



Public Health Association
AUSTRALIA

(Together with NT Paediatricians)

Joint submission to the inquiry into the Middle Arm Industrial Precinct

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31 October 2023

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Preamble

The Public Health Association of Australia

The Public Health Association of Australia (PHAA) is recognised as the principal non-government organisation for public health in Australia working to promote the health and well-being of all Australians. It is the pre-eminent voice for the public's health in Australia.

The PHAA works to ensure that the public's health is improved through sustained and determined efforts of the Board, the National Office, the State and Territory Branches, the Special Interest Groups and members.

The efforts of the PHAA are enhanced by our vision for a healthy Australia and by engaging with like-minded stakeholders in order to build coalitions of interest that influence public opinion, the media, political parties and governments.

Health is a human right, a vital resource for everyday life, and key factor in sustainability. Health equity and inequity do not exist in isolation from the conditions that underpin people's health. The health status of all people is impacted by the social, cultural, political, environmental and economic determinants of health. Specific focus on these determinants is necessary to reduce the unfair and unjust effects of conditions of living that cause poor health and disease. These determinants underpin the strategic direction of the Association.

All members of the Association are committed to better health outcomes based on these principles.

Vision for a healthy population

A healthy region, a healthy nation, healthy people: living in an equitable society underpinned by a well-functioning ecosystem and a healthy environment, improving and promoting health for all.

The reduction of social and health inequities should be an over-arching goal of national policy and recognised as a key measure of our progress as a society. All public health activities and related government policy should be directed towards reducing social and health inequity nationally and, where possible, internationally.

Mission for the Public Health Association of Australia

As the leading national peak body for public health representation and advocacy, to drive better health outcomes through increased knowledge, better access and equity, evidence informed policy and effective population-based practice in public health.



Northern Territory Paediatricians

Northern Territory (NT) Paediatricians are a group of specialist and general paediatricians who have worked and continue to work in the Northern Territory. We have devoted our careers to promoting the health and well-being of children and their families throughout the Northern Territory by using evidence-based practice to provide the highest standard of care.

We advocate for improvements in healthcare for the most vulnerable members of Australian society, for those without a voice. Our advocacy includes the protection of children and their families from harm caused by natural and manmade threats, including climate change and pollution.

We are not paid for our advocacy and have no conflict of interest. We are driven by the desire to provide the best medical care to our patients, support their families, and ensure that future generations can grow up in a healthy and safe environment. We want to ensure the protection of cultural heritage, so vital to the health and well-being of our First Nations families, as well as listen to and learn from First Nations people whose wisdom has ensured their survival for over 65,000 years.

We are honoured to collaborate with the Public Health Association of Australia to provide local health expertise to this submission.

Executive Summary

PHAA and NT Paediatricians strongly oppose the development of the Middle Arm Industrial Precinct (“MAIP” or “the Precinct”), and we also oppose the associated developments at Beetaloo and the Barossa Basin.

The Precinct depends on a \$1.9 billion fossil fuel subsidy⁽¹⁾ and will establish a ‘gas hub’ for gas-based industries on Darwin Harbour.⁽²⁾ These industries include petrochemical processing,⁽³⁾ liquid natural gas refining, and blue hydrogen⁽⁴⁾, all of which are energy (gas) intensive, and will undermine efforts to achieve sustainable development.⁽⁵⁾

Along with the reliance on unproven carbon capture and storage, the Precinct is at risk of becoming the biggest polluter in the NT.⁽⁵⁾ Increasing emissions means accelerating climate change and increasing associated health challenges.

The Precinct not only threatens the health and well-being of all Australians due to its climate change contributions, but it will also pollute the air, soil and water for generations of people who live in Darwin and Palmerston. Petrochemical plants pollute throughout their lifecycle, placing those who live nearby at increased risk from cancers,⁽⁶⁾ respiratory illness,⁽⁷⁾ pregnancy abnormalities⁽⁸⁾ and learning difficulties.⁽⁹⁾

With the health of all current and future populations front of mind, the pollutants that will inevitably be expelled from the Precinct, together with the contribution to climate change from the three interlinked gas developments, are unacceptable risks to human life and prosperity.

