि. सिंधुदुर्ग यांच्या
दि. 29.07.2021 रोजी खाणीची भिंत फुटून त्यातील पाण्यामुळे झालेल्या गावातील शेतीच्या नुकसानीबाबत
केलेला पाहणी व नुकसानीचा मुल्यांकन अहवाल सही व शिक्क्यासहीत या कार्यालयास लवकरात लवकर
देण्यात यावा, जेणेकरून सदरील अहवाल समितीच्या संयुक्तिक अहवालात नमुद करता येईल, ही विनंती.
आपला विश्वासू,

उप प्रादेशिक अधिकारी
म.प्र.नि. मंडळ, रत्नागिरी

प्रत माहितीसाठी सविनय सादर :-
प्रादेशिक अधिकारी, म.प्र.नि. मंडळ, कोल्हापूर.

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

उप-प्रादेशिक कार्यालय, रत्नागिरी.

दूरध्वनीक्र. (02352)220813
फॅक्सनं.: (02352)220813
E-mail : sroratnagiri@mpcb.gov.in



“आपली सेवा आमचे कर्तव्य”

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कार्यालय रत्नागिरी,
जि. रत्नागिरी - 415612

जाक्र.: मप्रनि/उप्राकार/221017-MS-0282

दि. 17/10/2022

प्रति,
तहसिलदार,
तहसिल कार्यालय, दोडामार्ग,
ता. दोडामार्ग, जि. सिंधुदुर्ग.

विषय :- मे. मिनरल्स अॅण्ड मेटल्स, कळणे, ता. दोडामार्ग, जि. सिंधुदुर्ग यांच्या
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शेतीच्या नुकसानीबाबत...

संदर्भ :- 1) दि. 29.07.2021 रोजी कळणे माईन येथे झालेला अपघात.

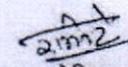
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गठीत आदेश.

3) दि. 13.10.2022 रोजीची समितीची संयुक्त पाहणी.

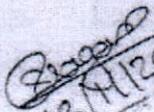
महोदय,

उपरोक्त विषयास अनुसरून मा. हरित लवाद मूळ अर्ज क्र. 41/2022 नूसार दि. 05.09.2022 च्या
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पाहणी दरम्यान झालेल्या चर्चेनुसार मे. मिनरल्स अॅण्ड मेटल्स, कळणे, ता. दोडामार्ग, जि. सिंधुदुर्ग यांच्या
दि. 29.07.2021 रोजी खाणीची भिंत फुटून त्यातील पाण्यामुळे झालेल्या गावातील शेतीच्या नुकसानीचे योग्य
मुल्यांकन करणेकामी सोबत जोडलेल्या सर्व्हे क्र. व गट क्र. यांचे 7/12 वरील सन 2011-20 चे पीकपाणी नोंदणी
अहवाल या कार्यालयास मिळावे, ही विनंती.

आपला विश्वासू,


उप प्रादेशिक अधिकारी
म.प्र.नि. मंडळ, रत्नागिरी

प्रत माहितीसाठी सविनय सादर :-
प्रादेशिक अधिकारी, म.प्र.नि. मंडळ, कोल्हापूर.


18/11/2022
म.प्र.नि. मंडळ, रत्नागिरी

Final joint committee report in the Hon'ble NGT matter in OA no. 41 of 2022 - reg.

NISHCHAL C <nischal.cpcb@nic.in>

Sat 28-01-2023 00:11

To: SRO Ratnagiri <sroratnagiri@mpcb.gov.in>

Cc: RO Kolhapur <rokolhapur@mpcb.gov.in>

1 attachments (8 MB)

Final Joint Committee Report_OA 41 of 2022-signed.pdf

Sir,

This has reference to the Hon'ble NGT matter vide order dated 05/09/2022 in OA no. 41 of 2022 (WZ), titled Abhay Pandurang Desai vs State of Maharashtra & Ors.

The joint committee carried-out inspection of the site on 13/10/2022. Based on the information received from the PP through MPCB as well as from MPCB vide email communications dated 06/12/2022, 04/01/2023 & 27/01/2023 the joint committee report is prepared.

