

Arjun Gopal And Others Vs Union Of India And Others

Court: Supreme Court Of India

Date of Decision: Oct. 23, 2018

Acts Referred: Constitution Of India, 1950 " Article 19(1)(g), 21, 25, 47, 48, 51A(g)
Explosive Rules, 2008 " Rule 15, 84, 118
Environment (Protection) Act, 1986 " Section 3(3)

Citation: (2018) 10 JT 381 : (2018) 14 Scale 209 : AIR 2018 SC 5731 : (2018) 13 SCR 464 : (2019) 13 SCC 577

Hon'ble Judges: A.K. Sikri, J; Ashok Bhushan, J

Bench: Division Bench

Advocate: Pooja Dhar

Judgement

A.K. Sikri, J

Writ Petition (Civil) No. 728 of 2015 was filed on September 24, 2015 on behalf of three infants, who are made petitioners in this writ petition.

Petitioner No.1 and 2, on the date of filing of this writ petition, were six months old and petitioner No.3 was fourteen months old. This petition has

been filed through their next friends, i.e. their fathers, who are concerned about the health of their children as they feel that due to the alarming

degradation of the air quality, leading to severe air pollution in the city of Delhi (where these petitioners reside), the petitioners may encounter various

health hazards. Poor, very poor or severe air quality/air pollution affects all citizens, irrespective of their age. However, claim the petitioners, children

are much more vulnerable to air pollutants as exposure thereto may affect them in various ways, including aggravation of asthma, coughing, bronchitis,

retarded nervous system breakdown and even cognitive impairment. The petition accepts that there are number of reasons which have contributed to

poor air quality in Delhi and National Capital Region (for short, "NCR"). At the same time, it is emphasised that air pollution hits its nadir during

Diwali time because of indiscriminate use of firecrackers, the chemical composition whereof increases harmful particulate matters such as PM2.5 or

PM10 at alarming level thereby bringing the situation of "emergency". The petitioners have, thus, prayed for direction to the official respondents

to take possible measures for checking the pollution by stricking at the causes of the pollution, which includes seasonal crop burning, indiscriminate

dumping of dust/malba and other pollutants, etc. The prayer also includes banning the use, in any form, of firecrackers, sparkles and minor explosives,

in any form, during festivals or otherwise.

2) This petition came up for preliminary hearing on October 08, 2015 when notice was issued and the matter was directed to be listed on October 16,

2015 at 2:00 p.m. since the petitioners wanted stay on burning of crackers during Diwali, which was around the corner in that year. When the matter

was taken up on October 16, 2015, certain suggestions were made by the learned counsel appearing for the petitioners, which were as under:

1. Restrict licenses to low hazard fireworks.

2. Period of grant of license is too early need not be from 2 days prior to Dussehra.

3. Restrict window for use of fireworks to be from 7:00 p.m. to 9:00 p.m.

4. RWAs to hold community fireworks for a brief period of 30 minutes on a single day.

5. Government be directed to give wide publicity to the ill effects of fireworks and encourage restraint on responsible use.

6. Encourage teachers to tell students not to buy and use fireworks.

3) Suggestion Nos. 5 and 6 were accepted and the relevant portion of the order that was passed reads as under:

"In our view for the present, if we accept suggestion Nos. 5 and 6 it will not in any way affect the interest of the respondents.

Shri Ranjit Kumar, learned Solicitor General appearing for the Union of India states that the Union Government has already taken enough and

effective steps to give wide publicity to the ill effects of fireworks.

In spite of the submission so made by the learned Solicitor General, we intend to pass the following order:

"The Union Government and all the State Governments will give wide publicity both in print and Electronic media to the ill effects of fireworks and

advise people accordingly.

We also direct the Teachers/Lecturers/Assistant Professors/ Professors of the Schools and Colleges to educate the students about the ill effects of

the fireworks.

4) Thereafter, this petition was taken up along with certain other connected petitions, including Writ Petition (Civil) No. 13029 of 1985 titled M.C.

Mehta v. Union of India and orders dated December 16, 2015 were passed issuing several directions with a view to reducing the levels of air

pollution within the NCR, as the issues in those writ petitions pertained to air pollution in Delhi and NCR as well. It may be mentioned that the

directions issued therein were general in nature though concerning the problem of air pollution. Thereafter also the instant writ petition, along with the

M.C. Mehta case and other cases, came up for hearing and it is not necessary to take note of all those orders.

5) Pertinently, during Diwali of 2016, which was celebrated on October 30, 2016, the air quality in Delhi and NCR worsened alarmingly. In fact,

certain reports indicated that the air quality standards in early November of that year were the worst in the world. This prompted the Court to take up

IA No.4 filed in this writ petition. After hearing the parties, it passed orders dated November 11, 2016.

6) The petitioners had pressed for interim relief in respect of fireworks, drawing the attention of this Court to the emergent situation that has resulted

in worsening the air quality standards in Delhi and National Capital Region (NCR) because of extensive use of fireworks, including firecrackers during

Diwali last year. It was pointed out that onset of winter itself deteriorates air quality in this region and it gets aggravated because of festival/marriage

season that occurs during these very months. Taking note of the aforesaid factors, particularly impact of fireworks on the ambient air and unhealthy

effects thereof which had created unprecedented situation in Delhi, with air pollution going up at alarming levels and making it the most polluted city in

the world, the order dated November 11, 2016 was passed. Air pollution had gone up to 29 times above the World Health Organisation (WHO)

standards. In the aforesaid scenario, this Court deemed it proper to pass certain directions vide its order dated November 11, 2016 in IA No.4.

Snapping the supply chain of fireworks was considered to be the more practical way of addressing the menace instead of banning the burning the

crackers by individuals as it would have been difficult to monitor and enforce the burning of the crackers by the citizenry.

7) In paragraph 18 of the Order dated November 11, 2016 it was clarified that much was left to be heard, discussed and said about the rival claims

and contentions. However, the Court hastened to add that harmful effects of fireworks on the ambient air and the lungs, eyes and ears of people was

also an acknowledged fact, as can be seen from the following portion of the said paragraph:

“18. We are aware that we are only issuing interim directions, and much is left to be heard, discussed and said about the rival claims and

contentions. What is however indisputable is that the harmful effects of fireworks on the ambient air and the lungs, eyes and ears of people. What is

also obvious is the extreme nuisance, noise the fireworks cause to citizens particularly the ailing and the aged. Therefore, though much can be argued

as always about the significance and even joy of bursting fireworks, but at the same time (sic), prima facie, a just constitutional balance must

overwhelmingly prioritize the harmful effects of this hazardous air on present and future generations, irreversible and imperceptible as they are, over

the immediate commercial constraints of the manufacturers and suppliers of fireworks”

8) In the process, this Court also recognised the duty of the State to ensure a healthy environment in terms of Article 48A of the Constitution of India

as well as the duty of the citizens to ensure the same under Article 51A(g) of the Constitution. The Court also reminded itself of the “precautionary

principle” which mandates that where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason

for postponing measures to prevent environmental degradation. In the order the Court had taken note of the deleterious effects of air pollution on the

health of the people, particularly the children. Going by all these considerations, the Court passed the following directions:

“19. We thus consider it inappropriate that explosives which are used as fireworks should be available in the market in the NCR till further orders.

