



LE
NICKEL-SLN



CSIRO/CNES
Pacific Earth Observation workshop New-Caledonia

SESSION 2d : state of the water quality research & operations in NC
(industry and private sector):

- Operational water quality monitoring (continental and coastal water)



Summary

1 - SLN overview

2 - Continental water monitoring program

3 - Coastal water monitoring program



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1 - SLN overview – a Country company



1880

Le Nickel company creation

5

Mining site

1

pyrometallurgical plant

97%

local employment

1^{er}

New Caledonian private employer

1 - SLN overview - SLN id card



**2 200 employees
8 000 indirect and
induced jobs**



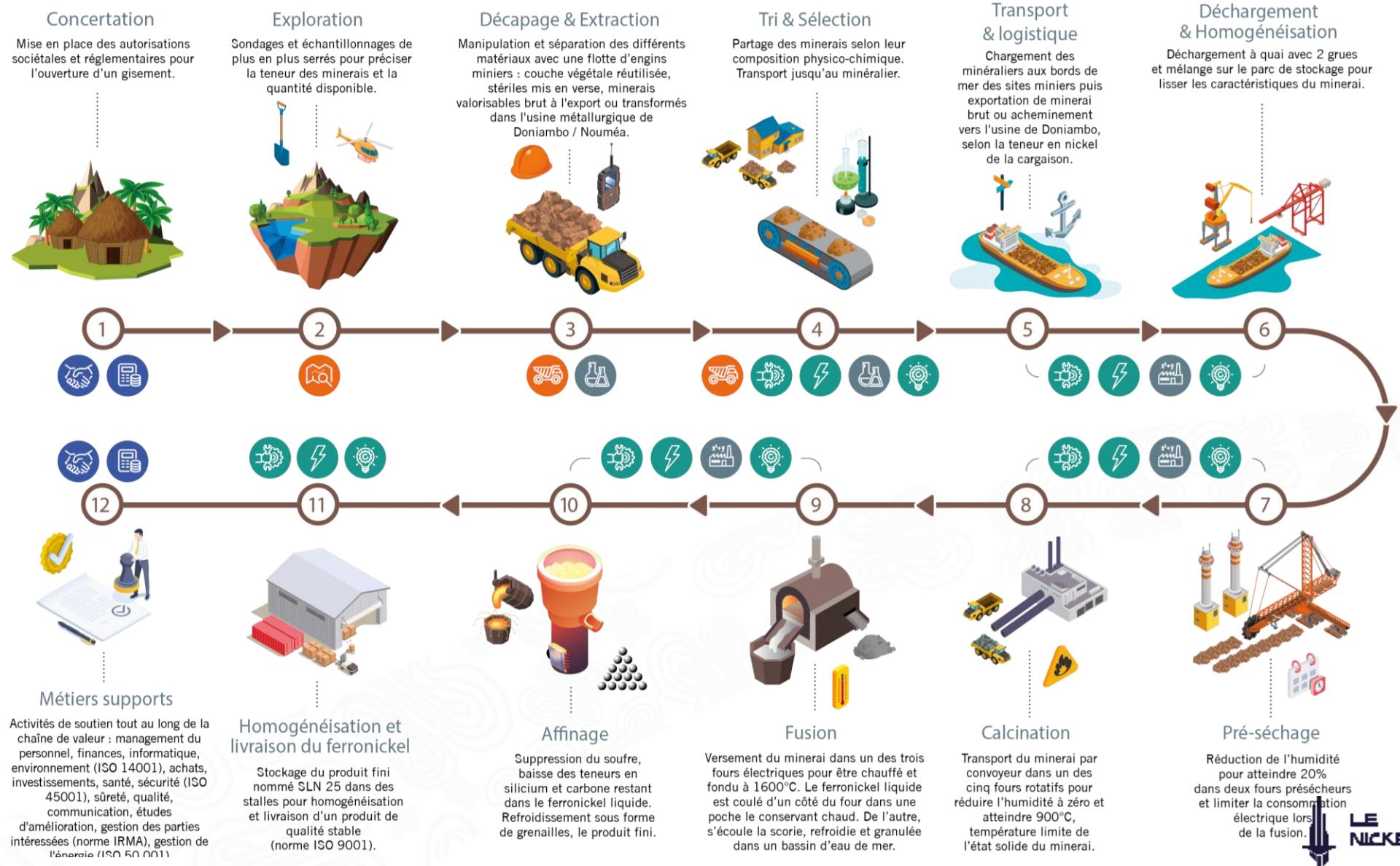
**1^{er} caledonian
miner
to register in the
IRMA standard**



