environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

AIR QUALITY OFFSET POLICY

Draft

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Abbreviations

AEL	Atmospheric emission license
AELA	Atmospheric emission licence authority
AQA	Air Quality Act (AQA, Act No. 39 of 2004)
AQM	Air Quality Management
APPA	Atmospheric Pollution Prevention Act (Act No. 45 of 1965)
CBOs	Community Based Organisations
EIA	Environmental Impact Assessment
H2S	Hydrogen sulphide
IP&WM Policy	Integrated Pollution and Waste Management policy
NAAQS	National Ambient Air Quality Standards
NAQO	National Air Quality Officer
NDP	National Development Plan
NEMA	National Environment Management Act
NGOs	Non-governmental Organisations
NPAs	National Priority Areas
PAs	Priority Areas
PM	Particulate matter
SO2	Sulphur dioxide.

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1. INTRODUCTION

Enshrined in the Constitution of South Africa is the right to an environment that is not harmful to health and well being and that Government should ensure that the environment is protected through legislative and other measures. This milestone is fundamental and yet challenging given the fact that South Africa is a developing country, hence the need to achieve the balance between environmental protection and the drive towards sustained economic growth. While the current air quality management regime is geared towards clean and healthy air, the need to take into account economic conditions and the achievability of some legislative provisions is inevitable. It is envisaged that air quality offsets provides an opportunity for addressing some of the current air quality management challenges within the present economic environment.

1.1 Regulatory Developments in Air Quality Management in South Africa

From 1965 to 2005, the approach to air quality management in South Africa was informed and driven by the Atmospheric Pollution Prevention Act (Act No. 45 of 1965) (APPA). For many years, this Act was regarded as ineffective for a number of reasons, not least of which was the broadly-held belief that APPA, and specifically the way APPA was implemented, had not defended South Africa's air quality from the emergence of various air pollution "hotspots" around the country. In essence, the emergence of these hotspots is often considered to be as a result of APPA's specific focus on individual source emissions without effectively considering the accumulative impacts of these emissions. The Constitution's Bill of Rights directly challenged the APPA approach by focussing on the quality of the environment and, by extension, the quality of the ambient air in the Republic.

The publication of the Government's Integrated Pollution and Waste Management policy (IP&WM Policy) of 2000 marked a turning point for pollution and waste governance in South Africa. From an air quality management perspective, the new policy presented a complete paradigm shift. With this shift, government developed a strategy and action plan to implement the air quality management components of the new policy which led to the promulgation of the National Environment Management: Air Quality Act (AQA, No. 39 of 2004). The AQA was fully brought into effect in 2010. During this period a number of air quality norms and standards were developed including ambient standards and industrial emission standards.

Ambient standards provide the yardstick for measuring whether an environment is harmful to health or well-being or not. Standards also provide a starting point for answering another question that arises from the Constitution, namely, what level of environmental protection needs to be achieved "…through reasonable legislative and other measures…" to ensure an environment that is not harmful to health or well-being.

1.2. Definition of Offsets

The Constitution of South Africa requires that the environment be protected through reasonable legislative and other measures. One of the tools or measures available and can be used to achieve improvement in air quality is through environmental offsets. Environmental offsets are generally defined as measures that counterbalance, counteract, or compensate for the adverse impacts of an activity on the environment. They are by definition "trade-offs" or "balancing activities" carried out to counterbalance the adverse environmental impacts to achieve a "no net environmental loss" or a "net environmental benefit" outcome (Suvantola et al, 2005). All adequate offsets have common characteristics of having a clear objective.

> In the air quality context, an offset is an intervention, or interventions, specifically implemented to counterbalance the adverse environmental impact of atmospheric emissions in order to deliver a net ambient air quality benefit within the affected airshed.

Offsets are not intended to replace regulatory and enforcement tools but are an additional tool that can be used to achieve long-term environmental protection. If implemented appropriately, offsets should be capable of demonstrating emission reductions that are real, quantifiable and verifiable (Government of Alberta, 2013).

1.3. Opportunities for the Atmospheric Emissions Offset Tool

South Africa is experiencing major social and economic changes, and at the same time facing developed and developing world challenges as a result of the impact caused by among other factors, population growth, population migration and industrial development (WMO, 2012). Industrial production and product consumption demand larger inputs of energy and material and result in the generation of large amounts of waste by-products and atmospheric emissions.