The mechanism of the law in this regard is clear. Rule 118 of the Explosive Rules, 2008, framed under the Explosives Act, 1884, provides for the

manner in which licenses issued under the Explosives Act to store and sell explosives could be suspended or cancelled. Sub-Rule (5) thereof

specifically confers on the Central Government a power to suspend or cancel a license if it considers that it is in public interest. This provision also

makes it clear that an opportunity to hear the licensee could be dispensed with if the Central Government considers that in public interest. This Court

finds that the grave air quality situation in NCR is one such case, where this Court, can intervene and suspend the licenses to store and sell fireworks

in the NCR. We direct the Central Government to:

(i) Suspend all such licenses as permit sale of fireworks, wholesale and retail within the territory of NCR.

(ii) The suspension shall remain in force till further orders of this Court.

(iii) No such licenses shall be granted or renewed till further orders.

20. In addition to the above, we direct the CPCB to study and prepare a report on the harmful effects of the materials which are currently being used

in the manufacture of fireworks. The report shall be submitted within a period of three months to this Court.

9) Since direction was given to the Central Pollution Control Board (CPCB) to study and prepare a report of the harmful effects of the materials

which are currently being used in the manufacture of fireworks and submit a report within three months, the matter was taken up for consideration

thereafter from time to time.

10) Thereafter, the manufacturers of firecrackers as well as license holders also filed applications for modification of the aforesaid interim order. It

included IA No. 52448 of 2017. Because of these applications, the matter was heard by a Bench of this Court and orders dated September 12, 2017

were passed in the aforesaid IA. In this order also, the Court recognised severity of air pollution in Delhi and NCR. The Court also discussed the

manner in which air quality had worsened due to fireworks during Diwali days in the year 2016. The Court took note of the steps that were taken by

different authorities aiming to reduce air pollution after the passing of orders dated November 11, 2016; the legal provisions contained in the Explosives

Act, 1884 and the Explosive Rules, 2008 framed thereunder; and further steps which were needed in this behalf to reduce the pollution in Delhi and

NCR. The Court took note of the fact that number of measures were required to be taken for improving air quality as various factors were

contributing to the air pollution. It also specifically mentioned that one of the reasons was burning of crackers/fireworks during Diwali. On that basis,

the Court also accepted that one of the possible methods for reducing it during Diwali is by continuing the suspension of licenses for the sale of

fireworks, thereby implicitly prohibiting the bursting of fireworks. However, at the same time, the Court expressed the opinion that continuing the

suspension of licenses might be too radical a step to take for the present. It was deemed appropriate to adopt a graded and balanced approach, which

is necessary, that will reduce and gradually eliminate air pollution in Delhi and in the NCR caused by the bursting of fireworks. In the process, the

Court took into consideration the interest of those who had already been granted a valid permanent licence to possess and sell fireworks in Delhi and

the NCR. We would like to reproduce the following paragraphs from the said order:

“67. The right to health coupled with the right to breathe clean air leaves no manner of doubt that it is important that air pollution deserves to be

eliminated and one of the possible methods of reducing it during Diwali is by continuing the suspension of licences for the sale of fireworks and

therefore implicitly, prohibiting the bursting of fireworks.

68. In our considered opinion, continuing the suspension of licences might be too radical a step to take for the present “a graded and balanced

approach is necessary that will reduce and gradually eliminate air pollution in Delhi and in the NCR caused by the bursting of fireworks. At the same

time it is necessary to ensure that injustice is not caused to those who have already been granted a valid permanent licence to possess and sell

fireworks in Delhi and the NCR. The graded and balanced approach is not intended to dilute our primary concern which is and remains the health of

everybody and the human right to breathe good quality air or at least not be compelled to breathe poor quality air. Generally speaking this must take

precedence over the commercial or other interest of the applicant and those granted a permanent licence to possess and sell fireworks.

69. But, from the material before us, it cannot be said with any great degree of certainty that the extremely poor quality of air in Delhi in November

and December 2016 was the result only of bursting fireworks around Diwali. Certainly, there were other causes as well, but even so the contribution

of the bursting of fireworks cannot be glossed over. Unfortunately, neither is it possible to give an accurate or relative assessment of the contribution

of the other identified factors nor the contribution of bursting fireworks to the poor air quality in Delhi and in the NCR. Consequently, a complete ban

on the sale of fireworks would be an extreme step that might not be fully warranted by the facts available to us. There is, therefore, some justification

for modifying the interim order passed on 11th November, 2016 and lifting the suspension of the permanent licences.

70. At the same time, it cannot be forgotten that admittedly there is a huge quantity of fireworks in Delhi and in the NCR and the figure has been

provided to us by the applicant. Similarly, there can be no doubt that the Delhi Police had issued a large number of temporary licences in 2016 and it

would not be unreasonable to assume that around and during Diwali, there would have been some illegal temporary shops set up, whether known or

not known to the police. We do not have the figures with regard to the NCR, but we assume that like in Delhi, a large number of temporary licences

have been issued for the possession and sale of fireworks. Therefore, there is a need to regulate the availability and sale of fireworks in Delhi and the

NCR.

11) It was followed by the following directions:

71. As mentioned above, the health of the people in Delhi and in the NCR must take precedence over any commercial or other interest of the

applicant or any of the permanent licensees and, therefore, a graded regulation is necessary which would eventually result in a prohibition. Taking all

factors into consideration, we are of the view that the following orders and directions are required to be issued and we do so:

(1) The directions issued by this Court in Sadar Bazar Fire Works (Pucca Shop) Association shall stand partially modified to the extent that they are

not in conformity with the Explosives Rules which shall be implemented in full by the concerned authorities. Safety from fire hazards is one of our

concerns in this regard.

(2) Specifically, Rule 15 relating to marking on explosives and packages and Rule 84 relating to temporary shops for possession and sale of fireworks

during festivals of the Explosives Rules shall be strictly enforced. This should not be construed to mean that the other Rules need not be enforced.

all Rules should be enforced. But if the fireworks do not conform to the requirements of Rules 15 and 84, they cannot be sold in the NCR, including

Delhi and this prohibition is absolute.

