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Opening the policy window: how Australia banned engineered stone

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ABSTRACT

Objective. This case study applies Kingdon's multiple streams framework (MSF) to analyse Australia's world-first decision to ban engineered stone (ES) and addresses the following questions: How did the ES silicosis crisis become a priority on the policy agenda, and how did problem framing, proposed solutions, and political factors converge to enable the ban? **Type of program.** The program discussed in this paper involves the regulatory intervention of banning siliceous ES, a significant occupational health policy reform aimed at preventing silicosis, an irreversible lung disease caused by silica exposure in the workplace. The ban, which took effect on 1 July 2024, is part of a broader initiative to protect workers, especially in industries involving ES processing, from the harmful effects of respirable crystalline silica. **Methods.** A qualitative case study approach was used. Data sources included government reports, regulatory consultations, media coverage, advocacy materials, and expert insights from stakeholders involved in the reform process. Thematic analysis was structured around MSF's three streams: problem, policy, and politics. **Results.** The analysis reveals that the problem stream was driven by framing the rapid rise of accelerated silicosis in the ES industry as a preventable 'public health emergency' disproportionately affecting young Australian workers. The policy stream, led by Safe Work Australia (SWA), featured the evolution and introduction of policy options shaped by sustained advocacy from unions, professional bodies, and researchers. In the political stream, bipartisan support, minimal industry resistance, and low economic impact facilitated the political appetite for change. The convergence of these three streams created 'a window of opportunity' that enabled the successful policy reform. **Lessons learnt.** This case highlights that policy change can occur when evidence, political conditions, and advocacy efforts align. Strategic problem framing, limited industry resistance, and political feasibility were key enablers. The study reinforces the value of Kingdon's framework for understanding how diverse efforts can converge to create a window for meaningful occupational health reform.

Keywords: agenda-setting, artificial stone, evidence based policy, Kingdon's multiple streams framework, occupational health policy, research translation, silicosis.

KEY POINTS

- Problem framing, viable policy options, and political receptiveness converged to enable policy change.
- Framing silicosis as a preventable disease affecting young workers resulted in gaining public and political attention.
- Evidence alone is insufficient without strategic advocacy and political feasibility to drive policy change.
- Trade unions, professional bodies, and Australia's institutional work health and safety policy infrastructure have a critical role.
- Policy windows can open without tightly coordinated efforts when the timing, framing, and actors align.

Introduction

Agenda setting has long been recognised as a pivotal process in shaping public health policy outcomes, determining which issues gain political traction and which are neglected.[1] Scholars have examined the conditions under which certain health concerns ascend onto formal policy agendas, emphasising the interplay between evidence, framing, institutional norms, and political context.[2–4] Policymakers operate amid competing issues and limited attention, often ignoring even well-documented problems until a focusing event or pressure shifts the status.[3]

Public policy 'windows of opportunity' are critical for turning evidence of a problem into concrete policy change.[5] Simply identifying a serious health hazard is not enough to spur action; issues gain traction through skilled framing and coupling of solutions to the problem at the right political moment. The health policy literature has increasingly drawn on political science and public policy models such as Kingdon's multiple streams framework (MSF)[6] to explain this process.[7] Kingdon's MSF is a widely recognised model in public policy analysis that explains how policies are developed and adopted.[7] It highlights three 'streams' that operate independently but must align for significant policy change to occur: the problem stream, the policy stream, and the politics stream.[8] According to the framework, when these three streams converge, referred to as a 'policy window', opportunities for transformative policy change arise.

Kingdon's MSF has been widely used to analyse health policy decisions, including those related to vaccination mandates,[9] immunisation,[10] public health insurance,[11] pharmaceutical regulation,[12] health promotion,[13] health financing,[14] and cancer prevention.[15] The framework is particularly valuable for understanding how health issues are framed, how policy solutions emerge, and how political conditions align to enable change. However, its application to occupational health and safety policy remains limited, with only a few documented examples.[16] This case study applies MSF to Australia's world-first decision to ban engineered stone (ES) to examine how the ES silicosis crisis reached the policy agenda and explores how problem framing, proposed solutions, and political factors converged to facilitate this policy reform.

Methods

This study employs a qualitative case study approach to analyse the policy process leading to Australia's ES ban. Although we use Kingdon's MSF as the primary analytical lens, other public policy frameworks, such as the Advocacy Coalition Framework, Punctuated Equilibrium Theory, Narrative Policy Framework, and Social Construction and Policy Design, offer valuable insights into power dynamics and actor coalitions.[17,18] We chose MSF as it is particularly suited to understanding how issues reach the policy agenda through the convergence of problem recognition, policy solutions, and political opportunity.