In this regard, the duly signed copy of joint committee report is attached herewith along with Annexures for kind needful. Further, it is requested to kindly get the concurrence and signature of other committee members and make suitable arrangements to submit the duly signed copy of the joint committee report to the Hon'ble NGT, under intimation to this office. Also, requested to send the final copy of the joint committee report to all the committee members for reference & record. The matter is listed for hearing on 31/01/2023.

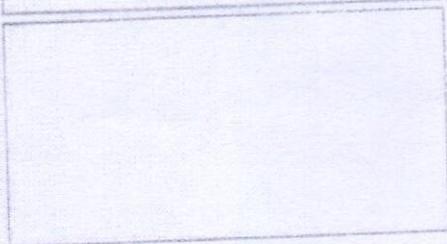
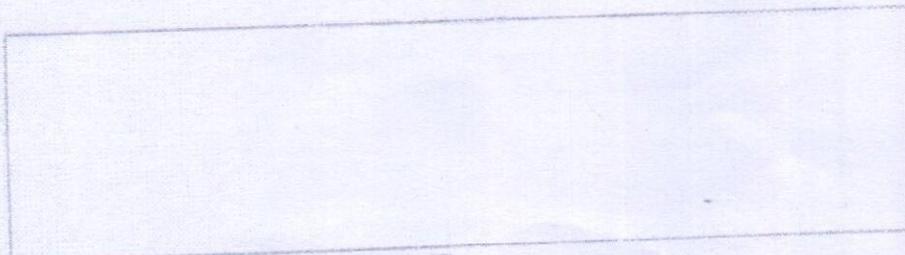
Regards,

Nishchal C.

Senior Environmental Engineer

Mob: +91 97220 17220

Central Pollution Control Board, Regional Directorate - Pune, Maharashtra
(Ministry of Environment, Forest & Climate Change, Govt. of India)



MAHARASHTRA POLLUTION CONTROL BOARD
REGIONAL OFFICE, KOLHAPUR.

Tel. No. (0231) 2652952,
 2660448
 Fax No. (0231) 2652952
 E-mail:
 rkolhapur@mpcb.gov.in



"Your Service is Our Duty"

Udyog Bhavan,
 Near Collector Office,
 Kolhapur - 416 003.
 Website: <http://mpcb.mah.nic.in>

No. MPCB/RO/KOP/ FTS - 0223

Date: 20/03/2023

To,
Vice Chancellor,
 Dr. Balasaheb Sawant, Konkan Krishi Vidyapeeth,
 Dapoli, Tal Dapoli, Dist Ratnagiri.

Sub: Preparation of Land restoration plan in respect of damage caused due to breach of mine pit wall of M/s. Minerals and Metals, Iron Ore Mine situated at Kalane, Tal Dodamarg, Dist Sindhudurg.

- Ref:** 1. Order passed dated 05/09/2022 by Hon'ble NGT in O.A. 41/2022.
 2. Committee constituted by Board vide letter dated 26/09/2022.
 3. Committee member visited site on 13/10/2022.
 4. Order passed dated 15/12/2022 by Hon'ble NGT in O.A. 41/2022.

Sir,

With reference to above subject matter, the Original Application No. 41 of 2022 is filed before the Hon'ble National Green Tribunal, (Western Zone) by Abhay Pandurang Desai Versus State of Maharashtra & Ors. Seeking restitution of damage to the agricultural land, Kalane river along with the other water stream located in Village Kalane due to M/s. Minerals and Metals, Sr. No. 57/1 to 57/4 of Village, Kalane, Tal. Dodamarg, Dist. Sindhudurg.

In order to assess the damage cause to the environment due to the activities of M/s. Minerals and Metals, Sr. No. 57/1 to 57/4 of Village, Kalane, Tal. Dodamarg, Dist. Sindhudurg., the joint committee has been constituted by Hon'ble NGT vide order dated 5/09/2022 consisting of 1) The Regional Director Central Pollution Control Board Pune, 2) District Magistrate Sindhudurg, 3) District Agricultural Officer Sindhudurg and 4) Regional Officer, M.P.C. Board, Kolhapur.

In respect to above referred Hon'ble NGT Order M. P. C. Board has constituted a committee vide letter dated 26/09/2022.