The National Development Plan (NDP) 2030, which sets forth the vision for the country, has economic growth as means to eliminate poverty and reduce inequality. To meet these objectives, the DNP has made the provision of sufficient energy to support industry as one of its enabling milestones. In addition, the plan has a goal of ensuring domestic security of coal supply for existing power stations through industry compact, more comprehensive coal field planning and opening up the Waterberg for coal mining. As a result of these pressing economic growth objectives, South Africa, like other developing countries, is facing a challenge of meeting these economic demands while ensuring that the environment is not compromised.

Some of South Africa's economic/industrial hubs, with elevated air pollution levels were declared Priority Areas (in terms of Section 18 of the Air Quality Act) due to high concentrations of air pollutants, which have a potential of impacting negatively on the health of the population. The three Priority Areas (PAs) declared to date are the Vaal Triangle Airshed Priority Area, the Highveld Priority Area and the Waterberg-Bojanala Priority Area. These areas are characterised by industries such as coal-fired power generation, petrochemical, metallurgical, clay brick manufacturing and mining. The control of air pollution in these areas is very challenging especially due to industrial development pressure exerted by the country's economic and social (such as unemployment) challenges. The PAs are a focal point of development due to the availability of raw materials such as coal. Given the above factors, industrial development is inevitable and hence, this results in the degradation of environmental quality, and a negative impact on human health and welfare despite the rising income. It is for this reason that trade-offs such as offsets are required to achieve high and sustainable rates of economic growth and at the same time, attaining high standards of environmental quality. The establishment of major industries or the modification of the existing industries should not be allowed in the PAs unless additional emissions from these new plants are offset. The primary challenge currently is to use the existing regulatory tools alone to attain the national ambient air quality standards.

Amid these economic conditions, South Africa is also characterised by dense low-income communities that rely mainly on coal and other dirty fuels for domestic cooking and heating. Consequently, findings from most of the Priority Areas Air Quality Assessments has indicated that in addition to the industrial emissions explained above, domestic fuel burning, veld fires, vehicle emissions from exhausts and unpaved roads, and mine dumps are some of the major contributors to poor ambient air quality in these problem areas. These non-industrial emissions are generally complex to address as the mandate to address these lie across the various departments. Therefore, offset programmes may provide the

opportunity to address these complex pollution sources by giving the mandate to polluters to clean up the air.

1.4. Aims & Objectives

The Air Quality Management Offset Policy is aimed at providing guidance to the industry or proponents, government agencies, consultants, the general public and other key stakeholders regarding appropriate methods and procedures to be followed for offsetting atmospheric emissions. The policy will lay out a framework for establishing offset projects. This is to ensure:

- That economic development in the country does not deprive the South African population of their right to an environment that is not harmful to their health and well-being as required by Section 24 of the Constitution of the Republic of South Africa, 1996; and
- Environmental protection by protecting and enhancing the quality of air in the Republic, preventing air pollution and ecological degradation, and securing ecologically sustainable development while promoting justifiable economic and social development, as required by Section 2 of the National Environment Management: Air Quality Act, Act No. 39,2004.

The objectives of the Air Quality Management Offset policy are:

- To provide guidance on how offsets are determined;
- To ensure that the offsets to be implemented are efficient, relevant, effective, consistent, transparent and reasonable;
- To ensure that the size and scale of offsets to be implemented are proportionate to the residual impacts;
- To provide offsets which are based on the best available scientifically robust information to ensure that atmospheric emissions are reduced to the required level; and
- To ensure transparent governance in that offsets should be readily measured, monitored, audited and enforced.

2. LEGISLATIVE CONTEXT

2.1. The Constitution

Chapter 2 of the Constitution of the Republic of South Africa, No. 108 of 1996, provides for the rights of every citizen and amongst others it provides for the environment clause under Section 24 and it states that everyone has the right:

a. *To an environment that is not harmful to their health or well-being; and*

b. To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:

i. prevent pollution and ecological degradation;

ii. promote conservation; and

iii.secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development

Offsets provide one of the measures to counterbalance the negative environmental impacts, thereby driving towards an environment that is not harmful while promoting justifiable economic and social development.

