

A Case Study on the “Clean Air Plan for Wales”

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Abstract: The main idea of this paper is to make a comprehensive evaluation of the “Clean Air Plan for Wales”, a newly introduced air pollution policy in recent years, and give countermeasures. This article starts from four different themes which are People, Environment, Prosperity, and Place and studies different measures and solutions under each topic. The “People” is to raise awareness of air pollution among local residents and develop different policies to better monitor and control air pollution and emissions. The “Environment” is to formulate some policies to overcome the negative influences that bring by air pollution on biodiversity and ecosystems and create a more resilience and ecological natural environment. The “Prosperity” is primarily about the regulating businesses and industries to reduce carbon and other pollutant emission. The last theme, “Place” is about some acts, programme and policies that will reduce air pollution generated by traffic and transportation on public places. Finally, the paper analyses that the plan is successful on the whole. However, due to the impact of the budget, COVID-19, and policies, some plans have been delayed, but the article gives suggestions on how to plan and study air pollution more effectively in the future. The whole article makes it easier and intuitive for people to understand the measures in the “Clean Air Plan for Wales” and what the government has done for air pollution. In addition, the suggestions put forward in the article can also provide some reference and reflection value for policy makers.

Keywords: pollution control, Clean Air Plan for Wales, evaluation of policies

1. Introduction

Air pollution is still one of the most serious problems facing mankind in today’s social background. In Wales, the UK, air pollution has been a persistent problem for a long time, and a number of air quality indicators do not meet the minimum standards of the European Union (EU) and the World Health Organization (WHO). The consequences and hazards of air pollution in different aspects are extremely serious. In Wales, between 1,000 and 1,400 people die every year from air pollution, which also has a greater impact on the health of vulnerable groups such as babies, pregnant women and the elderly. And poor air quality greatly reduces people’s well-being, which in turn promotes mental illness. In addition, air pollution can lead to loss of biodiversity in the environment and harm ecosystems and habitats, which can also directly contribute to climate change and loss in carbon cycle and sink. Therefore, it is extremely important for reducing air pollution in Wales.

In 2020, the Welsh Government launched the Clean Air Plan for Wales, which aims to tackle persistent air pollution in Wales and improve air quality through a variety of policies, actions and

increased education about air pollution. This is a growth programme and the Government will continue to track the progress of all aspects of the programme and regularly release the results to the public. This plan establishes several actions and programs from 4 different perspectives: People, Prosperity, Environment, Place.

The “People” is to raise awareness of air pollution among local residents and develop different policies to better monitor and control air pollution and emissions. The “Environment” is to formulate some policies to overcome the negative influences that bring by air pollution on biodiversity and ecosystems and create a more resilience and ecological natural environment. The “Prosperity” is primarily about the regulating businesses and industries to reduce carbon and other pollutant emission. The last theme, “Place” is about some acts, programme and policies that will reduce air pollution generated by traffic and transportation on public places. Around the air quality and the Clean Air Plan for Wales, some scholars have studied that the relationship between social deprivation area and level of air pollution and analysis the correlation or causation of the relationship, and they find out that there is a strong positive correlation between air pollution concentrations and deprived areas, which means the highest concentration of air pollution in most deprived area [1-5].

There are also some scholars attempt to evaluate the specific measurement or programme under the “Clean Air Plan for Wales” that the processes of Noise and soundscape in Welsh planning policies and the air pollution monitor plan under the theme People [6,7]. This article will have a general overview around “the Clean Air plan for Wales” about some of the regulations and analysis and explain it’s impacts toward to air pollution and the effectiveness of it as well [8]. There will be three parts in the article that are the overview around 4 different themes, analysis the processes of the plan from 4 different themes, and evaluate and giving suggestions to the plan. After the analysis, the result shows that the overall action is really success and reduce the air pollution effectively. However, improvements can also be made to achieve better results, such as more analysis of air pollution and greater collaboration between different sectors.

2. Current Pollution Control Policies in Wales

The “Clean Air Plan for Wales” is structured around four different core themes, namely People, Environment, Prosperity and Place.

2.1. People

Under the theme “People”, the regulation will reduce people’s exposure to pollution through evidence-based air quality targets and enhanced air pollution monitoring, modeling and assessment capabilities. First, in terms of monitoring, the government will monitor changes in local air pollution concentrations, exposures, risks and impacts, and will inspect and replace these air quality monitors from time to time to ensure timely detection and management when the air quality is not up to standard. The government also wants to see the whole of Wales covered by air quality monitors, so that air quality can be better monitored, and timely adjustment and policy development. Second, the policies indicate that they will adopt more stringent standards to ensure that future targets for PM_{2.5} environmental levels are supported by the right standard and indicators to achieve the most effective improvements. Third, for smog control, the Welsh Government will collect data on the contribution of different smog emissions to PM_{2.5} and will consult with other UK governments to work together and advise residents or develop policies on smog control. Fourth, the sale of wet wood and traditional domestic coal is not allowed in the future, and the purchase and installation of inefficient equipment in the home that consumes a lot of electricity is also prohibited