Site Inspection:

As per committee order the joint committee comprising 1) Shri Nischal C., Scientist D, Central Pollution Control Board, Pune 2) Shri Prashant Panvelkar, Sub-Divisional Magistrate, Sawantwadi, 3) Shri D. S. Divekar, District Agricultural Officer, Sindhudurg, 4) Shri J. S. Salunkhe, Regional Officer, M. P. C. Board, Kolhapur visited M/s. Minerals and Metals, Sr. No. 57/1 to 57/4 of Village, Kalane, Tal. Dodamarg, Dist. Sindhudurg on 13/10/2022. During visit Applicant Shri Abhay Desai & Shri Amit Kaisurkar, Mines Manager for M/s. Minerals and Metals is also present.

Brief about M/s. Minerals and Metals (Iron Ore Mine):

M/s. Minerals and Metals, Village, Kalane mine is Iron Ore mine situated on 32.25 Hecter area at village Kalane. Mine has obtained Consent to Operate from M. P. C. Board vide dated 12/04/2021, for excavation of Iron Ore 7,50,000 MT/A from lease area 32.25 Ha, same was valid up to 31/03/2024. Industry has obtained lease for mining of iron ore for 20 years from 16/03/2009. Industry has obtained Environmental Clearance dated 27/02/2009. Mine has started actual excavation 26/07/2009.

[Handwritten signature]

Brief about incident & damage caused:

On 27/07/2021, due to heavy rain fall & land slide occurred in mining pit, bund of mining pit was broke & water stored in mining pit was flooded towards Kalane village. There was no casualty due to this incident but adjacent plantation of cashew, coconut, betel nut tree, teak wood tree etc were uprooted & flown away with the flood also near about 15 houses were affected due to flooded water. In respect of incident Indian Bureau of Mine vide letter dated 04/10/2021 & Collector, Sindhudurg suspend the mining operation vide latter dated 29/07/2021 & M. P. C. Board has issued closure direction to M/s. Minerals & Metals, Iron Ore mine at Kalane, Tal Dodamarg, Dist Sindhudurg vide letter dated 31.08.2021.

Industry has taken necessary mitigation measures & repaired the bund, also industry has refilled the previous mining pit, rectify the top benches of mine, in respect of this compliance made by industry, Indian Bureau of Mine revoke the suspension order for mining operation vide letter dated 11/02/2022 & Collector, Sindhudurg is also issue restart order vide letter dated 04/04/2022 In this regard M.P.C. Board has also issued restart to the mine vide letter dated 11.04.2022.

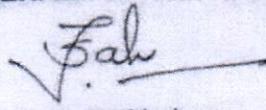
Damage Assessment & compensation before filling case:

In connection to incident occurred, the damage caused to houses due to flood mine water in the village kalane was assessed by Revenue Department & communicated by District Mining office vide letter dated 06/08/2021. As per report around 14 houses were damaged & assessed amount was Rs. 12,30,000/-, same was paid by Mine on 13/08/2021 by online payment.

Damage caused to agricultural land was assessed by agricultural department & communicated by District mining officer vide letter dated 12/08/2021. As per report, around 21 hector total agricultural land of 49 villagers were damaged & total assessed amount was Rs. 1,34,67,750/- out of that mine has paid Rs. 39,31,500/- to 49 villagers including applicant for restoration of land, under protest & filled application in Hon'ble High Court, Mumbai against assessment of damage of agricultural land by agricultural department vide Write Petition No. 4434/2022 M/s. Minerals and Metals Vs. State of Maharashtra.

Further Hon'ble NGT directed to take assistance of experts to accesses loss of environment in its order dated 15/12/2022, In respect of that committee need your help to prepare Land restoration plan in respect of damage caused to agricultural land due to breach of mine pit wall of M/s. Minerals and Metals, Iron Ore Mine situated at Kalane, Tal Dodamarg, Dist Sindhudurg. In view of above, you are requested to, please communicate this office regarding time required for preparation of Land restoration plan for land damaged at Kalane village.

FOR AND ON BEHALF OF THE BOARD

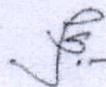

(J. S. Salunkhe)
Regional Officer,
M.P.C. Board, Kolhapur

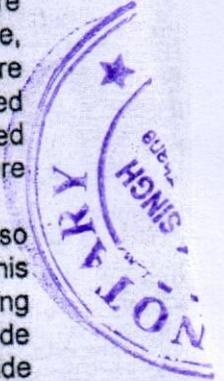
Copy submitted for information.