We drew on a wide range of publicly available data sources to map key events and identify drivers within each of Kingdon's three streams. These included:

- Government documents and reports, such as the National Dust Disease Taskforce publications, consultation and decision regulatory impact reports by Safe Work Australia (SWA), and ministerial communiqués.
- Public submissions and consultation feedback from trade unions, professional associations, and industry groups.
- News media coverage, including high-profile reporting on affected workers and public campaigns.
- Stakeholder and advocacy communications, such as statements from unions, regulators, and occupational health professional bodies.
- Academic and technical literature on silicosis, ES composition, and occupational exposure risks.

These sources were reviewed and triangulated to construct a timeline of critical events, define how the issue was framed, and identify actors and mechanisms across the problem, policy, and politics streams. We also examined contextual drivers that facilitated the ban. Our analysis focuses on the critical period from the mid-2010s, when ES-related silicosis cases began to emerge, through late 2023, when SWA recommended the ban. The broader policy timeline, from the introduction of ES in the early 2000s to its ban in 2024, is depicted in Fig. 1.

In addition to documentary analysis, this study draws on expert insights from several authors of this paper (KC, DP, CR, SG, YT and SR), who were directly involved in the policy reform process as advocates, researchers, or regulators. Their contributions included preparing formal submissions to government inquiries, conducting commissioned evidence reviews, providing media briefings and public commentary, and supporting advocacy by unions and professional bodies.

Importantly, the paper also builds on an episode of the 'In Conversation' webinar series hosted by the Centre for Health in All Policies Research Translation (CHiAPRT). This particular webinar[19], featuring several of the authors (KC, DP, CR, SG, SR and CW), provided a platform to reflect on and discuss the trajectory of the ES ban, including the evolution of the evidence base, advocacy efforts, stakeholder alignment, and key turning points in the policy journey.

Results

The problem

Three key factors elevated the problem to political prominence: (1) strategic problem framing, (2) irrefutable evidence, and (3) the use of diverse dissemination methods to communicate findings and raise awareness.

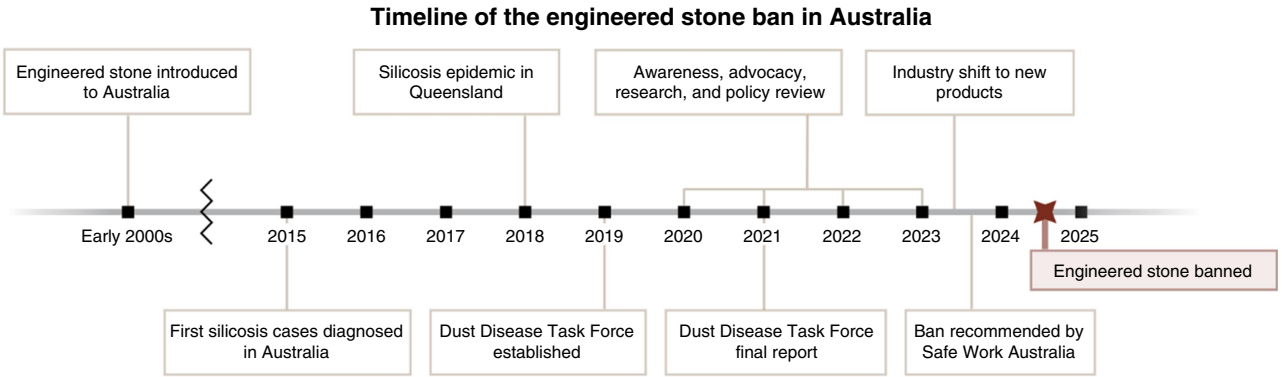


Fig. 1. Timeline of key events and policy milestones leading to Australia's engineered stone ban (early 2000s–2024).

Firstly, the issue was framed as a public health crisis affecting young Australian workers in their 20s and 30s, who were suffering from a disease that is entirely preventable. This framing sparked public outrage and intensified media scrutiny. High-profile cases, including Australia's first recorded ES silicosis-related death,[20] drew widespread attention. Unions were active and vocal in support of protecting worker health.[21] This publicity raised awareness across the public, industry, professional associations, and, crucially, among policymakers. The heightened visibility pressured the government to act while also facilitating resources and funding for further awareness campaigns[22] and academic research projects.[23] For example, the Medical Research Future Fund 2020 Silicosis Research Grant opportunity[24] stimulated further research, strengthening the evidence base while policy discussions progressed.