2.2. National Environmental Management Act No. 107 of 1998 (NEMA)

The NEMA creates the fundamental legal framework that gives effect to the environmental rights guaranteed in Section 24 of the Constitution. NEMA sets out the fundamental principles that apply to environmental decision making. One of the environmental principles is that, sustainable development requires the consideration of all relevant factors including that the pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied. It is envisaged that offsets will provide the opportunity to remedy the impacts of pollution where it cannot be completely avoided. Another principle of NEMA is that the cost of remedying pollution, environmental degradation and the consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effect must be paid for by those responsible for harming the environment. In this case, the proponents of offsets, mainly polluting industries, will be liable for the cost of remedying pollution in their airshed with the ultimate goal of bringing ambient air quality in compliance or improving the state of air.

2.3. National Environmental Management: Air Quality Act No. 39 of 2004 (AQA)

The object of the AQA is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in the Republic and generally to give effect to Section 24 of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people.

In fulfilling the rights contained in Section 24 of the Constitution, the State, through the organs of state applying this Act, must seek to protect and enhance the quality of air in the Republic

3. AIR QUALITY OFFSETTING PRINCIPLES

The air quality offset policy is developed in line with the principles of the Constitution and the NEMA, the objectives of the AQA and the aspirations of the National Development Plan. Any authorisation in terms of AQA which set offsets as a condition should take into account not only the impacts of offsetting, but also all other measures to reduce emissions within the facility itself and the emission reduction potential thereof. This means that the offset should not be seen as a substitute for efforts that can be made to reduce emissions from a facility. The facility must make all the necessary efforts to bring emissions into compliance with emissions standards such that the offset programme becomes a complementary measure.

a) Outcome Based

The implementation, monitoring and evaluation of the air quality offset should be based on the outcome with regards to an overall improvement in ambient air quality within the airshed. Other positive outcomes and outputs of offsets (beyond air quality improvements) must be of secondary consideration. The proponent must be able to demonstrate air quality improvements as a result of implementation of the offsets.

b) Transparency and Acceptability

Air Quality offsets should be based on open, fair and accountable administrations by both the applicants and the authorities. A public participation process should be undertaken to ensure public buy-in of offset projects. The proponent of the offset project must provide all the necessary documents that may be required by air quality officials for the approval, monitoring and evaluation of the project. Furthermore, proponents of offsets must provide members of the public with any information related to the implementation of an offsets programme. On the other hand, authorities must maintain a consistent and transparent process in assessing applications that requires implementation of offsets.

The proponent of the offset project must provide evidence that the Community is in support for the interventions. This can be achieved if the proposed offsets meet the objectives and through a thorough consultation with all the interested affected parties. If the offset depends upon another party or parties (other than the proponent) for implementation, an agreement should be reached before the offset project can be considered acceptable.

c) Additionality

Offset projects should result in emission reductions relative to a credible baseline that would not have occurred were it not for the existence of the incentive provided by the offset programme. Offsets are used to compensate for emission reductions and thus reductions that results from offset projects must demonstrate to be "in addition to" reductions that would have occurred without the incentive provided by the offset.

THE OVERARCHING PRINCIPLE OF OFFSETS IS THAT THEY MUST COMPLEMENT AND NOT SUBSTITUTE EMISSION REDUCTION MEASURES WITHIN THE FACILITY

Air quality offsets should take into account not only the impacts of offsetting, but also all other measures to reduce emissions within the facility itself and the emission reduction potential thereof. This means that the offset should not be seen as a substitute for efforts that can be made to reduce emissions from a facility. The facility must make all the necessary efforts to reduce emissions, such that the offset programme becomes a complementary measure.

d) Sustainability

The offset projects should be based on long-term air quality improvement without impeding on other socio-economic and environmental objectives. Offsets that provides for short-term solutions should not be considered e.g. where industrial emissions are offset by reducing domestic fuel burning through the provision of alternative fuel sources, the proponent should make all efforts to ensure that communities continue to use such resources e.g. by providing them with sufficient subsidies.

e) Measurable and Scientifically Robust

Any approved offset must have measurable air quality outcomes. No "green washing" type projects will be considered as part of an air quality offsetting programme. The measure of impacts on air quality, as well as the design and implementation of air quality offsets, should be based on relevant and sound science.