2.2. Environment

Within the environmental theme, policies include creating, protecting and enhancing resilient and connected ecosystems and enhancing the natural environment's capacity to absorb pollutants. First, the government set up a long-term restoration plan for peatlands, which allows more carbon to be taken up by plants, making it easier for carbon sink, thereby slowing global warming, increasing biodiversity and making them more resilient in the face of air pollution. In addition, plants and grasslands will improve air quality and reduce pollution, so the action has developed a plan called the "The National Forest Plan", which will increase a large number of plants in Wales and will provide Wales with a national forest. In addition, since government want to decrease ammonia emissions from the agricultural process, they will provide farmers with updated advice on how to reduce ammonia emissions, and support them to farm sustainably through a new payment scheme and the introduction of new legislation. In December 2020, the government will also refer to the Wales White Paper to support the achievement of sustainable development management outcomes.

2.3. Prosperity

The theme is working with industry to reduce emissions. There are a few specific measures. First, the Government will introduce new regulatory measures and review procedure guidelines for several polluting plant, such as Small Waste Incineration Plant and crematoria that will allow emissions from these sites to be more effectively controlled and the government is applying the Best Available Technology (BAT) concept to control pollution. Secondly, the cause of pollution is due to inefficient production, as producing the same amount of stuff requires emitting more pollutants. Therefore, the introduction of more advanced technologies and recycling schemes can make factory output more efficient and reduce pollution emissions. Thirdly, policies will also be introduced to improve air quality by encouraging recycling and avoiding landfills. These include a landfill tax, a push for recyclable materials, strict enforcement and promotion of waste separation, so that less waste goes to waste treatment plants.

2.4. Place

The theme is to reduce airborne pollution and its impact on public Spaces. Traffic is a major cause of air pollution, especially in urban environments and in heavily trafficked and congested areas. The way to reduce traffic pollution is to promote public transportation and reduce private cars. In addition, the government also encourages the use of new energy vehicles and low-emission vehicles. For active mobility, the government has developed plans and requirements for walking and cycling infrastructure as well as design specifications, and has developed a program called the "Active Journeys Program", which aims to promote walking and cycling to school. On public transport, the government is developing a vision document and delivery plan to advance reform efforts for taxis and private hire vehicles. The goal of this plan is to achieve zero emissions from taxis by 2028. In addition, the government will increase capacity by providing a new and innovative metro system. It is also important to reduce the concentration of NO₂ around Welsh roads, which exceed the legal limit. In terms of reducing NO₂, the plan focuses on action at five sites where speed limits are imposed on these places roads to reduce the concentration of NO₂.

3. Evaluation on Control Policies

3.1. People

For the theme, “people”, a pollution monitoring programme is under way. Due to cost constraints, the number of monitors does not cover the whole of Wales. In terms of pollution standards, the government has developed and promulgated new targets for fine particulate matter, which will have a stricter and more detailed classification of pollutants, which will greatly reduce people’s exposure to air pollution. In order to manage air quality in the event of pollution incidents, the plan has been completed. The government has updated its air quality event monitoring equipment, which can respond to air quality events anywhere, anytime in Wales. For smoke control areas, the plan is almost complete, because specific corrections and provisions have already been finalized, they can be amended when passed by the next assembly. However, the policy that prohibiting the sale of wet timber and domestic coal has been delayed due to COVID-19, which may be completed by the summer of 2023, as is the regulation of high-efficiency appliances, which has been delayed by COVID-19. In short, much of the program is on track or progressing. However, some other progress has been slow or delayed, particularly some regulations, due to COVID-19 and cost efficiencies.

3.2. Environment

The government has embarked on the National Forest Programme, which will significantly improve the carbon cycle and air quality in Wales, and the increased green space will also bring great benefits to people’s physical and mental health. The plan for supporting agriculture has been completed. A £22.9 million ‘Farming Connect’ project was launched on 1 April and will be open to farmers. Themes of the new project include sustainable development and improving environmental performance. In addition, regulations addressing agricultural pollution have been completed, which will help meet air quality targets. To sum up, most of the environmental topics are in progress, and some agricultural land has even been completed. Since most of these are policies and regulations, these things have just been revised, and the impact on air pollution has not yet been clearly shown.

3.3. Prosperity

As regards the guidelines for small waste incinerators and crematoria, both reviews have been completed and proposals for regulations and requirements will soon arrive. In addition, there is an agreed procedure for developing the UK BAT conclusions (document containing parts of a BAT reference document) and the first two parts have been agreed and confirmed. To improve resource efficiency, 60 of the more than 1,000 local government vehicles scrapped were ultra-low emission vehicles. To sum up, both actions of prosperity are on track or in progress, and they are constantly reducing air pollution.