(3) The directions issued and restrictions imposed in the order passed by this Court on 18th July, 2005 in Noise Pollution (V) shall continue to be in

force.

(4) The concerned police authorities and the District Magistrates will ensure that fireworks are not burst in silence zones that is, an area at least 100

meters away from hospitals, nursing homes, primary and district health-care centres, educational institutions, courts, religious places or any other area

that may be declared as a silence zone by the concerned authorities.

(5) The Delhi Police is directed to reduce the grant of temporary licences by about 50% of the number of licences granted in 2016. The number of

temporary licences should be capped at 500. Similarly, the States in the NCR are restrained from granting more than 50% of the number of temporary

licences granted in 2016. The area of distribution of the temporary licences is entirely for the authorities to decide.

(6) The Union of India will ensure strict compliance with the Notification GSR No. 64(E) dated 27th January, 1992 regarding the ban on import of

fireworks. The Union of India is at liberty to update and revise this notification in view of the passage of time and further knowledge gained over the

last 25 years and issue a fresh notification, if necessary.

(7) The Department of Education of the Government of NCT of Delhi and the corresponding Department in other States in the NCR shall

immediately formulate a plan of action, in not more than 15 days, to reach out to children in all the schools through the school staff, volunteers and

NGOs to sensitize and educate school children on the health hazards and ill-effects of breathing polluted air, including air that is polluted due to

fireworks. School children should be encouraged to reduce, if not eliminate, the bursting of fireworks as a part of any festivities.

(8) The Government of NCT of Delhi and other States in the NCR may consider interacting with established medical institutions for issuing advisories

cautioning people about the health hazards of bursting fireworks.

(9) The interim direction issued by this Court on 31st July, 2017 prohibiting the use of compounds of antimony, lithium, mercury, arsenic and lead in the

manufacture of fireworks is made absolute. In addition, the use of strontium chromate in the manufacture of fireworks is prohibited.

(10) Fireworks containing aluminum, sulphur, potassium and barium may be sold in Delhi and in the NCR, provided the composition already approved

by PESO is maintained.

It is the responsibility of PESO to ensure compliance of the standards it has formulated.

(11) Since there are enough fireworks available for sale in Delhi and the NCR, the transport of fireworks into Delhi and the NCR from outside the

region is prohibited and the concerned law enforcement authorities will ensure that there is no further entry of fireworks into Delhi and the NCR till

further orders. In our opinion, even 50,00,000 kg of fireworks is far more than enough for Dussehra and Diwali in 2017. The permanent licensees are

at liberty to exhaust their existing stock of fireworks in Delhi and the NCR and, if that is not possible, take measures to transport the stocks outside

Delhi and the NCR.

(12) The suspension of permanent licences as directed by the order dated 11th November, 2016 is lifted for the time being. This might require a

review after Diwali depending on the ambient air quality post Diwali. However, it is made explicit that the sale of fireworks by the permanent

licensees must conform to the directions given above and must be fully in compliance with the Explosives Rules. We were informed that the

permanent licences were issued by PESO and therefore the responsibility is on PESO to ensure compliance.

(13) While lifting the suspension on the permanent licences already granted, we put these licensees on notice for Dussehra and Diwali in 2018 that

they will be permitted to possess and sell only 50% of the quantity permitted in 2017 and that this will substantially reduce over the next couple of

years. The permanent licensees are at liberty to file objections to this proposed direction within 30 days from today and thereafter the objections if any

will be heard and decided. If no objections are filed, this direction will become absolute without any further reference to any licensee.

(14) Since there is a lack of clarity on the safety limits of various metals and constituents used in fireworks, a research study must be jointly carried

out by the CPCB and the FRDC laying down appropriate standards for ambient air quality in relation to the bursting of fireworks and the release of

their constituents in the air. While Schedule VII of the Environment (Protection) Rules, 1986 does deal with several metals, but as we have seen there

are several other metals or constituents of fireworks that have not been studied by the CPCB and no standards have been laid down with regard to

the concentration of these metals or constituents in the ambient air. The CPCB has assured us that it will complete the exercise by 15th September,

2017 but keeping in mind its track record subsequent to the order dated 11th November, 2016 this does not seem possible. Therefore, we grant time to

the CPCB to come out with definite standards on or before 30th September, 2017.

(15) In any event, a research study also needs to be conducted on the impact of bursting fireworks during Dussehra and Diwali on the health of the

people. We, therefore, appoint a Committee to be chaired by the Chairperson of the CPCB and consisting of officers at the appropriate level from the

National Physical Laboratory, Delhi, the Defence Institute of Physiology and Allied Sciences, Timarpur, Delhi, the Indian Institute of Technology-

Kanpur, scientists from the State Pollution Control Boards, the Fire Development and Research Centre, Sivakasi and Nagpur and the National

Environment Engineering Research Institute (NEERI) nominated by the Chairperson of the CPCB to submit a report in this regard preferably on or

before 31st December, 2017.

(16) Keeping in mind the adverse effects of air pollution, the human right to breathe clean air and the human right to health, the Central Government

and other authorities should consider encouraging display fireworks through community participation rather than individual bursting of fireworks.ĀçĀ,~â€

12) After the aforesaid order was passed, many applications were filed, from both sides, seeking modification of some of the aforesaid directions.

Insofar as the petitioners are concerned, in their application for modification, they prayed for removal of Directions Nos. 5 and 10 to 13, which was in

essence a prayer for restoration of earlier order dated November 11, 2016. Insofar as fireworks manufacturers, traders and license holders of the

fireworks/firecrackers are concerned, they wanted that relaxation given in the order dated September 12, 2017 be further liberalised.

13) After hearing both the parties, orders dated October 09, 2017 were passed. The Court accepted the fact that burning of firecrackers during Diwali

was not the only reason for air pollution in Delhi and NCR and there was a need to tackle those factors as well. However, it was observed that the

immediate impact of use of fireworks and firecrackers bursting during Diwali is an altogether different aspect. The Court noted that there is direct

evidence of deterioration of air quality at alarming levels, which happens every year. Burning of these firecrackers during Diwali in 2016 had shot up

PM levels by three times, making Delhi the worst city in the world insofar as air pollution is concerned. Direct and immediate cause thereof was

burning of crackers during Diwali. The Court also remarked that every year before Diwali there are attempts on the part of the Government (Ministry

of Environment, Government of India as well as Delhi Government), Media, NGOs and various other groups to create awareness in the general public

about the ill-effects of bursting of these crackers. Campaigns are held in the schools wherein children are discouraged to have fireworks. Thus, there

is virtually a consensus in the society that crackers should not be burnt during Diwali, which can be celebrated with equal fervour by various other

means as well. Irony is that when causes are brought in the Court, there is a resistance from certain quarters. Moreover, there are adequate statutory

provisions, aid whereof can be taken to ban the sale of these crackers.