Offsets should represent the actual reduction of atmospheric emissions from various sources and not incomplete or inaccurate accounting of emissions. It is therefore very significant that emission sources are well understood. In order to quantify emission reduction of an offset, realistic baselines representing forecasted emission levels in the absence of the offset project should be established.

f) Statutory Requirements

Offsets must meet all planning, statutory and regulatory requirements. The offsets may not be implemented in such a way that it contradicts any law of the country nor should it be seen as an alternative to the law.

4. APPLICATIONS

The provisions of this policy may be applied at anytime by the licensing authority during the licensing process. However, the following authorisation processes shall have offsetting conditions that are in line with the principles of this policy:

a) Application for Postponement – Section 21

The National Framework for Air Quality Management in South Africa suggests that given the potential economic implications of emission standards, provisions will be made for specific industries to apply for possible extensions or postponements of compliance time frames set out in the Section 21 Notice (Listed Activities and Minimum Emissions Standards).

The proponent of a listed activity in accordance with Section 21 of AQA may apply for a postponement of the compliance date and such an application will be positively considered subject to a complete impact assessment with an atmospheric impact report submitted to the NAQO at least 1 year before the compliance date. Examples of conditions that may lead to an application of a postponement of S21 compliance timeframes include where:

a) There is substantial evidence suggesting that there is no available technology globally to reduce air emissions from the listed activity;

b) Confirmation provided that the plant will be decommissioned within the next 10 years; and

c) If investment in abatement technology/techniques cannot be made due to restrictions by other national strategic and legislative requirements.

In this particular case the offset programme shall be included as a condition for positive postponement applications.

b) During an application for a variation of a license

According to Section 46(1)(d) of AQA, the licensing authority may vary a license or a provisional license upon request by the license holder. If the request will result in an increase in atmospheric emissions,

Section 46(3) requires that the license holder should bring the application to the attention of the interested persons and the public. In this instance, the possible offset and their potential impacts could be considered to counter the impacts of increased emissions referred to in Section 46(3)(b).

c) During an application of an atmospheric emissions license in a National or Provincial priority area declared under Section 18 of the Air Quality Act

Priority areas are areas where ambient air quality standards are exceeded or have the potential to be exceeded and the Minister has declared them priority in terms of Section 18 of the AQA. Ideally, no new polluting activities should be allowed in priority areas where exceedence of standards is already a phenomenon. Where the priority area is declared on the basis of the potential for exceedences of standards, then stringent emissions standards should be applied. However, given the economic ambitions of the country, the said stringent conditions may be difficult to implement for all of the projects. It is therefore suggested that where, an activity cannot be completely avoided in a priority area, then there should be conditions for offsetting in the license, over and above the recommended emission limits.

In summary, the need for an air quality offset programme will be guided by the conditions depicted in the flow cart (Figure 1) below:

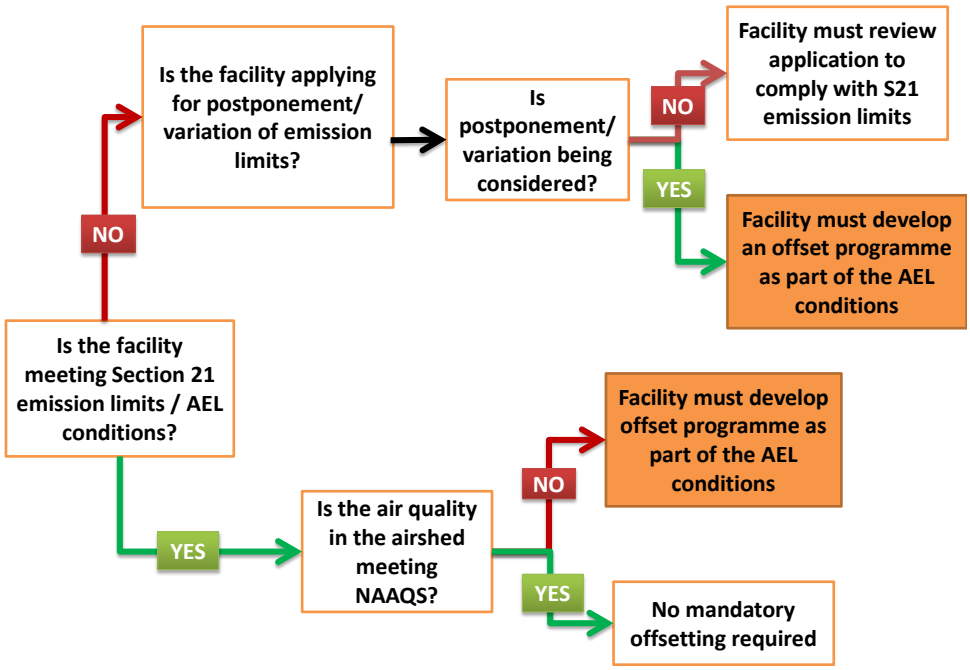

Figure 1: The conditions requiring the application of air quality offsets

5. OFFSETS DESIGN

The following considerations must be taken into account when designing an offset programme:

- Scope
- Areas of intervention
- Public Participation
- Authority Approval
- Implementation
- Monitoring and evaluation

Please note that these considerations above are not exhaustive and where necessary additional detail and information should be provided. When designing an offset programme the applicant must always apply SMART principles to any offset proposed:

S – Specific

M – Measurable

A – Attainable

R – Realistic

T - Timely

5.1. Scope

The first consideration when designing an offset programme is to clearly define the scope of your project. The applicant must clearly define the geographical area where the offset will take place. It is expected that the offset will take place in the specific air-shed impacted by the emissions of the facility, as first preference. Where the emissions impact across district municipality and provincial boundaries then the offset interventions can take place in these areas. It must be noted that consultation and approval must be sought from all authorities affected by the offset programme.

The applicant must clearly define the time frames of the offset intervention. Interventions which are of a permanent nature must be indicated and those of a temporary nature must be indicated along with an associated time frame. The time frame must indicate when the offset intervention will commence and if introduced in a phased approach, a clear timeline for complete intervention must be presented.

5.2. Areas of Intervention

Once the required level of air quality offset has been determined the appropriate areas of intervention must be identified. Primarily offset intervention should be targeted in residential areas; however this is not the only areas where emission reductions may be achieved. Areas of intervention will vary according to the pollutant of concern but typical areas of intervention may include, domestic fuel burning, paving of unpaved roads, treatment of unpaved roads with dust suppressants, electrification, public transport interventions and biomass burning interventions. This list is not exhaustive and may vary on a project to project basis. Table 1 below indicates a list of possible offset projects for specific problem complexes based on historical AQMPs. A comprehensive list of other possible offsets is listed in Annexure A.

Table 1: Suite of possible offset projects

Problem Complex	Pollutant	Possible Offset Project
Domestic Coal Burning	PM	• Ceilings and LPG package (stove and subsidized gas) • Electrification and subsidized electricity
	SO2	• Ceilings and LPG package (stove and subsidized gas) • Electrification and subsidized electricity
Unpaved road/mine haul roads	PM	Paving roads
Discard mine dumps	PM	Re-vegetation/planting grass
Odour impacts from sewerage plant	H_2S	Chemical suppression
	SO_2	
Stranded monitoring stations	air quality	Investment on authority's monitoring stations
(authorities and stakeholders to add)		

5.3. Authority Approval

The decision on any proposed offset shall be made by the relevant authorities including the national department, provincial and local authorities, depending on the nature of the application.

5.4. Implementation

The timeframe for implementation of any offset project will be agreed in writing with the relevant approval authority. Termination, amendment or suspension of any offset project may only occur with the written approval of the approval authority.

6. PUBLIC PARTICIPATION

The development of any offset programme will be subject to a detailed and transparent public participation programme. The approval authority may allow interested and affected parties to make oral representations or objections and the approval authority must take all submissions into consideration when making a decision of each application. The applicant in conjunction with relevant authorities must invite all members of the public to public meeting (s) at a convenient location. The invitation should be placed at public places within the community and in at least one local newspaper.