In order to protect, preserve and promote the health of Territorians and all Australians, we recommend the following:

1. Free, prior and informed consent of Larrakia Traditional Owners must be obtained for the Precinct, whatever the configuration of industries at the site.
2. The Australian Government should adopt policies to achieve emission reductions in accordance with the Paris Climate Agreement, and ensure Australia is on the way to achieving its Sustainable Development Goals.^(10,11)
3. The MAIP site should undergo a full and transparent climate impact assessment and cost-benefit analysis.
4. The Strategic Environmental Assessment should not be approved for public exhibition until a Comprehensive Health Impact Assessment has been undertaken. This should include completion of:
 - a Health Impact Assessment for all nominated industries.
 - robust methodology approved by a panel of independent public health experts.
 - assessment of the contribution to climate change through emissions generation.
 - a social determinants of health framework, with outcome monitoring built into a plan over several points of the facilities lifecycles.
 - assessment of the risks of extreme weather affecting the Precinct and
 - direct consultation with nearby communities to be affected by the development, including Aboriginal communities.

Introduction

PHAA and NT Paediatricians welcome the opportunity to provide input to the Senate Environment and Communications References Committee inquiry into the Middle Arm Industrial Precinct.

The Middle Arm of Darwin Harbour lies 3km away from Palmerston and 7km from Darwin. Middle Arm is one of the NT's most biodiverse areas; home to species whose habitat is threatened.⁽¹²⁾ Middle Arm also has extensive mangrove ecosystems that protect Darwin against erosion and storm surges and improve water quality.⁽¹³⁾

The NT and Federal Governments propose to convert 1,500 ha (the size of 1,500 rugby fields) of this habitat into the MAIP. The proposed operations include mineral processing, hydrogen, carbon capture and storage (CCS), petrochemicals, and gas processing.^(3,4)

Petrochemical plants and gas refineries pollute the soil, air, and water during their whole lifecycle (development, operation, and decommission).⁽¹⁴⁾ It is unacceptable to locate these sites close to residential areas, sensitive ecosystems, and waterways.⁽¹⁴⁾ Living near these industries poses severe health risks, as evident in the United States 'Cancer Alley' developments in Louisiana, where a high concentration of fossil fuel and petrochemical operations have likely caused local communities to have the highest cancer risk in that nation, among other severe ailments.⁽¹⁴⁾

Along with local health impacts the development of MAIP will contribute to climate health risks for all Australians. The Precinct is described to be a "world-class hub for gas production" to expand the fossil fuel gas industry.⁽²⁾ In fact this development would significantly hinder Australia from reaching its Paris Climate Agreement target.^(11,15)

MAIP and its feedstock developments of the Beetaloo Strategic Basin Plan and the Barossa Gas Project align with the previous Government's 'Gas-Fired Recovery Plan'.⁽¹⁾ That plan was plagued by lack of transparency, conflicts of interest, and falsehoods.⁽¹⁾ The primary falsehood was that increased gas production and use is a pathway to zero emissions.⁽¹⁾ In fact, gas produces methane (a potent greenhouse gas [GHG])⁽¹⁶⁾ and itself is a major contributor to emissions.⁽¹⁷⁾ Rather than facilitate transition to renewable energy as has been proposed, gas developments lock in usage and dependence on fossil fuels, and reduce investments in renewables. Gas should not be considered a transition energy source.⁽¹⁸⁾

Fracking the Beetaloo Basin could increase Australia's emissions by 7.8% annually based on 2020 levels,⁽¹⁾ and MAIP could increase the Territory's emissions by 75%.⁽⁵⁾ Yet, MAIP continues to be touted as "low emissions" development and as a way to "decarbonise the NT economy".⁽¹⁹⁾

NT Paediatricians and PHAA are united with the broader community in our concern for the health and safety of Northern Territorians and the broader Australian community that would flow from the Precinct and its associated developments.

Climate change is here, as evidenced by the Black Summer bushfires and the 2022 floods.⁽²⁰⁾ These events killed tens of people, displaced thousands, and left countless with post-traumatic stress disorder and depression.⁽²⁰⁾ The Precinct is not "sustainable", and it will contribute to uncontrollable global warming.⁽⁵⁾

We encourage the Committee to acknowledge the full scale of other relevant gas projects, including the information provided in following reports regarding the impacts of fracking on human and environmental health and well-being: [The Risks of Oil And Gas Development For Human Health And Wellbeing: A Synthesis Of Evidence And Implications For Australia](#) and [Submission to the Reopened Senate Environment and Communications References Committee to oppose the Federal Register of Legislation on Industry Research and Development \(Beetaloo Cooperative Drilling Program\) Instrument 2021](#).