14) The Court also took into consideration three substantial submissions which were made by the petitioners, viz.: (a) CPCB had taken a stand, nearly

twenty years ago, that Sulphur in fireworks should not be permitted as Sulphur on combustion produces Sulphur Dioxide and the same is extremely

harmful to health. The CPCB has stated that between 9:00 p.m. to midnight on Diwali day the levels of Sulphur Dioxide content in the air are

dangerously high. Moreover, all the above authorities were also unanimous in their view that crackers should only be burst in designated places. Also

the CPCB had specifically stated that joined crackers should be banned. Secondly, in the order dated November 11, 2016, licenses were suspended

primarily for the reason that rising in the PM levels at alarming proportion was because of burning of crackers during Diwali, which had adverse

harmful affect and, therefore, there was no reason to relax this condition. Another significant argument which was taken note of was that the order

dated November 11, 2016 was passed immediately after the Diwali in the year 2016 and the effect of that order had not been tested. Going by these

considerations, the Court decided to suspend the order dated September 12, 2017 at least during the Diwali of 2017 with the following directions:

“14...To put it clearly, though we are not tweaking with the various directions contained in the Orders dated September 12, 2017, the effect of that

Order would not be given during this Diwali and, therefore, we are making it effective only from November 01, 2017. We are conscious of the fact

that after the said order was passed, the police may have issued temporary licences. Accordingly, those are suspended forthwith so that there is no

further sale of the crackers in Delhi and NCR. Further orders in this behalf can be passed on assessing the situation that would emerge after this

Diwali season...”

15) As expected, spate of applications have been filed, most of which emanate from the aforesaid orders dated October 09, 2017. Many parties have

intervened. Most of the interventionists are supporting the petitioners and want permanent ban on the burning of crackers during Diwali. Some have

even prayed that this ban be extended to the whole country and should not be limited to only Delhi and NCR. IAs were also filed seeking ban on crop

burning. The opposite group consists of manufacturers of crackers, manufacturers’ association and license holders. The State of Tamil Nadu has

come forward to support this category.

Additionally, one interventionist, namely Indic Collective (applicant in IA No. 105355 of 2017), is also opposing the ban contending that burning of

crackers during Diwali is a religious activity which is in vogue for time immemorial and, therefore, it should not be banned.

16) It is not necessary to take note of the arguments of each of the counsel appearing on either side. For the sake of convenience, arguments of the

petitioners as well as those who have supported the petitioners' cause and the arguments of the other group which is opposing the prayers made

by the petitioners, are collated and we state below these arguments and counter arguments in consolidated manner:

17) Petitioners' Arguments:

(a) As far as the petitioners are concerned, they have proceeded on the premise that undeniable fact is that as a result of burning of crackers during

Diwali PM2.5 reach an alarmingly high level which certainly is injurious to health. It is argued that the adverse affect thereof on the health of citizens,

particularly children, is irreversible. It causes asthma, coughing, bronchitis, retarded nervous system breakdown and even cognitive impairment.

(b) The official respondents had failed to address the issues and carry out desired studies in spite of the directions of this Court. Various committees

set up are examining the question as to what kind of metal should be used in the manufacture of crackers. So far no study has been conducted on the

ill-effect caused by PM2.5.

(c) Studies by CPCB had categorically found that burning of crackers during Diwali was contributing to air as well as noise pollution in an alarming

manner. Copies of these studies showing continuous ambient air quality during Diwali annexed with IA No. 109720 of 2017 is referred to. Contents of

the affidavit of CPCB dated January 05, 2018 has also been relied upon.

The petitioners also rely upon the report filed by the Union of India, through the Ministry of Environment, Forest and Climate Change, wherein ill-

effects of fireworks are accepted and measures suggested to tackle the same.

Opinions of prominent doctors mentioning spike in the respiratory problems among children and patients are also pointed out.

(d) Dealing with the argument of the manufacturers and traders of firecrackers based on Article 19(1)(g) of the Constitution of India, namely,

fundamental right to carry on business, the submission of the petitioners is that going by the ill-effects of the firecrackers, no such right can be claimed

as principle of res extra commercium would apply. In support, additional affidavit filed on July 26, 2017 as well as in July 2018 are referred to wherein

the petitioners have sought to highlight the following aspects:

(i) These manufacturers were employing child labour. At one point of time, almost one lakh children were employed in this industry. Though it was

admitted that this position does not exist any longer in view of strict measures taken by the Government.

(ii) The manufacturing of firecrackers generates a lot of waste which adds to pollution as sufficient measures are not undertaken to deal with this

waste.

(iii) Number of deaths as well as injuries to persons are caused every year due to poor storage which results in occasional accidents. Likewise, the

burning of these crackers also results in injuries.

(iv) Firework also leads to lot of noise and air pollution as well. Judgments of this Court in Vellore Citizens' Welfare Forum v. Union of India and

Others, (1996) 5 SCC 647; and A.P. Pollution Control Board v. Prof. M.V. Nayudu (Retd.) and Others, (1999) 2 SCC 718, have been relied upon.

In the alternative, it was argued that even if it is accepted that argument of Article 19(1)(g) of the Constitution is available to the manufacturers and

traders, such a ban on burning crackers during Diwali would amount to reasonable restriction having regard to the fact that right to health was also a

fundamental right guaranteed under Article 21 of the Constitution. It was also submitted that the cost in the form of medical expenses which are

incurred for treatment of those who suffered as a result of burning of crackers is equally high or even may be higher.

(e) One of the arguments of the opposite side was that there were no sufficient studies as to what extent the burning of crackers is contributing

towards air and noise pollution and whether it was such a serious problem which warrants ban. To this, reply of the petitioners was that in the field of

environmental laws, precautionary principle was also applicable which does not need exact studies or material.

(f) Insofar as argument of burning of crackers during Diwali, as a part of right of religious practice is concerned, the refutation of the petitioners is that

such an argument has already been rejected by this Court in Vellore Citizens' Welfare Forum case. It was further submitted that burning of crackers

during Diwali is not a core and essential religious practice and even if it is so, Article 25 was subject to Article 21 of the Constitution. Judgment in

Noise Pollution (V), in Re, (2005) 5 SCC 733, was relied upon in this regard.