Secondly, the ES policy reform was underpinned by clear, irrefutable evidence linking the industry and the product to the alarming rise in silicosis cases. Silicosis, a disease historically associated with stonemasons and miners, has been recognised for centuries. However, in the early 2010s, a more aggressive form, accelerated silicosis, emerged in the ES benchtop industry. This irreversible and debilitating lung disease progresses rapidly after a relatively short duration of exposure to high levels of airborne dust containing respirable crystalline silica (RCS). Unlike marble or granite, ES is a composite material containing up to 90% crystalline silica, along with fillers, resins, and pigments. Fabrication activities such as uncontrolled cutting, grinding, drilling, and polishing release high concentrations of RCS, putting workers at significant risk.[25,26] Although ES was introduced to the Australian market in the early 2000s, according to Glass and Hoy,[27] its association with silicosis was not widely acknowledged until the first Australian case report in 2015,[28] followed by a series of case reports in 2018.[29] These reports sparked interest and prompted collaborative efforts of advocacy, research, and awareness campaigns from multiple actors including trade unions, academics, media, regulatory bodies, and peak professional bodies leading to the establishment of the National Dust Disease Taskforce in 2019.[27]

Thirdly, the evidence base extended beyond traditional academic research. Respiratory physicians identified clusters of silicosis cases among ES workers in clinical settings and raised awareness through the media and professional bodies such as the Thoracic Society of Australia & New Zealand (TSANZ). Several jurisdictions undertook work health and safety (WHS) compliance audits and education campaigns targeted at the ES industry.[30,31] Occupational hygienists, who assess workplace exposures and controls, shared their experiences with poor workplace conditions, aligning with clinical observations and compliance audit reports. The Australian Institute of Occupational Hygienists (AIOH) played a crucial role in compiling and disseminating evidence, exerting pressure on policymakers and regulators to act. Notably, AIOH commissioned a survey of occupational hygienists to document real-world experiences with RCS exposure, advocating for a nationally consistent regulatory approach.[32] Research outputs from Monash University,[33–35] Curtin University,[36] and the University of Adelaide[26,37,38] further reinforced the evidence base. The evidence, particularly highlighting the 'toxic cocktail' characteristics of ES beyond just RCS,[25,39] ultimately reinforced calls for a full ban as a precautionary measure.

In summary, although a robust and multifaceted evidence base was critical, it was the framing of silicosis as a preventable disease affecting young Australian workers that propelled the issue onto the political agenda. Kingdon's MSF suggests that translating evidence into a compelling problem narrative is essential to opening policy windows and driving reform.[6]

Policy solutions

Kingdon's framework suggests that policy ideas can emerge from multiple sources, but not all are considered viable solutions. Only those deemed acceptable, feasible, and affordable by decision-makers move forward.[8] Connelly and colleagues support this view, emphasising that although research and evidence should inform policy ideas, they cannot dictate them entirely.[40] This highlights the importance of the process of

organising evidence, developing policy ideas, and shaping recommendations that are more likely to be accepted by decision-makers. Kingdon describes this process as policy recommendations seeking a problem to solve, often referred to as the problem/policy package.[8]

A key milestone in the development of the ES ban policy idea was the establishment of the Dust Disease Taskforce in 2019. The Taskforce conducted an independent review of occupational dust disease protections and developed a national approach for prevention and management. Although it did not initially recommend a ban, it introduced the idea for discussion, particularly if other recommended measures, such as education, licensing requirements, and medical screening, failed to ensure worker safety within 3 years following their initial assessment.[41] The Taskforce's final report included 15 recommendations across seven categories, including education, compliance, and support. All Australian governments fully endorsed 13 of the recommendations, whereas two (consideration of a future ban and funding multidisciplinary medical teams to improve general practitioners' knowledge) were noted but not endorsed.[42] One key conclusion from the Taskforce was to conduct a Regulatory Impact Analysis to determine the most effective measures for protecting workers from exposure risks.