TOR C – any climate, environmental, health or cultural heritage impacts as a result of developing the harbour and the industries seeking to establish themselves at Middle Arm Industrial Precinct

Climate Impacts

MAIP's climate impacts must be considered in two ways: what MAIP and its associated developments will contribute towards climate change and what will the climate change impacts on health be.

Contributions to climate change from the Precinct and associated developments

MAIP is intended to be a gas hub interlinked with major gas projects.⁽²⁾ It will contribute significantly to Australia's emissions footprint.⁽¹⁾

In an attempt to account for this fact, MAIP intends to create one of the world's largest carbon capture and storage (CCS) facilities.⁽⁵⁾ Any operation of such scale is still unproven, meaning that MAIP is relying on theory⁽²¹⁾ to prevent Darwin becoming a "climate change sacrifice zone",⁽²²⁾ and to prevent MAIP becoming the biggest contributor to GHGs in the NT.⁽⁵⁾ An estimate due to the lack of detail provided regarding industry at MAIP.⁽⁵⁾ The full extent of emissions could be far greater.

Climate change may result in most of the NT, including Darwin, being rendered unliveable during the lifetimes of our young people.⁽²³⁾ Climate change is an existential threat to all Australians.⁽²⁴⁾

Disruptions to the environment and vital ecosystems mean all Australians will experience a variety of outcomes, like food insecurity, displacement, and new communicable diseases.⁽²⁵⁾ We are gravely concerned these outcomes will become a reality if these gas expansions are developed. In the words of federal minister Mark Butler MP:

"Climate change poses a serious threat to the living standards of future generations and to the quality of our natural environment. And the longer we delay action to combat climate change, the more serious those threats will be for our children and grandchildren to manage... Most governments, communities and corporate boardrooms around the world are ... now debating what action they should take, and how quickly" – Mark Butler, *Climate Wars* (2107) ⁽²⁶⁾

We call for action to be taken now, and quickly. Federal funding must contribute to Australia's commitment to emissions reduction, and achievement of the Sustainable Development Goals (SDGs)⁽¹⁰⁾. Funding should be subject to a condition that it is not used to fund gas related industries directly or indirectly at MAIP (including liquid natural gas processing, petrochemical production, blue hydrogen and carbon capture and storage). This should include funding of infrastructure to enable supply of renewable energy to gas-based industries at MAIP.

Climate change social and health impact on Darwin

Climate change has significant implications for healthcare, emergency services, housing, energy, and disaster preparedness. Population groups like children, elderly individuals, people with pre-existing illnesses, socially disadvantaged individuals, First Nations people, and many others will be more vulnerable to the effects of climate change.⁽²⁷⁾

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The following trends are expected under a high emissions pathway,⁽²⁷⁾ which considering the current Australian emissions reductions plan will not achieve the Paris target of 1.5°C,⁽²⁸⁾ the following data may be indicative of future outcomes.

Darwin will continue to get warmer

Darwin is projected to see 176 days over 35°C per year by 2050. Days with temperatures exceeding 40°C rising significantly by the end of the century. These results will increase heat stress and loss of human life.⁽²⁷⁾ We note that:

- More Australians have died due to heat-related illnesses than from all natural disasters combined.⁽²⁹⁾
- Heat-related illnesses can be fatal, especially for the very young, elderly, those with chronic illnesses (1 in 5 Darwin residents),⁽²⁷⁾ socially isolated individuals, and outdoor/manual laborers.⁽²⁹⁾
- Increased temperature is associated with spikes in interpersonal violence⁽³⁰⁾ and emergency department presentations for mental health distress.⁽³¹⁾
- Deaths during summer months will become the main cause of death in Australia.⁽³²⁾

Rainfall and drought events will become more intense

Rainfall in the NT will become more variable, with greater fluctuations between wetter and drier condition, causing:⁽²⁷⁾

- Food insecurity due to disruptions to the food supply chain, especially in economically disadvantaged and rural and remote communities.⁽³³⁾
- Flooding and displacement of people, causing a decrease in their mental health and an increased risk of injury.⁽²⁷⁾
- Increased risk of vector-borne, potentially fatal diseases like malaria, dengue, and other fevers.⁽³⁴⁾

Sea level will continue to rise

The NT coastline has seen higher sea level rise on average than the rest of Australia.⁽³⁵⁾ Rising sea levels will worsen the effects of storm surges, high tides, surface waves, and flooding.⁽²⁷⁾ The impact will cause:

- Displacement of people that can lead to stress, anxiety, and other mental health issues.⁽²⁷⁾
- Destruction of communities and infrastructure, such as roads, hospitals, schools, and homes.⁽³⁶⁾