- 1) Member Secretary, M.P.C. Board, Mumbai.
- 2) Joint Director (Water Pollution Control), M. P. C, Board, Mumbai.
- 3) Law Officer, M. P. C. Board, Mumbai.

Copy to:

Sub-Regional Officer, M. P. C. Board, Ratnagiri-He is directed to take personal follow-up for compliance of above order.





Land restoration plan in respect of damage caused due to breach of mine pit wall of M/s. Minerals and Metals, Iron Ore Mine situated at Kalane, Tal Dodamarg, Dist Sindhudurg.

Reference:-

Dr. Balasaheb Sawant, Konkan Krishi Vidyapeeth, Dapoli, Tal Dapoli, Dist Ratnagiri has received letter from Regional Officer, Maharashtra Pollution Control Board, Kolhapur vide letter No. MPCB/RO/KOP/FTS - 0223, dated 20/03/2023 regarding Preparation of Land restoration plan in respect of damage caused due to breach of mine pit wall of M/s. Minerals and Metals, Iron Ore Mine situated at Kalane, Tal Dodamarg, Dist Sindhudurg. As per letter received from Maharashtra Pollution Control Board, Kolhapur, the Original Application No. 41 of 2022 is filed before the Hon'ble National Green Tribunal, (Western Zone) by Abhay Pandurang Desai Versus State of Maharashtra & Ors. Seeking restitution of damage to the agricultural land, Kalane River along with the other water stream located in Village Kalane due to M/s. Minerals and Metals, Sr. No. 57/1 to 57/4 of Village, Kalane, Tal. Dodamarg, Dist. Sindhudurg.

In order to assess the damage cause to the environment due to the activities of M/s. Minerals and Metals, Sr. No. 57/1 to 57/4 of Village, Kalane, Tal. Dodamarg, Dist. Sindhudurg., the joint committee has been constituted by Hon'ble NGT vide order dated 5/09/2022 consisting of 1) The Regional Director Central Pollution Control Board Pune, 2) District Magistrate Sindhudurg, 3) District Agricultural Officer Sindhudurg and 4) Regional Officer, M.P.C. Board, Kolhapur. In respect to above referred Hon'ble NGT Order M. P. C. Board has constituted a committee vide letter dated 26/09/2022 & Committee visited site on 13/10/2022.

Further Hon'ble NGT directed to take assistance of experts to accesses loss of environment in its order dated 15/12/2022, In respect of that Joint committee decided to take help from Dr. Balasaheb Sawant, Konkan Krishi Vidyapeeth, Dapoli, Tal Dapoli, Dist Ratnagiri to prepare Land restoration plan in respect of damage caused to agricultural land due to breach of mine pit wall of M/s. Minerals and Metals, Iron Ore Mine situated at Kalane, Tal Dodamarg, Dist Sindhudurg.

Brief about M/s. Minerals and Metals (Iron Ore Mine), incident & damage caused:

M/s. Minerals and Metals, Village, Kalane mine is an open cast Iron Ore mine situated in the 32.25 Hecter area at village Kalane, Tal Dodamarg, Dist Sindhudurg. Industry has obtained lease for mining of iron ore for 20 years from 16/03/2009.

On 27/07/2021, due to heavy rain fall & land slide occurred in mining pit, bund of mining pit was broken & water stored in mining pit was flooded towards Kalane village. There were no casualties due to this incident but adjacent plantation of cashew, coconut, betel nut

tree, teak wood tree etc were uprooted & flown away with the flood also near about 15 houses were affected due to flooded water. Further, industry has taken necessary mitigation measures & repaired the bund, also industry has refilled the previous mining pit, rectify the top benches of mine.

Damage caused to agricultural land was already assessed by the agricultural department & communicated by District mining officer vide letter dated 12/08/2021. As per the report, around 21 hector total agricultural land of 49 villagers were damaged & total assessed amount was Rs. 1,34,67,750/- out of that mine has paid Rs. 39,31,500/- to 49 villagers including applicant for restoration of land, under protest & filled application in Hon'ble High Court, Mumbai against assessment of damage of agricultural land by agricultural department vide Write Petition No. 4434/2022 M/s. Minerals and Metals Vs. State of Maharashtra.