SWA, in its role to coordinate regulatory issues for the jurisdictions, led this regulatory impact analysis, beginning with a Consultation Regulation Impact Statement (CRIS) to gather stakeholder feedback on five policy options, ranging from awareness campaigns to licensing and regulating high-risk work.[43] However, ongoing stakeholder pressure, particularly from worker unions and professional bodies, led to the consideration of a sixth option: a ban on ES.[44] Organisations such as the Australian Council of Trade Unions (ACTU)[45] and the AIOH[46] in their submissions argued that the initial options were inadequate and advocated for a ban in line with the principles of the hierarchy of hazard control.[47]

Following the consultation, SWA conducted an additional impact analysis focused solely on prohibition,[48] assessing three options: (1) a complete ban on all ES, (2) a ban with exceptions for ES containing 40% or less crystalline silica, and (3) a ban as described in (2) plus a licensing scheme for ES containing 40% or less crystalline silica. Industry groups lobbied for options 2 and 3 to avoid a complete ban.[49] However, a University of Adelaide review, commissioned by SWA,[50] found insufficient evidence to support silica content-based (i.e. 'safe threshold') regulation. In addition, suitable benchtop alternatives already existed in the market, allowing industry to swiftly pivot its product offerings. Moreover, there were no major Australian-based manufacturers of ES. On the basis of the available evidence, policy analysis, and stakeholder feedback, SWA recommended a total ban on ES, with a licensing scheme for legacy products.[48] In December 2023, Australian WHS ministers unanimously accepted the recommendation and approved a ban on ES containing more than 1% by weight crystalline silica.[51]

Overall, this journey exemplifies how a 'window of opportunity' allows new ideas to enter the policy agenda and gain serious consideration, even when certain options were not initially considered. Importantly, the final policy outcome differed from the original options, driven by persistent advocacy from unions and professional bodies. This underscores the importance of timing, continuous advocacy, and research in shaping policy decisions.

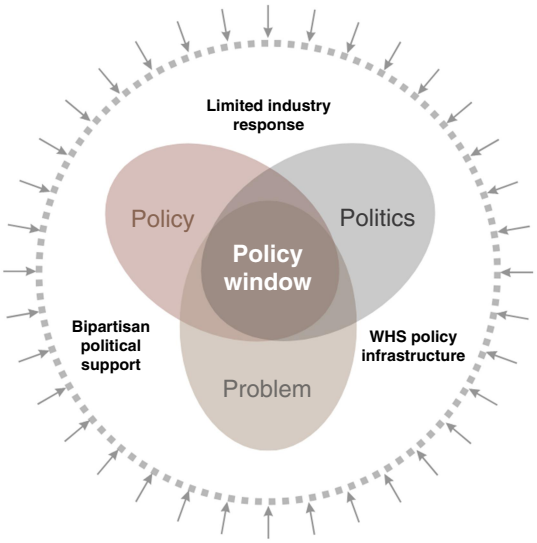
Politics

According to Kingdon's framework, a window of opportunity opens when political will converges with a well-defined problem and a viable policy solution.[6] This phase is critical for policy entrepreneurs, including scientists, bureaucrats, and advocates, to advance the problem-policy package onto the political agenda.[8] Although SWA's policy impact analysis played a significant role in framing the problem and informing ministerial decisions, it was not the sole catalyst for political will. A range of factors and stakeholders contributed to elevating the issue in public discourse and political agenda. This section examines the key drivers of political action and explores contextual elements that may further shape the discussion.

The first key factor that shaped the political agenda around this issue was sustained advocacy and campaigning by a diverse range of actors, including workers' unions (ACTU; Construction, Forestry and Maritime Employees Union [CFMEU]), professional bodies (AIOH, AIHS, TSANZ), academics, and the media. Continuous pressure from these groups played a crucial part in pushing WHS ministers to recognise and act on evidence-based policy proposals. Importantly, scientists and professional bodies did not rely solely on traditional academic dissemination methods such as peer-reviewed publications, conferences, and reports. They actively engaged in policy advocacy through policy submissions, direct meetings with politicians, and parliamentary presentations, ensuring the problem and potential solutions were clearly and persistently communicated in a timely manner. Additionally, their presence in the media helped sustain public awareness and applied ongoing pressure on policymakers to act.

Another crucial factor was the strong synergy between various actors. Unions leveraged their strong advocacy and campaigning networks, playing a pivotal role in influencing political decisions by largely Labor governments.They were instrumental in developing position papers, commissioning research projects,[36] and engaging experts, scientists, and researchers to provide evidence-based recommendations.[36,45] For instance, CFMEU members and thousands of workers took to the streets in mass demonstrations, demanding a ban on ES, further amplifying the urgency of the issue.

Although unions were critical in pushing the issue onto the political agenda, it is important to note that most workers in the ES industry were not unionised. Despite this, unions remained actively engaged in advocacy and awareness



The Problem

Framed as a preventable public health crisis affecting young Australian workers, sparking public outrage and media scrutiny, and capturing political attention.

Clear and irrefutable evidence that linked the engineered stone industry to irreversible and debilitating lung disease was established.