Tropical cyclones: potentially fewer but more intense events⁽²⁷⁾

Rainfall and storm surge from cyclones are expected to increase, leading to a high risk of flooding.⁽³⁷⁾ High winds and debris can damage industrial sites, resulting in leaks, spills, and fires.⁽²⁷⁾

MAIP's location will make it prone to severe cyclones. A prior risk assessment of the site reported a high risk of concern for industrial developments that handle toxic materials on Middle Arm.⁽³⁸⁾

NT Fire and Rescue Service (NTFRS) has raised concerns about their capacity to respond to MAIP in case of emergencies that involve hazardous materials.⁽³⁹⁾ If such incidents occur, it could potentially put the community at risk, especially if NTFRS must respond to multiple emergency incidents simultaneously.⁽³⁹⁾

Tropical cyclones and associated harm could result in:

- Physical injuries, death, mental distress, and displacement.⁽²⁷⁾
- Damaged water and wastewater infrastructure leading to water contamination.⁽²⁷⁾
- Damaged transportation networks that can disrupt food availability and security.⁽³³⁾

- Interrupted provision of health and support services, particularly for people experiencing vulnerability.⁽⁴⁰⁾
- Other previously mentioned health impacts of storm surge and flooding.

Mental health and climate change

Extreme weather events can cause loss of home, livelihood, health services, community and pets, helplessness, worry for personal and family safety, separation from loved ones, and physical injury.⁽⁴¹⁾ People who have experienced disaster often experience anxiety, depression, exacerbation of existing conditions, post-traumatic stress disorder and disrupted sleep.⁽⁴¹⁾ Also increases in cognitive impairment, suicide, conflict and violence.⁽⁴²⁾

Young people experience stress from disasters more acutely than adults, and feel pessimistic, afraid, and depressed about the world climate.⁽⁴³⁾ These feelings long-term can lead to decreased mental health.⁽⁴³⁾

First Nations people's health and well-being is closely connected to the health and well-being of the environment, the community, and important cultural traditions and places.⁽⁴⁴⁾ Climate change may result in the disruption, displacement, and destruction of these key elements to good health and well-being.⁽⁴⁴⁾

Environmental Impacts

The proposed petrochemical development poses significant risks to the environment, through regular emissions and by accident.⁽⁵⁾

Water ecosystem will be contaminated

Because of the Precinct's coastal location impacts on surrounding water ecosystems are likely, especially with climate change leading to sea level rise and increasing extreme weather events. Severe weather damage can lead to leaks, spills, and, in severe cases, explosions and chemical fires.⁽⁴⁵⁾ The example of Hurricane Harvey in the US in 2017 shows how a cyclone could severely damage coastal petrochemical facilities, resulting in a year's worth of pollutants being released within weeks.⁽⁴⁶⁾

Petrochemical wastewater is regularly released into the environment.⁽⁴⁷⁾ Yet it can carry carcinogens, which contaminate local areas⁽⁴⁸⁾ and microplastics, that may block the digestive tracts of small animals⁽⁴⁹⁾ and impact the function of marine ecosystems.⁽⁴⁷⁾ Although the human health impact of consuming microplastics is not yet understood, research suggests that microplastics are small enough to penetrate organs, the blood-brain barrier, and the placenta.⁽⁵⁰⁾

Wastewater from petrochemical facilities can contaminate mangrove ecosystems, causing accumulation of heavy metals in the plants.⁽⁵¹⁾ This not only damages the plant,⁽⁵²⁾ but also puts the animals living within the mangroves at a higher risk of consuming increased levels of heavy metals, such as lead.⁽⁵¹⁾

Air pollution levels will significantly increase

MAIP would significantly increase Darwin's air pollution, releasing formaldehyde, acetaldehyde, polycyclic aromatic compounds, nitrous dioxide, benzene, and other volatile organic compounds,⁽⁵⁾ all of which are highly toxic or carcinogenic substances.⁽⁵⁾ The MAIP facility could increase inhalation of airborne particulate matter (microscopic solids or droplets) by over 500% in Darwin.⁽⁵⁾ The increase in pollutants is expected to have a detrimental effect on the health and lifespan of residents living in Darwin and Palmerston, with an estimated cost the Territory's health system being \$75 million in additional health impacts, equivalent to 15 additional premature deaths, per year.⁽⁵⁾ The NT Government would be morally, and potentially financially, accountable for such outcomes.