7. ROLES AND RESPONSIBILITY

The offsets shall be implemented in accordance with the spirit of cooperative governance and public consultation. The following parties will be involved in the implementation of offsets and the requirements of the policy:

7.1. Applicant

The applicant is responsible for implementing emission reduction measures in accordance with the agreed air quality offsets. This will involve, but not limited to, the identification, securing and managing such offsets programmes. The proponent must also demonstrate financial capability/approval (Both CAPEX and OPEX) for implementing such project over a specified time.

7.2. Licensing Authorities

The relevant licensing authorities are responsible for identifying and recommending the appropriate offsets in collaboration with the applicant. The authorities must ensure that the proposed offsets would be feasible, and could be implemented successfully.

Furthermore, the licensing authority(ies) will be responsible for monitoring and reviewing the implementation of the offsets within their jurisdictions. In this case the licensing authority would need to draw up clear, measurable and enforceable conditions related to the offsets.

7.3. National Air Quality Officer

The NAQO will be responsible for assessing, evaluating, and reviewing offsets projects in conjunction with the relevant licensing authorities,

7.4. Communities

Affected communities will be granted the opportunity to participate in the various platforms, comment and suggest on the appropriate offsets project options. In line with the principle of acceptability explained above, it is important that the affected communities indicate support for the proposed offsets prior to it being adopted.

Table 2 below summarises the parties responsible for various activities based on the type of application:

Table 2: Roles and responsibilities in relation to each type of application

Applicability	Activities	Responsibility	Indicator
AEL application where facility will meet S21 limits but is in an area where NAAQS are being exceeded	Identifying a suitable offset project	AELA in concurrence with the applicant	AEL with an offset condition
	Public awareness – getting community buy-in	AELA and NGOs, CBOs,	Acceptance of offset project
	Implementation of the Offset project	Applicant	Evidence of the offset project
	Monitoring and reporting	Applicant	Ambient air quality monitoring data
	Reviewing the offset project's sustainability	AELA	• Continued uptake of offset intervention • Reduction of ambient pollution

Applicability	Activities	Responsibility	Indicator
Application for postponement to compliance timeframes of S21 Notice	Identifying a suitable offset project	NAQO and AELA in concurrence with the applicant	Postponement granted with an offset project as a condition
	Public awareness – getting community buy-in	NAQO, AELA and NGOs, CBOs	Acceptance of offset project
	Implementation of the Offset project	Applicant	Evidence of the offset project
	Monitoring and reporting	Applicant	Ambient air quality monitoring data
	Reviewing the offset project's sustainability	NAQO and AELA	• Continued uptake of offset intervention • Reduction of ambient pollution
	Withdrawal of postponement	NAQO and AELA	No postponement and facility forced to comply with S21 limits
Application of a variation of an AEL	Identifying a suitable offset project	AELA in concurrence with the applicant	Variation granted with an offset project as a condition
	Public awareness – getting community buy-in	AELA and NGOs, CBOs	Acceptance of offset project
	Implementation of the Offset project	Applicant	Evidence of the offset project
	Monitoring and reporting	Applicant	Ambient air quality monitoring data
	Reviewing the offset project's sustainability	AELA	• Continued uptake of offset intervention • Reduction of ambient pollution

8. MONITORING, EVALUATION AND REPORTING

The applicant may be required to ensure that there is an ambient air quality monitoring station(s) within the area where an offset will be implemented. The adequacy of the location of the station shall be agreed by the relevant authority and shall be operated in line with the Norms and Standards for Air Quality Monitoring. A person implementing an offset project must report progress on the implementation of the offsets to the relevant authority.

9. WITHDRAWAL

Any authorisation granted with a condition for offsetting may be revised/withdrawn at any time by the relevant authority should proponent of the offset project fails to deliver on any of the agreed interventions.

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ANNEXURE A: List of possible offset projects

- Retrofit full suite of thermal shell insulation (ceilings and walls), draft proofing and Trombe wall on all existing subsidy houses
- Install ceilings in all houses
- Optimise house size, shell insulation, ventilation, orientation and solar heat absorption for new subsidy houses and social housing
- Replace coal / wood stove with multi-purpose, high quality, low emission stove
- Electricity subsidy
- Gas subsidy with equipment [LPG subsidy & heater]
- Revegetation of mine dumps
- Paving of roads

(Addition by stakeholders)