18) Arguments of the opposite side:

The respondents, who are opposing the prayers made in the writ petitions and the IAs, made the submissions to the following effect:

(i) Burning of crackers during Diwali does not have any significant adverse affect on the environment. It is argued that there is no study till date which

has come to such a conclusion. The Deepawali Monitoring Report, 2017 of CPCB is relied upon for this purpose and on that basis it is contended that

the factors which contributed to the problem were not because of crackers burning during Diwali. Ambient air quality before and after Diwali reflects

that there was no spike immediately after Diwali. It was accepted that situation of air pollution in Delhi and NCR is 'generally' worrying. However,

there are multiple causes which lead to polluting air and such a position existed even before Diwali, which showed that other factors played dominant

role.

(ii) Insofar as presence of PM2.5 in the air is concerned, studies of CPCB are relied upon, on the basis of which attempt is made to show that: (a)

spike was not so much during Diwali days; (b) increase in PM2.5 in the air does not remain for long, i.e. it does not linger for many days; and (c) it is

manageable as well.

Reports of Indian Institute of Technology, Kanpur; National Aeronautics and Space Administration (NASA), USA; a professor from Harvard

University; and an affidavit dated January 05, 2018 filed by CPCB were referred to in support.

(iii) It is submitted that pursuant to orders dated September 12, 2017 whereby the Court had directed that a research study needs to be conducted on

the impact of bursting fireworks during Dussehra and Diwali on the health of people, no such empirical data has emerged so far for want of detailed

studies.

In nutshell, the argument was that in the absence of any definite study attributing the worsening of air quality to the fireworks during Diwali, the right

of the manufacturers and traders under Article 19(1)(g), which is a fundamental right to carry on trade, should not be made to suffer till the time there

is a complete study in this behalf.

(iv) It is also argued that the revenue generated from the manufacturing and sale of fireworks is to the tune of Rs.6,000 crores per annum. Further,

this industry has given employment to five lakh families. Such a revenue to the State as well as employment to large number of workers on which five

lakh families sustain cannot be put in jeopardy by imposing a total ban. It was emphasised that there is a necessity to adopt a balanced approach. For

this purpose, Status Report and affidavit of the Ministry of Environment, Forest and Climate Change has been relied upon which suggested eco-

friendly firecrackers. Advisory dated March 07, 2008 issued by the Petroleum and Explosives Safety Organisation (PESO), which comes under the

Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India, was also relied upon, as per which the

fireworks manufacturers in India were advised to ensure that the firecrackers manufactured by them are within the limits prescribed in Annexure-I to

the said Advisory dated March 07, 2008.

(v) The State of Tamil Nadu also supported the cause of the manufacturers and traders of the firecrackers. It was argued that the study undertaken

by CPCB pursuant to the directions issued by this Court was conducted by the Committee which did not have a representative from the Fireworks

Research and Development Centre (FRDC) which was not even informed about the development of this case. It was emphasised that any proper

study in this behalf should address following aspects:

- a) Socio-economic effect of the ban needs to be examined as it may cause extreme economic hardship,
- b) There should be a proper study about the other factors which were leading to air pollution, like construction activity, etc., which are not banned.
- c) Banning of an activity is an extreme measure. The study should focus on the alternatives available in the present day technology which may be

deployed to ensure that pollution free firecrackers can be manufactured.

(vi) Indic Collective (applicant in IA No. 105355 of 2017) opposed the prayer of banning of fireworks during Diwali on the ground that it was a

religious practice scrupulously followed by the Hindus from time immemorial and it had become a core and essential religious practice which was

protected under Article 25 of the Constitution as their fundamental right.

19) The arguments of the parties recorded above would show that the submissions for and against almost remain the same, which were advanced on

earlier occasions, though the focus of both the sides was more nuanced. In the process, the events and developments which have taken place after

passing the order dated October 09, 2017 have also been relied upon by both the parties.

20) Before proceeding to deal with these submissions, it may be apposite to take note of the study that has been undertaken by CPCB on the basis of

the directions of this Court in its order dated September 12, 2017.

21) Following the directions of this Court, a Committee was appointed to be chaired by the Chairperson of the CPCB. This Committee invited Dr.

M.K. Daga, Professor Director, Maulana Azad Medical College (MAMC), as health expert to study the methodology. Dr. Daga suggested that

considering the time available, a short-term study based on questionnaire survey, hospital data collection and sampling at a few locations can be

conducted. This methodology proposed by Dr. Daga was agreed to by the Committee. The Committee requested MAMC to submit a proposal

accordingly. On submission of project proposal, the Committee awarded the project on 'Health Impact Assessment on Firecracker Burning During

Dussehra And Diwali' to MAMC. The scope included questionnaire survey for respiratory, skin, air, eye and relevant symptoms during pre and post

Diwali, clinical study on lung function and urine samples of randomly selected subjects, and data analysis. After conducting this survey, a draft report

was prepared and ultimately it was finalised after incorporating the comments from the Members of the Committee. As per this study on the afore-

mentioned subject, following are the major findings:

The respiratory system related symptoms and signs were not much different during pre and post Dussehra and Diwali. Although there was some

increase in cough and breathlessness, but this did not translate into any significant illness requiring immediate medical attention. Other system related

complaints were also not much different during pre and post Dussehra and Diwali.

There was evidence of increased values of barium and strontium in urine samples of many subjects. These are some of the metals used in firecracker

manufacturing. Increased levels in urine do reflect a probability of exposure. However, all other elements are not increased to substantiate the effect

of bursting of firecrackers. It is also possible that the individuals were exposed due to bursting of firecrackers directly or indirectly in their locality.

Air quality did worsen during Diwali and symptoms of eye, increased coughing, relatively more hospital visits, increased noise levels and high metal

levels in urine do reflect adverse impact of firecracker bursting. However, it was not significant statistically. A long term study would be required to

assess long term health impacts of firecracker bursting.

22) Affidavit filed by CPCB also states that in compliance of the orders dated October 09, 2017 of this Court the Air Quality Monitoring Committee

during Dussehra and Diwali was conducted by CPCB, a report whereof is annexed with its affidavit. As per that report, the salient features are as

under:

a) That, slight increase in PM10 concentration was observed in two locations i.e. Pitampura and Siri Fort on Dussehra day.

b) That, PM2.5 mass concentrations were found lower on post Dussehra day at all stations and it was highest on pre Dussehra day.

c) That the concentrations of SO2 and NO2 during pre and post Dussehra days Dussehra, Dussehra remained within limits.

d) That, though the actual PM2.5 mass concentrations were declined on Dussehra day, certain specific elemental concentration like Aluminum,

Potassium and Barium showed increment on Dussehra day, which indicate some firecracker bursting has affected air quality.

e) That, on Diwali day both PM10 and PM2.5 increased 2-3.5 fold of the levels recorded seven days before Diwali and the Diwali peaks of PM2.5

declined in three days.

f) Both PM10 and PM2.5 were reported higher in post Diwali day compared to pre Diwali at all stations.

g) SO2 remained within prescribed standard limit with slight increment on Diwali day. NO2 also reported within standard limit at all locations on

Diwali day.

h) That, the elements like Al, S, K, Cl2, Ba, Sr all have registered their presence in PM2.5 collected on Diwali day, and the concentration of Al

observed 4 to 6 times higher than that of short-term standards/critical values of 40 ug/m3 proposed by CPCB.

i) PM2.5 was reduced by 39% compared to 2016 Diwali day.

j) Sulphur got reduced by 20%, Potassium by 30%, Ca, Cu, Zn, Sb by about 35-40%, Fe&Ba by about 50%, Strontium by 64% and Al and Cl₂ by

11%.