**1st Caledonian
company to be ISO
certified
9 001 – 14 001 –
45 001 – 50 001**



1 - SLN overview - From earth to metal for seven generations





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2 - Continental water monitoring program

WATERSTREAMS *Cours d'eau*

117 monitoring stations for 12 mining sites

Physico-chemical measurements
(PCM / MPC)



1 Sampling program « high flow period »
(march-april)

1 Sampling program « drought period »
(september-november)

17 Analysed parameters (metallic elements, hydrocarbons, pH, TSS, sulphates, etc.)

117 Monitoring stations

Sedimentary biotic index (SBI / IBS)



1 Sampling program « drought period » (september-november)

104 Monitoring stations

MINING OUTFALLS *Exutoires miniers*

Total suspended solids (TSS / MES)

Rainfall amounts exceed the threshold value of 50mm/24h



6 Mining sites monitored

14 Automatic samplers* implemented

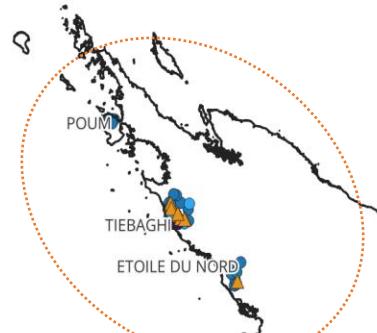
*Automatic in-situ sampling based on the water level over the mining outfalls

2 - Continental water monitoring program

Monitoring stations of TSS | Mining sites Stations de suivis MES / Sites miniers

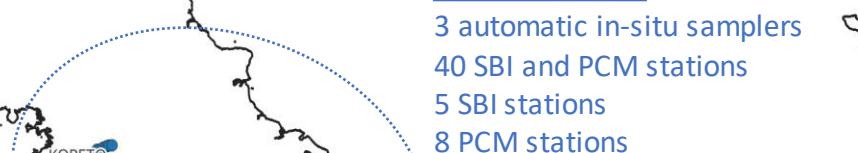
North zone :

8 automatic in-situ samplers
30 SBI and PCM stations
3 SBI stations
3 PCM stations



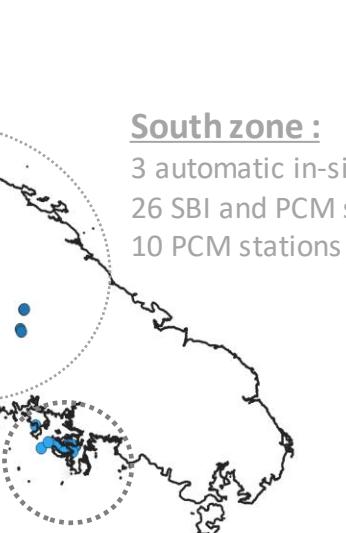
Central zone :

3 automatic in-situ samplers
40 SBI and PCM stations
5 SBI stations
8 PCM stations



South zone :

3 automatic in-situ samplers
26 SBI and PCM stations
10 PCM stations



- SBI
- SBI + PCM
- TSS
- PCM

Industrial area
(non-included)



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3.1 Regulatory framework

3.2 - Metallurgical monitoring program

3.3 - Mines monitoring program

3 - Coastal water monitoring program - Regulatory framework

- Metallurgical plant :
 - decree n°11387-2009/ARR/DIMEN of 12th november 2009 – article 9.5.2 self-monitoring of Doniambo installations provides for monitoring of the marine environment
 - monitoring started in 2005 and completed by the ICPE decree of 2009
 - monitoring stations located “near field – far field” gradient & reference stations
- Mining sites
 - country law relating to the mining code of New Caledonia passed on April 16, 2009
 - since 2016, SLN has implemented a monitoring program in the marine environment in order to assess the environmental repercussions of its activities
 - baseline studies were done during 2000 – 2010
 - monitoring stations were located according a Control-Impact design