Site visit dated 15/05/2023:

As per letter received letter from Regional Officer, Maharashtra Pollution Control Board, Kolhapur, Committee Members present at visit are as follows-

1. Dr B. L. Ayare, Professor & Head, Dept of SWCE, CAET, DBSKKV, Dapoli
2. Shri Rahul D. Mote, Sub Regional Officer, M.P.C. Board, Ratnagiri
3. Dr H.N. Bhange, Assistant Professor, Dept of SWCE, CAET, DBSKKV, Dapoli
4. Shri Shekhar Gaonkar, Mines Manager of the industry was accompanied committee during the inspection and provided background information about the industry, environmental management system, alleged issues and area under reference.

Treatment to be implemented

Sr. No.	Treatment	Area	Rate, Rs	Cost, Rs
1	Staggered Contour Trenches	10 ha	50,000 per ha	5,00,000
2	Continuous Contour Trenches	10 ha	50,000 per ha	5,00,000
3	Nala Training (length)	2 km	1,00,000 per km	2,00,000
4	Loose Boulder Structure	20 Nos.	10,000 per no.	2,00,000
5	Plantation (10m X 10 m) (1000 plant) with pit	10 ha	300 per plant	3,00,000
6	Agronomical Conservation Techniques Soil	10 ha	50,000 per ha	5,00,000
7	Soil Management	5 ha	25,000 per ha	1,25,000
8	Cutoff Drain	5 ha	50,000 per ha	2,50,000
			Total	Rs 25,75,000

The total amount comes to Rs Twenty five lakhs seventy five thousand only

In reconstructing a natural environment or ecosystem you should find out what the land, vegetation and habitat characteristics were like before degradation. This can be done by referencing similar vegetation communities and soil landscapes that are in good condition.

Restoration of Eroded Agricultural land

Restoration of degraded agricultural land is achieved through several agronomic and biological techniques. Crop rotations, agro-forestry, reduced tillage, cover crops, vegetative filter strips, residue, canopy cover management and no-till are important among these (Lamb, Erskine, & Parrotta, 2005).

1. Agronomic Soil Conservation Techniques

- 1) **Crop management:** Wind and water erosion reduce by good crop management practices. Keep soil covered is fundamental principle in restoration of degraded agricultural land. Soil protection from erosion by leaving crop residues on soil surface after harvesting is also helpful approach.
- 2) **Inter-cropping:** The impact of raindrops is reduced with the soil cover by the fast-growing legumes such as cowpeas and beans early in the season before a canopy is developed by cotton or maize to shield the soil. This practice reduces soil erosion and helps the agricultural land to regenerates since it significantly checks on degradation agents of agricultural land particularly soil erosion.
- 3) **Crop selection:** If the gap is too long between harvesting one crop and sowing of the next crop than the additional cover crops may be required. The stability of the conservation agriculture system is increased by cover crops and erosion impacts are reducing by the improvement of soil properties and this biodiversity in the agro-ecosystem are promoted for their capacity. The more effective crops in soil erosion are perennials than annual crops. The most effective are fodder grasses, sweet and potatoes.
- 4) **Crop rotation:** The practice of growing a series of dissimilar types of crops in the same space in sequential seasons is crop rotation for benefits such as such as avoiding pathogen and pest buildup that occurs when one species is continuously cropped. Soil nutrient depletion is avoided by the crop rotation that balances the nutrient demand of various crops.
- 5) **Cover cropping:** Cover crops are “close-growing crops that provide soil protection, seeding protection, and soil improvement between periods of normal crop production or between trees in orchards. These are also referred to as green manure crops. The use of cover crops is an ancient practice and dates back to the ancient civilizations in Greece, Rome, China, and others (Lamb et al., 2005).
- 6) **Strip Cropping:** Strip cropping refers to the practice of growing crops in alternate strips of row crops or forage/grass. This cropping system is an effective practice to reducing soil erosion because it breaks sloping landscapes in wide segments with diverse vegetative cover which intercepts runoff and promotes water infiltration, thereby reducing runoff and soil erosion. Strip cropping is often integrated with rotations where strips are planted to different crops each year.

II. Land/Soil management techniques

Optimum soil management aims to provide favorable conditions for plant growth through improved soil nutrient availability and aggregation. Optimum soil management practices improve infiltration of water and improve soil capacity to hold water and in result reduce runoff and erosion.