23) It can be discerned from the above that the air quality had worsened during Diwali. There were more patients with symptoms of eye, increased

coughing and patients with high metal levels in urine. Even noise level had increased. These are the adverse impacts of firecracker bursting, though

the study mentions that statistically it was not a significant increase.

24) The study has also found that actual PM2.5 mass concentrations increased due to firecracker bursting, which had affected air quality. On Diwali

day both PM10 and PM2.5 had 2-3.5 fold increase. Also, PM10 and PM2.5 were reported higher in post-Diwali day compared to pre-Diwali at all

stations. Another significant finding is that PM2.5 was reduced by 39% compared to 2016 Diwali, presumably due to the ban order on the sale of

crackers which was passed on October 09, 2017, which led to lesser quantum of fireworks.

25) Two significant features emerge from the above. First, due to fireworks on Diwali day, PM2.5 levels go up. Secondly, when there was lesser

fireworks in 2017, it had reduced the PM2.5 levels as compared to the earlier Diwali in the absence of ban.

26) It is an accepted fact that bursting of firecrackers during Diwali is not the only reason for deterioration of air quality. There are other factors as

well. It calls for necessity to tackle the other contributory factors for air pollution and making the air quality as 'very poor' and even 'poor'.

Unregulated construction activity which generates lot of dust and crop burning in the neighbouring States are the two other major reasons, apart from

certain other reasons, including vehicular pollution etc. The moot question in such a scenario is as to whether the menace due to fireworks during

Diwali or other festivals/occasions should be left untouched and the Court should allow the situation to prevail as it is, only because it is not the sole

reason for causing air pollution? Answer has to be in the negative.

27) Once it is accepted that PM2.5 level goes alarmingly higher on Diwali and post-Diwali, which is the result of bursting of firecrackers, it is

necessary to understand the adverse affect on health of persons of this particulate in air, even if such a situation remains only for few days. In this

behalf, we may refer to the opinions of some experts/prominent doctors in the field, which have been placed on record by the petitioners.

28) Dr. Arvind Kumar, who interfered in the matter, filed his affidavit on August 14, 2018, wherein he has inter alia stated as under:

7. I have consistently found that in the immediate aftermath of Diwali, there is an increase in the number of people coming with chest ailments and

many of my operated patients returned with complaints of cough and breathlessness without any other cause for the same. This has forced me to

carry out innumerable chest x-rays and CT scans to confirm that the complaints are due to the exposure to toxins. For the sake of relief to the patient

and in order to relieve them from bronchospasms, my colleagues and I are compelled to prescribe inhalers which have bronchodilators and inhaled

steroids, apart from cough suppressants and antibiotics. Media reports suggest that there has been an increase in asthma medicine sales by 43% due

to pollution (Hindustan Times, May 02, 2017). While earlier, it was believed that children with asthma would outgrow the affliction, in the present

circumstances, this seems challenging.

8. Both at AIIMS and at Sir Ganga Ram Hospital, there has been a significant increase in the number of patients I would see in my OPD in the days

immediately following Diwali, and I have no doubt that this was on account of sudden exposure to the deadly cocktail consisting of extremely high

levels of toxic gases, particulate matter and metallic compounds. Each exposure to firework emissions not only leads to acute disastrous effects but

also causes cumulative long-term irreversible damage. Once the PM_{2.5} particle gets deposited in the lungs, it never leaves, thereby affecting the

linking for life and diminishing breathing capacity. This affects not only the respiratory system, but also the cardio-vascular system (heart attacks and

hypertension), nervous system (strokes and developmental abnormalities in children), reproductive system and virtually every other health function

including the bladder and kidneys.

9. It would be useful to refer to two studies conducted ten years apart by a team including Prof. Sundeep Salvi, Director Chest Research Foundation,

Pune and Member of the Government of India's Steering Committee on Air Pollution & Health. The first one in 2007 was presented at the Annual

Congress of the European Respiratory Society at Stockholm and reveals the harmful health effects of CO, SO_x and NO_x from fireworks.

10. The second is a detailed study on the amount of Particulate Matter in various types of fireworks in India and this was presented at the meeting of

the European Respiratory Society at Milan in 2017. This has since been published in the European Respiratory Journal, and examines the personal

exposure levels of fireworks (as against a general study of ambient air). In these isolated and controlled circumstances, the exposure to PM_{2.5} was

found to be as high as 64,5000 µ/m³.

29) From the aforesaid it can be gathered that when PM_{2.5} crosses the normal limits, even if it remains in the air for few days, it becomes severe

health hazard thereby causing serious health problems. Unfortunately such problems are virtually irreversible, which means that a person whose health

gets affected because of this particulate has a long suffering. In view thereof, argument in opposition that air quality that gets worsened during Diwali

remains only for few days would be of no consequence as even in few days it causes severe harm to the health of the people, that too for prolonged

duration.

30) From the aforesaid discussion, the position can be summed up by stating that though burning of crackers during Diwali is not the only reason for

worsening air quality, at the same time, it definitely contributes to air pollution in a significant way. Again, even when no studies are undertaken on

long-term impact thereof, the CPCB Committee, which did this exercise taking it as a short-term project which was assigned to MAMC, has returned

a definite finding about deterioration in air quality during Diwali because of burning of crackers. It has also shown that post-Diwali air pollution in 2017

was less compared to the 2016 Diwali which was the result of lesser fireworks in 2017. This again indicates a direct causal connection between

burning crackers during Diwali and air pollution. Another immediate effect of burning of crackers is that it results in substantial increase in PM2.5

level which is a very serious health hazard. In fact, this results in severe noise pollution as well which has acute psychological, mental and even

physical affect on animals. In the application seeking intervention and directions (IA No. 68897 of 2018) filed by Gauri Maulekhi, the applicant has

placed on record plethora of literature based on various studies depicting profound affect of noise/sound on the health of animals, extending to their

neuroendocrine system, reproduction and development, metabolism, cardiovascular health, cognition and sleep, audition, immune system, DNA

integrity and gene expression. Fireworks sometimes results in temporary or permanent hearing impairment in animals. Further, dogs are also known to

display psychological symptoms of stress during this time. So much so, fireworks has traumatising affect even on birds. Deafening sound which the

crackers produce on bursting are known to disorient birds and responsible for their displacement from their nests. Even the respiratory system of the

birds gets affected. Studies also show that the sound of crackers has affect on milch cattle. As the cattle is scared, adrenaline is released in its body

which inhibits oxytocin, a hormone which helps the milk cattle to release milk thereby affecting the production of milk.