3.4. Place

The Wales already publish and plan the new transport strategy that “Llwybr Newydd: the Wales Transport Strategy” and it achieve decarbonization and pollution reduction targets. The regulations and design specifications for walking and cycling infrastructure under the “promoting public transportation and reduce private cars” already done, and government also publish the “Active Travel Act guidance” to support this plan. The program “Active Journeys Programme”, which promotes walking and cycling to school also extended for a fourth year to run until 31 March 2024 [9]. In addition, an active travel map application has been developed, which fulfils the government’s goal that tools and training will be provided to support the development of local infrastructure and can

enable rational planning and design. In addition, the White Paper published in 2023 also introduced national standards for taxis and buses to achieve the goal of zero-emission taxis by 2028. Finally, as for the plan to reduce high roadside nitrogen dioxide, the Phase 2 report will be delayed and will be consulted in conjunction with the updated plan. To sum up, most of the plans and regulations continue, but plans to control NO₂ have been delayed.

4. Actions and Suggestions

“The Clean Air Plan for Wales” is generally good according to the progress and the content. However, there are also some improvements or suggestions that it could take for better air pollution control.

First, the government needs to consider how to accurately collect pollution control data, although many detectors have been installed, but the standard of pollution detection is still before correction. Therefore, low-standard air pollution monitoring data is not conducive to government analysis and timely adjustment. In addition, the frequency of data disclosure should be increased so that people from all walks of life can monitor the progress of the project and provide opinions. In addition, the disclosure of data will allow more scholars to do research and investigation, which will also promote the process of the plan

Secondly, for “The National Forest programme”, it should not only plant trees in large areas in the suburbs, but also improve the green environment and tree planting in the inner cities of Wales. This will not only directly benefit people from the air quality benefits of trees, but also effectively mitigate the heat island effect and increase urban happiness

Thirdly, the transport strategy is more about public transport and taxi policies, but the regulation of private cars is only advocated. Therefore, for the purchase of private cars, the government should make stricter regulations. For example, there is a purchase tax based on different emissions’ level. In addition, the qualifications to buy a car should also be limited, for example, when a family has a private car, the family is forbidden to buy another one, or needs to spend more money to buy the additional one and for the families with more than one private car can get government subsidies if they choose to scrap or resell them.

Fourthly, the Welsh government should also examine the policies that countries around the world have developed and achieved in the face of high levels of air pollution, as well as the relationship between air pollution and other social factors. This will help governments better understand how to deal with air pollution and focus on the poverty and health problems it causes. In addition, from the research, government could focus on certain difficult areas of air pollution, like social deprivation area.

Fifth, the government should reach an agreement with different departments, organizations, and stakeholders in Wales to develop an updated air pollution policy, and conduct interventions and assessments, as well as monitoring by local people. This ensures that the new policy meets as many different interests as possible and is fair and open.

In addition, the Welsh government can also launch courses for local children and schools to learn about the consequences of air pollution and how to avoid air pollution in daily life, so as to cultivate the environmental awareness of the next generation. There should also be more advertising and propaganda about air pollution. Such actions can increase public awareness of air pollution, and can better cooperate with new government policies and regulations about air pollution control.

Finally, the Government is strongly advised to develop different assessment criteria and analytical tools in assessing the effectiveness of different policies. This will help the government better understand the current level of control and play a decisive role in future policy formulation. In addition, the impact analysis can also be analyzed and connected with different social backgrounds and perspectives, such as regional economic conditions, environmental index, residents’ happiness, regional occupancy or vacancy rate, population.

5. Conclusion

This article is mainly aim to analysis the effectiveness of the “Clean Air Plan for Wales” and also gives suggestions to this air pollution control plan. Base on above analysis, the most of the measurements and plans are on progress or on track, only few of them are delayed duo to COVID-19, long-term discussion, high cost and so on. Overall actions and plans are really success. There are also several suggestions to this plan. For example, government should have better understanding of causes of air pollution, developing quantitative analysis for the assessment, and more cooperation between different departments which to achieve the goal. In addition, government is supposed to do further research on air pollution on different communities based on behavioral patterns, which can have a better understand of the levels of air pollution based on different behavioral patterns. It is recommended that studies should be conducted on the basis of different socio-economic groups to study their vulnerability to air pollution and their potential to contribute to air pollution. Because different groups have different living habits, such as different occupations may choose different ways to work. Therefore, further research should be based on the lifestyle choices of different socioeconomic groups. However, there are also some limitations of this article. There should be more data analysis of the air pollution pattern changes after the pollution policies. In addition, the visualization is lack for showing the air pollution changes that might causes some interpretation barrier.

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