Intense media scrutiny raised awareness among the public, the industry, professionals, and, most crucially, policy actors.

The Policy

Multiple policy options were considered and analysed.

There was strong stakeholder engagement and participation in policy consultation.

The stakeholder pressure led to new alternative policy options (a ban) being considered.

The Politics

Sustained advocacy and campaigning occurred using diverse communication methods.

Strong synergies among diverse parties placed continuous pressure on political groups to act.

The low potential economic and political risk of the ban increased political appetite.

Fig. 2. Analysis of Australia's engineered stone ban using Kingdon's multiple streams framework. WHS, work health and safety.

campaigns. This may be because the issue of ES had broader implications for other industries, such as construction, where union representation, particularly through the CFMEU, is strong. This interconnectedness likely contributed to unions' sustained involvement in the campaign for regulatory action (Fig. 2).

The relatively small size of the stone benchtop industry likely made it politically easier for policy actors to support reform, as it posed minimal economic risk. SWA's policy analysis estimated the cost of a ban at approximately 160 million AUD, a relatively low economic impact.[44] It is unclear if there would have been the same level of political appetite if the ban had targeted a larger, more influential industry such as construction or mining, which also face silica dust exposure risks. As Kingdon's framework suggests, a policy window only opens when political acceptance aligns with a well-defined problem and viable policy solutions.[6]

Contextual factors

Several contextual factors played a crucial role in shaping public discourse, influencing the political agenda, and ultimately driving political will to support SWA's policy recommendations.

Firstly, industry resistance and lobbying efforts were limited and ultimately ineffective, likely because of the sector's limited size and influence. Companies such as Caesarstone lobbied fabricators and promoted alternatives such as reduced-silica products and licensing schemes over the total ban.[49] But these efforts failed to shift government positions. The immediate availability of alternative products, including zero-silica ES,[52] provided the industry with a clear path to pivot. The availability of these substitutes meant the policy reform did not significantly threaten the sector, likely a key reason for the limited industry resistance against the reform. However, it is important to note that the long-term health implications of these new products are still unknown.[39]

Second, bipartisan political support across two Australian governments, beginning with the Morrison government (establishing the National Dust Disease Taskforce) and continuing under the Albanese government, helped sustain momentum for policy reform. The transition of leadership without losing traction on key initiatives, such as the National Dust Disease Taskforce, exemplifies a rare alignment of political will that facilitated the policy window.

Finally, the presence of an independent national agency, SWA, was pivotal. SWA played a central role in framing the issue, conducting impact analyses, and presenting a range of policy options. In doing so, SWA facilitated a structured dialogue that empowered WHS ministers to reach consensus on a workable solution. The existence of such an institutional policy infrastructure proved to be a critical enabling factor, one that may offer a valuable model for other countries seeking to tackle similar occupational health and safety challenges through policy reform.

Key lessons and implications

The ES policy reform illustrates how policy change can emerge through the convergence of problem framing, viable policy options, and political receptiveness, although this convergence rarely occurs in a predictable or linear way.

A critical factor was the framing of ES silicosis as a preventable disease affecting young workers, which resonated with the public and politicians, and drove media attention. This framing, supported by visible clinical cases and a growing evidence base, helped elevate the issue onto the national policy agenda. Researchers did not rely solely on peer-reviewed publications; they actively engaged with the media and participated in parliamentary hearings.

Although multidisciplinary actors including researchers, unions, clinicians, occupational hygienists, and regulators were all active, much of the momentum unfolded in a loosely connected way. Rather than a single orchestrated effort, multiple streams of activity occurred simultaneously and intersected at critical points. In some cases, such as union-led advocacy drawing on academic evidence, collaboration was deliberate, but overall, the policy response was shaped by the convergence of aligned efforts rather than by strategic coordination.

Despite potential obstacles such as the lack of a unionised workforce, early reluctance to consider a ban, and external disruptions such as government changes, the reform moved forward. This reflects Kingdon's notion of an 'idea whose time has come': an irresistible movement that sweeps through politics and society, overcoming resistance and enabling change.[6]

The reform was also made more politically feasible by the limited resistance from industry, due in part to the small size of the ES sector and the availability of substitute products. These conditions reduced the economic risks and political costs typically associated with occupational health regulation, making the ban more acceptable to decision-makers.

Overall, this case reinforces that although robust evidence is important, it must intersect with favourable political conditions, resonant framing, and advocacy pressure to achieve policy change. It also highlights that meaningful reform can occur even when actors are not fully coordinated, so long as their efforts align at the right time to activate a policy window.

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