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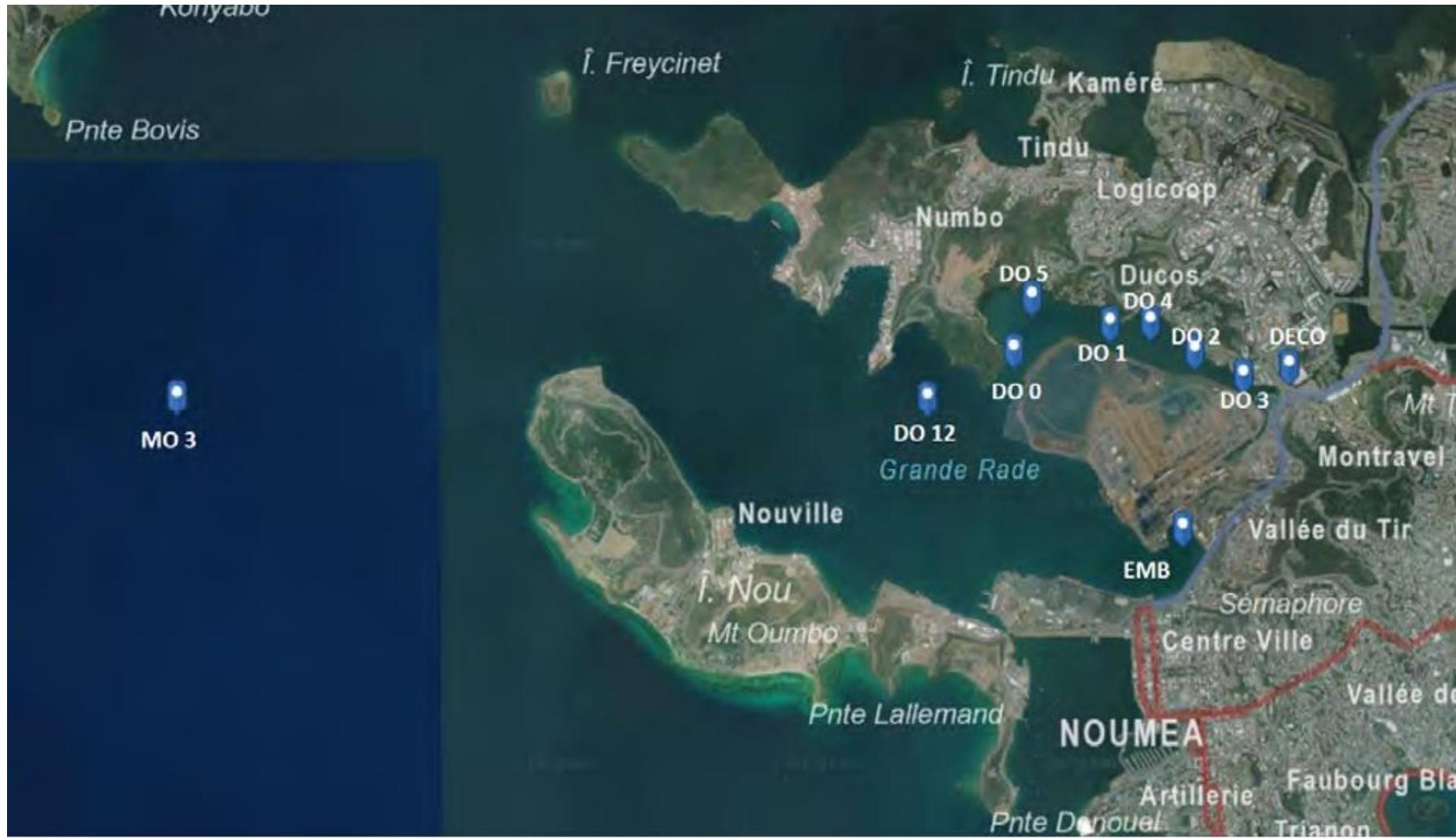
- Water, Sediment, bioaccumulation

3 - Coastal water monitoring program - Metallurgical monitoring program



- Water

3 - Coastal water monitoring program - Metallurgical monitoring program



- Eutrophication

3 - Coastal water monitoring program - Metallurgical monitoring program



- Sedimentation & Hydrodynamics

3 - Coastal water monitoring program - Metallurgical monitoring program

- Water :
 - surface, mid-depth, near bottom – monthly- Niskin type sampling bottle
 - T°, COT, Cr, Cu, Mn, Ni, Pb, ZN
- Sediments :
 - Yearly - Van Veen type clamshell bucket
 - Dry matter, Cr, CO, Cu, Mn, Ni, Pb, Zn
- Bioaccumulation (*Isognomon isognomon*) :
 - Yearly
 - Cr, CO, Cu, Mn, Ni, Pb, Zn
- Eutrophication :
 - Yearly
 - chlorophyllA
- Sedimentation & Hydrodynamics
 - Yearly
 - bathymetry and modeling