31) The aforesaid findings are sufficient to negate the arguments of the opposite side that there is absence of scientific study about the adverse affect

of firecrackers during Diwali. In environmental law, 'precautionary principle' is one of the well recognised principles which is followed to save the

environment. It is rightly argued by the petitioners that this principle does not need exact studies/material. The very word 'precautionary' indicates that

such a measure is taken by way of precaution which can be resorted to even in the absence of definite studies. In Vellore Citizens' Welfare Forum,

this Court explained the principle in the following manner:

11. Some of the salient principles of "Sustainable Development", as culled out from Brundtland Report and other international documents, are

Inter-Generational Equity, Use and Conservation of Natural Resources, Environmental Protection, the Precautionary Principle, Polluter Pays Principle,

Obligation to Assist and Cooperate, Eradication of Poverty and Financial Assistance to the developing countries. We are, however, of the view that

"The Precautionary Principle" and "The Polluter Pays Principle" are essential features of "Sustainable Development". The

"Precautionary Principle" in the context of the municipal law means:

(i) Environmental measures by the State Government and the statutory authorities must anticipate, prevent and attack the causes of environmental

degradation.

(ii) Where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to

prevent environmental degradation.

(iii) The "onus of proof" is on the actor or the developer/industrialist to show that his action is environmentally benign.

xx xx xx

14. In view of the above-mentioned constitutional and statutory provisions we have no hesitation in holding that the Precautionary Principle and the

Polluter Pays Principle are part of the environmental law of the country.

15. Even otherwise once these principles are accepted as part of the Customary International Law there would be no difficulty in accepting them as

part of the domestic law. It is almost an accepted proposition of law that the rules of Customary International Law which are not contrary to the

municipal law shall be deemed to have been incorporated in the domestic law and shall be followed by the courts of law. To support we may refer to

Justice H.R. Khanna's opinion in A.D.M. v. Shivakant Shukla, Jolly George Varghese case and Gramophone Co. case.

16. The constitutional and statutory provisions protect a person's right to fresh air, clean water and pollution-free environment, but the source of the

right is the inalienable common law right of clean environment...

32) The precautionary principle accepted in the aforesaid judgment was further elaborated in A.P. Pollution Control Board's case as under:

31. The "uncertainty" of scientific proof and its changing frontiers from time to time has led to great changes in environmental concepts during

the period between the Stockholm Conference of 1972 and the Rio Conference of 1992. In *Vellore Citizens' Welfare Forum v. Union of India* a three-

Judge Bench of this Court referred to these changes, to the "precautionary principle" and the new concept of "burden of proof" in

environmental matters. Kuldip Singh, J. after referring to the principles evolved in various international conferences and to the concept of

"sustainable development", stated that the precautionary principle, the polluter-pays principle and the special concept of onus of proof have now

emerged and govern the law in our country too, as is clear from Articles 47, 48-A and 51-A(g) of our Constitution and that, in fact, in the various

environmental statutes, such as the Water Act, 1974 and other statutes, including the Environment (Protection) Act, 1986, these concepts are already

implied. The learned Judge declared that these principles have now become part of our law. The relevant observations in the *Vellore* case in this

behalf read as follows: (SCC p. 660, para 14)

"14. In view of the above-mentioned constitutional and statutory provisions we have no hesitation in holding that the precautionary principle and the

polluter-pays principle are part of the environmental law of the country."

(emphasis supplied)

The Court observed that even otherwise, the abovesaid principles are accepted as part of the customary international law and hence there should be

no difficulty in accepting them as part of our domestic law. In fact, on the facts of the case before this Court, it was directed that the authority to be

appointed under Section 3(3) of the Environment (Protection) Act, 1986

"shall implement the "precautionary principle" and the "polluter-pays principle".

The learned Judges also observed that the new concept which places the burden of proof on the developer or industrialist who is proposing to alter the

status quo, has also become part of our environmental law.

32. The *Vellore* judgment has referred to these principles briefly but, in our view, it is necessary to explain their meaning in more detail, so that courts

and tribunals or environmental authorities can properly apply the said principles in the matters which come before them.

33. A basic shift in the approach to environmental protection occurred initially between 1972 and 1982. Earlier, the concept was based on the

"assimilative capacity" rule as revealed from Principle 6 of the Stockholm Declaration of the U.N. Conference on Human Environment, 1972.

The said principle assumed that science could provide policy-makers with the information and means necessary to avoid encroaching upon the

capacity of the environment to assimilate impacts and it presumed that relevant technical expertise would be available when environmental harm was

predicted and there would be sufficient time to act in order to avoid such harm. But in the 11th Principle of the U.N. General Assembly Resolution on

World Charter for Nature, 1982, the emphasis shifted to the "precautionary principle", and this was reiterated in the Rio Conference of 1992 in its

Principle 15 which reads as follows:

"Principle 15. In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities.

Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for proposing cost-effective

measures to prevent environmental degradation."

34. In regard to the cause for the emergence of this principle, Charmian Barton, in the article earlier referred to in Vol. 22, Harv. Env't. L. Rev.

(1998), p. 509 at p. 547 says:

"There is nothing to prevent decision-makers from assessing the record and concluding that there is inadequate information on which to reach a

determination. If it is not possible to make a decision with some confidence, then it makes sense to err on the side of caution and prevent

activities that may cause serious or irreversible harm. An informed decision can be made at a later stage when additional data is available or resources

permit further research. To ensure that greater caution is taken in environmental management, implementation of the principle through judicial and

legislative means is necessary."

In other words, the inadequacies of science is the real basis that has led to the precautionary principle of 1982. It is based on the theory that it is better

to err on the side of caution and prevent environmental harm which may indeed become irreversible.