1) **Use appropriate tillage practices:** Optimum soil physical conditions for better crop production are the main objectives of tillage. It also ensures timely seedbed preparation, planting and weeds control. Tillage practices should be adopted by keeping in mind that soil is neither too fine nor powdery; and it breaks up the hardpan if necessary.

The main tillage methods are slash and burn, hand hoeing, ploughing and harrowing, conservation or minimum tillage, deep tillage.

2) **Applying organic manures and mineral fertilizers:** Application of manure and fertilizers provide essential in restoration of agricultural land. Manure and fertilizers provide essential plant nutrients in the soil for better crop growth. The crops with fast growth cover the soil quickly and give higher yields.

3) **Mulching and the use of crop residues:** Spreading on the bare soil surface or placement of plant materials such as dry grass, straw, dry leaves, banana leaves, sugar cane trash, and other crop residues around the stem of the plants is helpful in controlling soil erosion and moisture conservation (Bashir et al., 2017).

4) **Agro-forestry:** Planting of trees or shrubs or protecting the naturally sustaining trees is called agroforestry. Trees decrease the magnitude of splash erosion by reducing the raindrops impacts on the soil. They regulate soil temperature by shading the soil thus reducing the water evaporation. They also minimize the wind erosion by acting as wind breaks. They also play important role in nutrient recycling in the deep soil; leguminous trees fix nitrogen that benefits food crops (Bashir et al., 2017).

5) **Contour farming practices:** Cultivation across the slope rather than up and down is called contour farming. Soil loss as much as 50% has been reported to be reduced by contour farming on gentle. The main objective of contour ridges is water harvesting. Plant residues are placed in lines along the contour for construction of trash-lines. These trash-lines slow down the runoff and trap the eroded soil. Grass barrier strips of Napier or other fodder grasses are planted along the contour.

6) **Physical soil conservation measures:** Physical structures in restoration of agricultural land are permanent features made of Earth, stones, designed to protect the soil from uncontrolled runoff and erosion and retain water where needed (Bashir et al., 2017). In subsequent paragraphs, we discuss some of the physical techniques for restoration of degraded agricultural land:

7) **Cut-off drains:** Cut-off drains are made across a slope for intercepting the surface runoff and carrying it safely to an outlet such as a canal or stream. Their main purpose is the protection of cultivated land from uncontrolled runoff, and to divert water from gully heads.

8) **Retention ditches:** These are made along the contours to capture and retain incoming runoff water and hold it until it seeps into the ground. They are alternate to cut-off drains when there is no channel to discharge the water nearby. In semiarid areas, retention ditches are sometimes used for water harvesting.

Conclusion and Recommendations

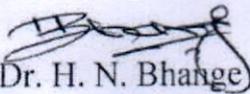
We conclude that, although agriculture is a major cause of environmental degradation, ecological restoration on agricultural land offers opportunities to reconcile agricultural production with enhancement of ecosystem services other than production.

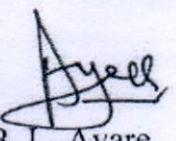
Restoration of eroded agricultural land is achieved through several agronomic and biological techniques. Crop rotations, agro-forestry, reduced tillage, cover crops, vegetative filter strips, residue, and no-till are important among these. Biological measures such as buffers, conditioner application in direct contact with the soil surface, crop residues using manure protect the soil from erosion.

Restoration by land sharing through environmental-friendly farming has the potential to enhance agricultural production, other ecosystem services at both the farmed field and landscape scale.

Beyond scientific and technical research, an increase in such restoration projects is needed if we want to halt environmental degradation. We need widespread expansion of agricultural management based on ecological knowledge: biodiversity-based agricultural practices, organic farming, agroforestry systems, learning from traditional practices, highly specific actions to benefit wildlife and particular ecosystem services, and conversion of some agricultural land into natural ecosystems such as forests.

No. CAET/SWCE/86/of 2023
Date: **15 JUN 2023**
Place: Dapoli


Dr. H. N. Bhang
Assistant Professor
Department of SWCE,
CAET, DBSKKV, Dapoli


Dr. B. L. Ayare
Head,
Department of SWCE,
CAET, DBSKKV, Dapoli