Biodiversity of Darwin Harbour will be damaged

Darwin has one of the most diverse coastal environments in the Asia Pacific. However, industrial activities are a significant challenge as they can cause irrevocable harm to all ecosystems.⁽⁵⁷⁾ The ecosystem that keeps the Harbour clean, shores protected from erosion, provides food, continued ties to cultural heritage, and offers blue leisure space for locals and visitors to Darwin.

Darwin Harbour is lined with mangrove forests, with over 36 species of mangroves. In the Harbour encounter are common with three species of dolphins, along with the dugong and six species of sea turtles.⁽⁵³⁾

Under the MAIP 'full development scenario' significant marine infrastructure will be built, including port and offload module facilities, shipping channels, and berths.⁽⁵⁴⁾ MAIP's draft program states that the area's biodiversity will be drastically impacted and biodiversity offset planning will be necessary.⁽⁵⁴⁾

Biodiversity offsets remain controversial. It is unclear whether the target offsets do slow down biodiversity loss,⁽⁵⁵⁾ as it is difficult to gauge if the offset targets are equal to the biodiversity that's been lost.⁽⁵⁶⁾ The lack of biodiversity data in the NT compounds this issue.

Health Impacts

Living near petrochemical facilities and fossil fuel refineries have serious implications on a range of health issues and it can exacerbate existing inequities.⁽¹⁴⁾ The Government is supposed to ensure that highest attainable standard of health is a fundamental right of every human being in Australia.⁽⁵⁸⁾ The Precinct will severely impact that commitment to the people of Darwin and Palmerston.

Pregnancy: Living less than 5km from a petrochemical facility is an important risk factor for adverse birth outcomes.^(8,59) Petrochemical air pollutants increase the risk of premature membrane rupture, which can lead to complications and perinatal morbidity and mortality, including placental abruption, foetal distress, and neonatal sepsis.⁽⁸⁾

Long-term complications for the baby include chronic lung diseases, visual or hearing difficulties, and neurodevelopmental disorders.⁽⁸⁾ Low birthweight (LBW) and pre-term birth are also a potential outcome.⁽⁵⁹⁾ This is concerning given LBW in the NT is higher than the nation's average and Aboriginal mothers in the NT are more than twice as likely to have a baby with LBW.⁽⁶⁰⁾

Social violence: The 2019 Reclaiming Power and Place Report completed in Canada found that reliance on fly-in-fly-out (FIFO) workers for industrial and mining sites (the high migration of young men with high salaries and little to no stake in the local community) was associated with an increased rate of violence against Indigenous women and children.⁽⁶¹⁾ The Precinct's immense size and the remoteness of the Barossa and Beetaloo basins would indicate that FIFO workers are required. The safety of Aboriginal and/or Torres Strait Islander women and children must not be overlooked.

The NT already has high levels of domestic violence cases, with a significant rise in assault cases observed since 2018.^(62,63) The vast majority of these cases involved Aboriginal and/or Torres Strait Islander people.⁽⁶³⁾ The Government must ensure the determinants of violence are addressed, not create another barrier to enabling a safe environment.

Respiratory: Residential proximity to petrochemical facilities increases incidence of respiratory conditions such as coughing, wheezing, and bronchitis.⁽⁷⁾ The extent of these symptoms become greater with longer exposure.⁽⁷⁾ Local children are almost twice as likely to have asthma, and more than twice as likely to have allergic rhinitis and bronchitis than children who live further than 10km from a petrochemical facility.⁽⁶⁴⁾ Noting that Palmerston and Darwin are 3km and 7km from Middle Arm respectively.

Child Health: Increased asthma exacerbations and severity are seen in children in the United States living near gas processing and petrochemical facilities due to air pollution, particularly nitrogen oxides, ozone, and fine particulate matter.⁽⁶⁵⁾ Darwin already suffers from some of the worst air quality in Australia.⁽⁶⁶⁾ Children have higher respiratory rates and breathe in relatively more pollution than older age groups, putting them at higher risk of complications from air pollution.