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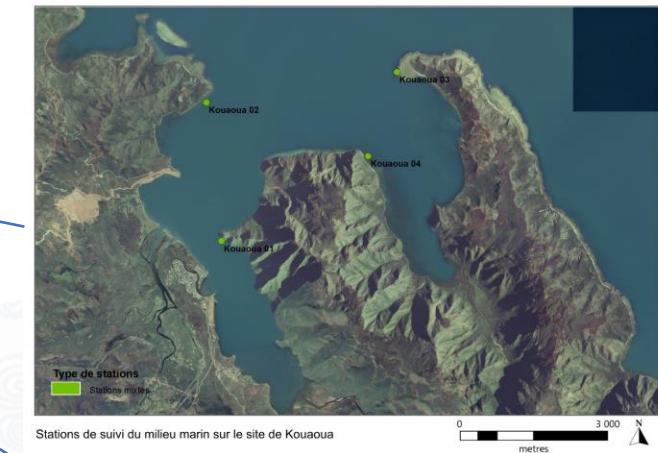
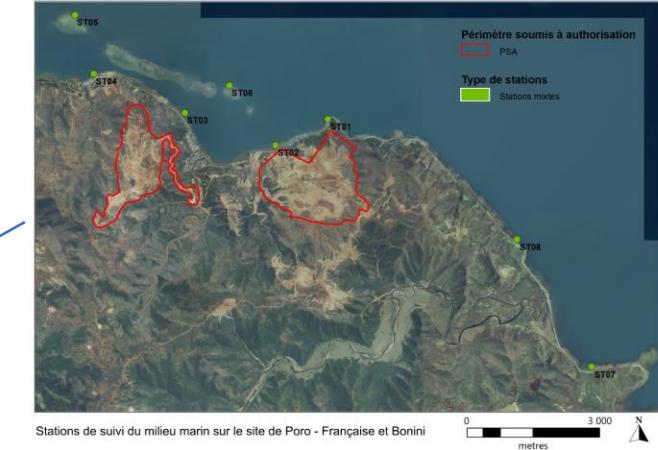
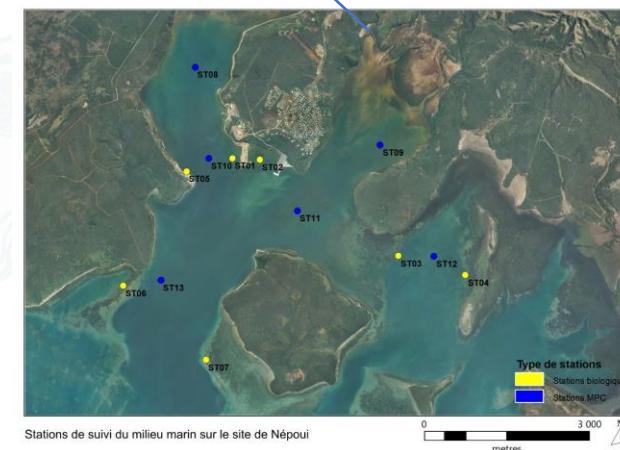
3.2 - Metallurgical monitoring program

3.3 - Mines monitoring program

3 - Coastal water monitoring program - Mines monitoring program



68 monitoring stations



3 - Coastal water monitoring program - Mines monitoring program

- 2 types of alternating monitoring program every other year
 - « light program » => water & sedimentation flow
 - « complete program » => water, sediment quality, bioaccumulation // coral reef habitat, macro-invertabrates & fish => 3 replicates



- Year 1 – west coast
 - « light program »
- Year 2 – eat coast
 - « complete program »

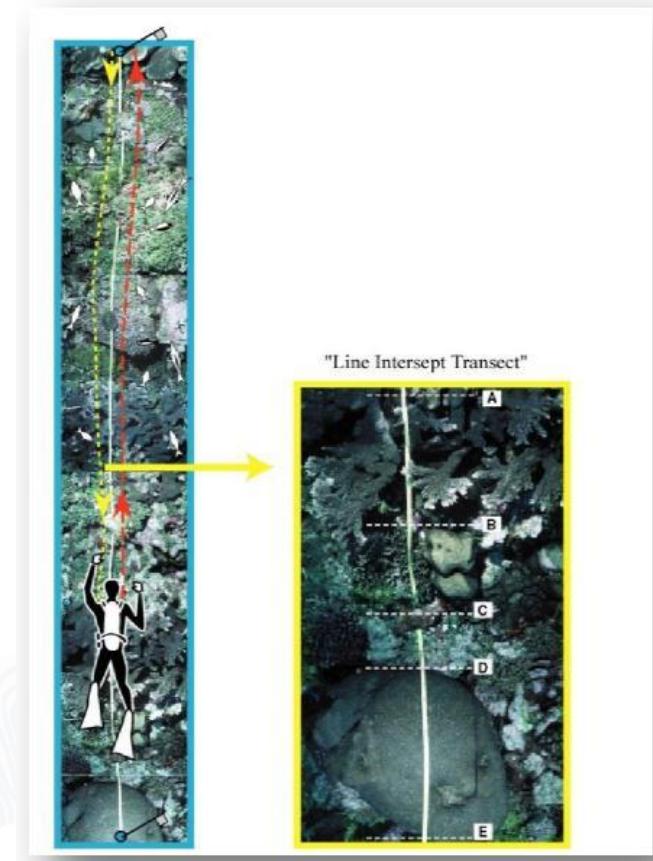
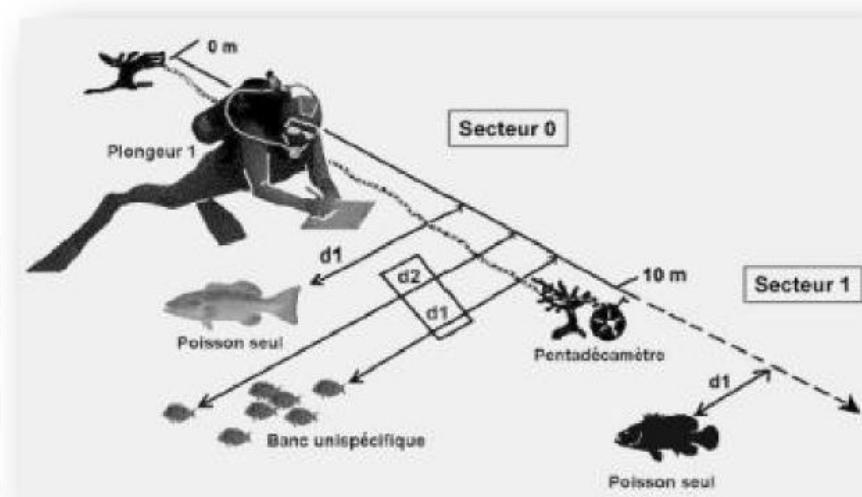
- Year 1 – eat coast
 - « complete program »
- Year 2 – west coast
 - « light program »

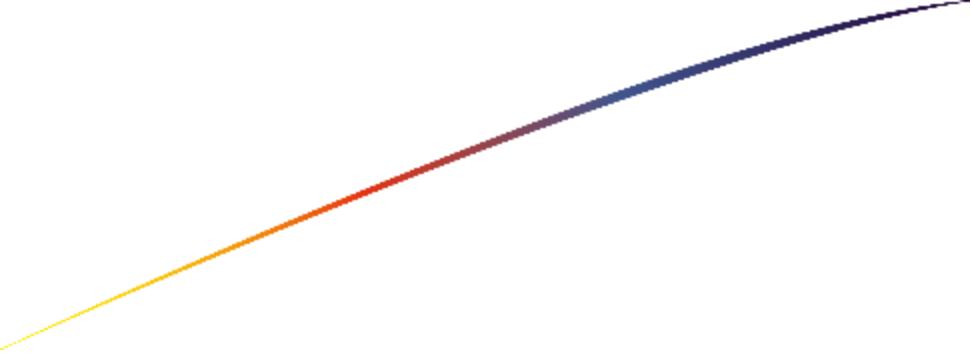
3 - Coastal water monitoring program - Mines monitoring program

- Water : vertical profils with CTD probe
 - pH, Conductivity, T°C, Turbidity , Dissolved O₂, total Chlorophyll
- Sedimentation flow => sedimentation tubes
- Sediments :
 - particle size distribution, Hg, Cr, Cr VI, Co, Cu, total hydrocarbons, Mn, Ni, Pb, Zn, CaCO₃
- Bioaccumulation :
 - As, Cd, Hg, Mn, Pb, Zn

3 - Coastal water monitoring program - Mines monitoring program

- Coral reef habitat :
 - Line Intercept Transect => % of different habitat types
 - coral lesions
- Macro-invertebrates :
 - 2 m belt transect
 - All specimens => SR, Density (nbr. ind./m²)
- Fish :
 - Distance sampling transect
 - All specimens =>
 - SR,
 - Density (nbr. ind./m²),
 - Biomass (g/m²)





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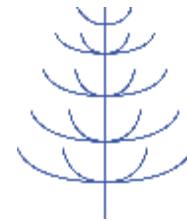
eramet

L'environnement, une performance à améliorer constamment

La Nouvelle-Calédonie, hotspot de la biodiversité



Revégétaliser, l'enjeu de la connaissance



150%
Taux de revégétalisation
en 2021 (2022?)