Children are at higher risk of cancer due to their physiology and longer exposure times. One study found residents living within 8km of petrochemical facilities has a 36% increased risk of leukaemia (acute myeloid leukaemia, chronic lymphoblastic leukaemia).⁽⁶⁷⁾ Another study of 187,000 people found a 30-58% increased risk of leukaemia for residents living within 5km of petrochemical facilities.⁽⁶⁸⁾ Concerningly, the increased risk remained consistent despite better regulations, technology, and environmental controls indicating that increased cancer risk cannot be ameliorated with regulations or improved technology.⁽⁶⁸⁾

Children residing near petrochemical facilities also show decreased working memory function.⁽⁶⁹⁾ Children in the NT already have highest rates of learning difficulties in Australia with NT children being 2-3 times more likely to “require additional support” in NAPLAN testing for school years 3-9.⁽⁷⁰⁾

Cardiovascular: Living in close proximity to petrochemical sites increases the risk of developing cardiovascular diseases due to air pollution containing heavy metals such as mercury, arsenic, and chromium that are released into the atmosphere during the sites' operation.⁽⁷¹⁾ This risk is particularly high for Aboriginal people living in the NT who already have the highest death rate due to cardiovascular disease in Australia, adding another risk factor into the community creates an avoidable barrier to closing the gap of health outcomes.⁽⁷²⁾ Exposure to short- and long-term air pollution increases hospitalizations for cardiovascular events, including coronary syndrome, arrhythmia, heart failure, stroke, and sudden cardiac death.⁽⁷³⁾

Cancer: Cancer rates significantly increase for residents near petrochemical facilities, particularly for those who have had longer term exposure to the pollutants (like children).^(6,74) Linked cancers include brain, bladder, liver, bone, larynx pancreas and lung, as well as lymphoma, mesothelioma, and leukaemia.^(6,74) Projections show the Precinct could increase the cancer risk in Darwin four-fold.⁽⁵⁾

However, there is not just pollution to consider. The residents near the NT Ranger Mine show a cancer incidence twice that of the NT population.⁽⁷⁵⁾ Although not able to be linked to the Mine, the investigation cited the cancers were caused by the local, largely Aboriginal, population's high rates of alcohol and tobacco use (the data wasn't strong enough to prove that, however).⁽⁷⁵⁾ We note that with the Mine's development brought more alcohol, tobacco and economic reliance on mine subsidies into the community, deepening the inequity among Aboriginal people in the region.⁽⁷⁵⁾

Cancer can be caused by exposure to toxic pollution, but locals can also be exposed to more alcohol and tobacco products, which are also carcinogens.⁽⁷⁵⁾ The ripple effect of health impacts with large industrial developments show innumerable unintended consequences.

Mental Health: Living close to and working in petrochemical facilities may also increase likelihood of depression and lower neuropsychological function.⁽⁹⁾ Some of the known pollutants (particulate matter and nitrous dioxide) are linked to oxidative stress and inflammatory processes in the brain,⁽⁸¹⁾ causing decreased ability to concentrate, and increased forgetfulness, anxiety, and depression.⁽⁹⁾

Mental ill-health accounts for 45% of 10-24-year-olds's burden of disease in the NT and Darwin's yearly standardised death rate for suicide is greater than the National average.⁽⁸²⁾ The NT also spends far more than the National average on treating mental-ill health.⁽⁸³⁾ We urge the Government to consider the full economic, environmental and health impacts of MAIP against the tenuous 'economic gains' that proponents of the development are claiming.

Incidents: Industrial accidents need to be accounted for in any risk assessment and development planning.⁽⁸⁴⁾ One U.S. petrochemical plant alone has malfunctioned and heavily polluted the air 39 times in six months.⁽⁸⁵⁾ Other “hidden disasters” occur every other day due to pipeline ruptures, human error, and crashes, causing toxic leaks and spills.⁽⁸⁴⁾ These accidents can’t be completely avoided.

NTFRS have already raised concerns about capacity to respond to an emergency at Middle Arm. They note that the Service does not have the proper equipment to manage a hazardous incident, and an accident would divert already stretched resources away from serving the community.⁽³⁹⁾ Thus increasing the risk for the community to be exposed to an uncontrolled disaster, polluting Darwin’s air with carcinogens.⁽⁸⁵⁾

Indirect Health Impacts: Increases in FIFO workers not only has shown an increase in social violence,⁽⁶¹⁾ it can also proliferate fast-food outlets,⁽⁸⁶⁾ drug trafficking,⁽⁶¹⁾ and increased alcohol use⁽⁸⁶⁾ and sexually transmitted infections.

Also, the already strained health system in Darwin and the NT cannot cope with an increased burden of disease due to the proposed gas processing and petrochemical facilities at MAIP. There is no paediatric oncology service in Darwin or Alice Springs, so any increased cases of cancer must be evacuated interstate at great cost to the family and to the taxpayer.

There is no paediatric intensive care unit in the NT, making any increased severity of asthma exacerbations in children with severe asthma a major risk and cost to the health system. Children who cannot be managed safely in the adult ICUs must be evacuated interstate, disrupting families and slowing recovery.

There were nine ‘Code Yellow’ incidents at Royal Darwin Hospital and Palmerston Hospitals in the 2022-2023 financial year with Royal Darwin operating over its capacity on a daily basis.^(87,88) This indicates a health system which is not coping with current demand. Putting aside the ethics of exposing populations to harmful toxins, the health system cannot cope with the current burden of disease, let alone an increase due to the pollution predicted to be emitted from MAIP.

Furthermore, the enormous all-scope lifecycle emissions of the MAIP’s feeder gas projects will intensify climate-related harms. This is grossly unjust as climate change is predicted to increase the rates of injury and disease both for Territorians and populations more broadly.⁽⁸⁹⁾

Equity: The presence of a major pollutant close to environments where people reside will negatively impact the health of all who live there. The impacts however will be felt inequitably, with vulnerable populations including people/households with low income, people with a disability, Aboriginal and/or Torres Strait Islander People and children being more likely to experience these impacts.⁽⁷⁶⁾

This should be of particular concern, given that many people in these population groups already experience an avoidable and greater burden of disease compared with the rest of the population.⁽⁷⁷⁾ Ill health and well-being can impact a person’s ability to work and earn income, be attentive at school, and it can isolate people from their peers, and place people in economic hardship.⁽⁷⁸⁾

The NT’s commitment to Close the Gap has seen mixed results, with improvements in reducing out-of-home care for children but work still to do to address early childhood education.⁽⁷⁹⁾ Not developing at Middle Arm would avoid additional exposure to air pollution, thus avoiding potential health barriers to closing the gap.⁽⁷⁹⁾ Inequity is an avoidable result.⁽⁸⁰⁾

Cultural Heritage Impacts

Despite deep, historical ties to the land and waters at Middle Arm, Larrakia families were not consulted by the Federal government before funding was committed to the Middle Arm Industrial Precinct. This site is important to preserving cultural heritage as the peninsula is home to the region's only known intact rock carvings.⁽⁹⁰⁾

TOR D – the conduct, process and implications of the proposed strategic environmental assessment for Middle Arm

Strategic Environmental Assessment (SEA)

MAIP is currently undergoing an SEA, which can result in better environmental outcomes. However, SEAs often lack substance regarding health impacts. We are also concerned that this project's SEA environmental conclusions will be unreliable given the following key flaws:

- Lack of detail in the referral of the proposed industries. Making engagement with the referral and draft terms of reference extremely difficult.
- No substantive development scenarios or draft development plans have been released.
- Methodologies for baseline calculation and impact assessments have not been released.
- The SEA area excludes existing operations at Middle Arm, other proposed infrastructure and the linked developments of Beetaloo and Barossa. Therefore, the total impact cannot be estimated.

We also strongly urge that MAIP be considered a new fossil fuel project with significant climate impacts, therefore must undergo a full and transparent climate impact assessment and cost-benefit analysis.

Health Impact Assessment (HIA)

Due to the SEA format, HIAs for proposed businesses at MAIP only need to be conducted at the discretion of the Northern Territory Chief Health Officer, which does not need to be accepted by the NT Government. However, according to the *Health Impact Assessment Guidelines*, assessments should be completed if the proposed development, 'has the potential to result in changes to the health of communities if it were to be implemented, [determine] the significance of these changes and whether the outcomes of an HIA would add value to the decision-making process'.⁽⁹¹⁾

Given the pages of climate, environmental, cultural and health impacts outlined in this submission, the effects on public health that could result from this project's implementation are significant. The SEA should not be approved for public exhibition until a Comprehensive HIA is undertaken in accordance with the *Guidelines*. This must include completion of:

- a HIA for all nominated industries;
- robust methodology approved by a panel of independent public health experts;
- assessment of the contribution to climate change through emissions generation;
- a social determinants of health framework, with outcome monitoring built into a plan over several points of the facilities lifecycles;
- assessment of the risks of extreme weather affecting the Precinct and
- direct consultation with nearby communities to be affected by the development, including Aboriginal communities.

Without a Comprehensive HIA and once the SEA is completed and accepted, industries will be permitted to receive a MAIP business license within 60 days of application. Preventing any proper community consultation regarding harmful industries being conducted 3-7km from people's homes.