L'eau douce et portable, un enjeu pour tous



Zéro rejet

0 verse en milieu naturel,
0 impact sur les
écosystèmes

Le comité de direction



Jérôme Fabre
Directeur général

Nathalie Backache
Secrétaire générale



Bernadette Dureau
Directrice des
ressources humaines



Damien Ricono
Directeur sécurité



Frédérique Zanklan
Directeur des mines



Gaëtan Merceron
Directeur usine



Charles Dubois
Directeur excellence
opérationnelle

Mickaël Panol
Directeur financier

Dialoguer avec nos communautés pour être accepté

100%
Engagements
historiques soldés

200
Créations d'emplois

72%
du chiffre d'affaires SLN
dans l'économie locale



- Contribuer positivement dans toutes nos zones d'impact
- Participer activement à la diversification économique
- Associer les sociétés locales à la valorisation des gisements
- Soutenir l'égalité homme-femme
- Être un moteur de la transition numérique en Nouvelle-Calédonie

L'environnement, une performance à améliorer constamment

La Nouvelle-Calédonie, hotspot de la biodiversité



Qualité de l'air à Nouméa



Augmenter

La captation des émissions des poussières.

L'économie circulaire,

le SLAND



Valorisation

Des scories sous toutes ses formes.

Nos enjeux



**Notre objectif
tenir nos engagements sur la nouvelle
trajectoire signée avec le
Gouvernement NC**



Réaliser les **investissements pour soutenir la performance et atteindre nos
objectifs : 50 kt de nickel métal et 6 Mt d'export de mineraï (2024)**

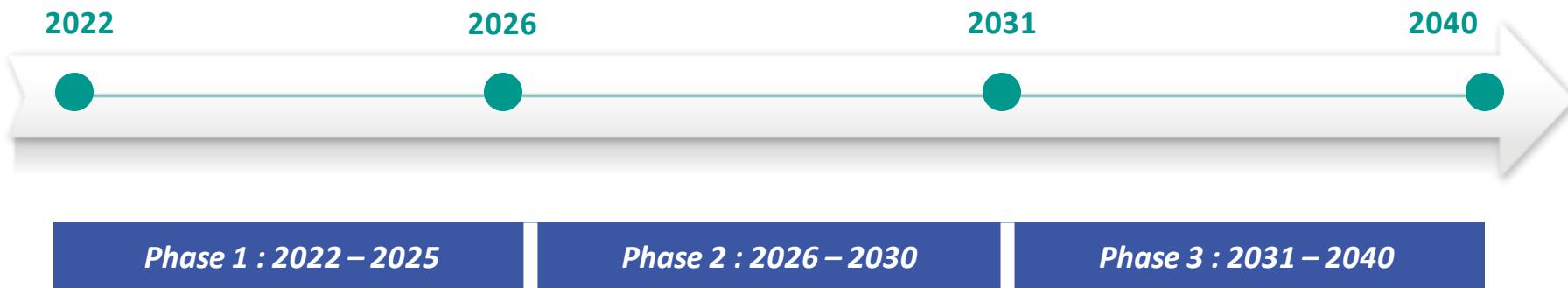
- Augmenter les capacités des mines
- Renouvellements des équipements et améliorations environnementales à l'usine
- Renforcer les capacités de transport maritime pour l'export

Raccorder la **centrale accostée temporaire de l'usine dans les délais**

Obtenir un tarif compétitif pour notre électricité

Réussir la **décarbonation de notre énergie et nos procédés**

La SLN, une société en pleine mutation avec le soutien des autorités locales et du Groupe



La transition décisive et la préparation de l'avenir

Le renouveau de la SLN et le nouveau visage de Doniambo

La neutralité carbone et l'adaptation aux basses teneurs

Notre ambition

Devenir le leader mondial du ferronickel premium, répondant au standard mondial Mine Responsable