Broader Environmental Assessment Concerns

Australia's environmental impact assessment processes are weak.⁽²²⁾ Currently, the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* – Australia's national legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places –

is focussed solely on individual issues rather than the bigger picture. The Act is underpowered compared to similar legislation elsewhere, and developments often are not required to comply with its aims.⁽⁹²⁾

To truly protect Australia, we must have a standardised framework which ensures any projects that depend on fossil fuels or are fossil fuel projects, have their full life cycle (including decommissioning/stranded asset) health, climate, environmental and cultural impacts assessed, and the framework must consider the cumulative impacts of many different projects being approved over time.⁽⁹²⁾

TOR F – Any other related matters

International Considerations

In a report in 2023 the UN Special Rapporteur on Toxics and Human Rights has specifically cited MAIP and its affiliated gas developments as “threaten[ing] to make Darwin and the region a climate change sacrifice zone”.⁽²²⁾ Also highlighted was their concern regarding MAIP’s pollutants and the health of proximal residences.⁽²²⁾ We agree with the Report’s conclusion that the Government should, “make the right to live in a toxic-free environment a reality for all.”⁽²²⁾

The Special Rapporteur report alludes to the unknown scope 1-3 emissions that would be generated by the MAIP, Barossa and Beetaloo.⁽²²⁾ Combined with the Proponent’s reliance on ineffective CCS facilities, we can’t gauge how much this development will impact Australia’s Paris Climate Agreement commitment of reducing global GHG emissions to limit the global temperature increase in this century to 2°C, while pursuing efforts to limit the increase even further to 1.5°C.⁽¹¹⁾

The NT gas expansion will further jeopardise Australia’s standing in the world (and region) as a major contributor to emissions.⁽⁹³⁾

Personal Testimonies

The following comments present personal testimonies from PHAA NT Branch Members and NT Paediatricians.

“I am tired of the NT Chief Minister dismissing concerns about the Middle Arm project as coming only from east-coasters, elites, and Canberra politicians. We are Territorians. We live in the Territory, we raise our children here, we work here, we vote here. I always thought of myself as a safe Labor vote. But it is becoming increasingly difficult to imagine checking the box next to a Labor name at the next election, based on the behaviour of the current government when it comes to the environment. Of course, we all want the Northern Territory to thrive, but it can no longer come at the cost of the health of our environment and our people.” – PHAA NT Member

“When I looked at the proximity of this planned project in comparison to where we live, I believe it is potentially unsafe for my family and would consider I am living in a high risk area for exposure to dangerous chemicals in the air, water and land... if this project goes ahead we would leave Darwin and the Northern Territory. I could not stay in a place where there is such priority given to industrial development whilst the rest of the community faced real world problems such as food shortages, disengaged youth, health gaps and an expediated crime rate. I already worry about the impact of the planned marine industry park on the local environment, including potential harm to ecosystems, water quality, air quality, and natural habitats.”
– PHAA NT Member

“Knowing that’s planned for where I live it makes me think it will not be a good world to live in” – Child of PHAA NT Member

“This will affect my generation and my future family, when we live in a place that all you see around the area is industrial plants, the harbour will not be the same” – Child of PHAA NT Member

Conclusion

NT Paediatricians and PHAA appreciate the opportunity to provide the plethora of evidence which demonstrates that the Middle Arm Industrial Precinct will not only be detrimental to the health of Darwin and Palmerston residents, but to all Australians.

In order to protect, preserve and promote the health of Territorians and all Australians, we recommend the following:

- Free, prior and informed consent of Larrakia Traditional Owners must be obtained for the Precinct, whatever the configuration of industries at the site.
- The Australian Government should adopt policies to achieve emission reductions in accordance with the Paris Climate Agreement, and ensure Australia is on the way to achieving its Sustainable Development Goals. ^(10,11)
- The MAIP site should undergo a full and transparent climate impact assessment and cost-benefit analysis.
- The SEA should not be approved for public exhibition until a Comprehensive HIA has been undertaken. This should include completion of:
 - a HIA for all nominated industries;
 - robust methodology approved by a panel of independent public health experts;
 - assessment of the contribution to climate change through emissions generation;
 - a social determinants of health framework, with outcome monitoring built into a plan over several points of the facilities lifecycles;
 - assessment of the risks of extreme weather affecting the Precinct and
 - direct consultation with nearby communities to be affected by the development, including Aboriginal communities.

Please do not hesitate to contact us should you require additional information or have any queries in relation to this submission.



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31 October 2023

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