35. The principle of precaution involves the anticipation of environmental harm and taking measures to avoid it or to choose the least environmentally

harmful activity. It is based on scientific uncertainty. Environmental protection should not only aim at protecting health, property and economic interest

but also protect the environment for its own sake. Precautionary duties must not only be triggered by the suspicion of concrete danger but also by

(justified) concern or risk potential. The precautionary principle was recommended by the UNEP Governing Council (1989). The Bamako Convention

also lowered the threshold at which scientific evidence might require action by not referring to "serious" or "irreversible" as adjectives

qualifying harm. However, summing up the legal status of the precautionary principle, one commentator characterised the principle as still

“evolving” for though it is accepted as part of the international customary law, “the consequences of its application in any potential situation

will be influenced by the circumstances of each case”. (See First Report of Dr Sreenivasa Rao Pemmaraju Special Rapporteur, International Law

Commission dated 3-4-1998, paras 61 to 72.).

33) In such cases which pertain to the protection of environment, thrusting of 'onus of proof' on the developer/industrialist in Vellore Citizens' Welfare

Forum was also elaborated by the Court in the following manner:

36. We shall next elaborate the new concept of burden of proof referred to in the Vellore case at p. 658. In that case, Kuldeep Singh, J. stated as

follows: (SCC p. 658, para 11)

“(iii) The onus of proof is on the actor or the developer/industrialist to show that his action is environmentally benign.”

37. It is to be noticed that while the inadequacies of science have led to the “precautionary principle”, the said “precautionary principle” in its

turn, has led to the special principle of burden of proof in environmental cases where burden as to the absence of injurious effect of the actions

proposed, is placed on those who want to change the status quo [Wynne, Uncertainty and Environmental Learning, 2 Global Envtl. Change 111 (1992)

at p. 123]. This is often termed as a reversal of the burden of proof, because otherwise in environmental cases, those opposing the change would be

compelled to shoulder the evidentiary burden, a procedure which is not fair. Therefore, it is necessary that the party attempting to preserve the status

quo by maintaining a less polluted state should not carry the burden of proof and the party who wants to alter it, must bear this burden. [See James M.

Olson: “Shifting the Burden of Proof”, 20 Envtl. Law, p. 891 at p. 898 (1990).] [Quoted in Vol. 22 (1998), Harv. Env. Law Review, p. 509 at pp.

519, 550.]

38. The precautionary principle suggests that where there is an identifiable risk of serious or irreversible harm, including, for example, extinction of

species, widespread toxic pollution in major threats to essential ecological processes, it may be appropriate to place the burden of proof on the person

or entity proposing the activity that is potentially harmful to the environment. (See Report of Dr Sreenivasa Rao Pemmaraju, Special Rapporteur,

International Law Commission, dated 3-4-1998, para 61.)

34) This brings us to the next argument which is predicated on Article 19(1)(g) of the Constitution. Mr. Shankarnarayanan had submitted that principle

of res extra commercium shall apply inasmuch as firecrackers are a health hazard, the manufacturers and traders thereof cannot claim any

fundamental right to carry on business in this field. Such a plea may not be tenable. Therefore, it calls for a measure that would amount to a

reasonable restriction.

35) It may be stressed that in Vellore Citizens' Welfare Forum case, this Court had banned the tanneries when it was found that they were causing

immense damage to the environment. Thus, environment protection, which is a facet of Article 21, was given supremacy over the right to carry on

business enshrined in Article 19(1)(g). We state at the cost of repetition that right of health, which is recognised as a facet of Article 21 of the

Constitution and, therefore, is a fundamental right, assumes greater importance. It is not only the petitioners and other applicants who have intervened

in support of the petitioners but the issue involves millions of persons living in Delhi and NCR, whose right to health is at stake. However, for the time

being, without going into this debate in greater details, our endeavour is to strive at balancing of two rights, namely, right of the petitioners under

Article 21 and right of the manufacturers and traders under Article 19(1)(g) of the Constitution.

36) Almost for the same reasons, argument predicated on Article 25 of the Constitution need not detain us. We proceed on the assumption that

burning of crackers during Diwali is a part of religious practice. The question is as to whether it should be allowed to be continued in the present form

without any regulatory measures, as a part of religious practice, even if it is proving to be a serious health hazard. We feel that Article 25 is subject to

Article 21 and if a particular religious practice is threatening the health and lives of people, such practice is not to entitled to protection under Article

25. In any case, balancing can be done here as well by allowing the practice subject to those conditions which ensure nil or negligible effect on health.

37) We now deal with the argument that banning the sale of firecrackers may lead to extreme economic hardship, namely, on the one hand loss of

substantial revenue and on the other hand unemployment to lakhs of persons. This brings up the issue of connect or relationship between the law and

economics. This aspect was considered by this Court in Shivashakti Sugars Limited v. Shree Renuka Sugar Limited and Others, (2017) 7 SCC 729,

and the relevant portion whereof is reproduced below:

43...Interface between Law and Economics is much more relevant in today's time when the country has ushered into the era of economic

liberalisation, which is also termed as "globalisation" of economy. India is on the road of economic growth. It has been a developing economy for

number of decades and all efforts are made, at all levels, to ensure that it becomes a fully developed economy. Various measures are taken in this

behalf by the policy-makers. The judicial wing, while undertaking the task of performing its judicial function, is also required to perform its role in this

direction. It calls for an economic analysis of law approach, most commonly referred to as "Law and Economics" [Richard A. Posner in his book

Frontiers of Legal Theory explains this concept as follows: "Economic analysis of law has heuristic, descriptive and normative aspects. As a

heuristic, it seeks to display underlying unities in legal doctrines and institutions; in its descriptive mode, it seeks to identify the economic logic and

effects of doctrines and institutions and the economic causes of legal change; in its normative aspect it advises Judges and other policy-makers on the

most efficient methods of regulating conduct through law. The range of its subject- matter has become wide, indeed all-encompassing. Exploiting

advances in the economics of nonmarket behaviour, economic analysis of law has expanded far beyond its original focus on antitrust, taxation, public

utility regulation, corporate finance, and other areas of explicitly economic regulation. (And within that domain, it has expanded to include such fields

as property and contract law.) The "new" economic analysis of law embraces such nonmarket, or quasi-nonmarket, fields of law as tort law,

family law, criminal law, free speech, procedure, legislation, public international law, the law of intellectual property, the rules governing the trial and

appellate process, environmental law, the administrative process, the regulation of health and safety, the laws forbidding discrimination in employment,

and social norms viewed as a source of, an obstacle to, and a substitute for formal law. Posner also mentioned that this interface between Law and

Economics might grandly be called "Economic Theory of Law", which is built on a pioneering article by Ronald Coase [R.H. Coase, "The

Problem of Social Cost", 3 Journal of Law and Economics 1 (1960)]: "The "Coase Theorem" holds that where market transaction costs are

zero, the law's initial assignment of rights is irrelevant to efficiency, since if the assignment is inefficient the parties will rectify it by a corrective

transaction. There are two important corollaries. The first is that the law, to the extent interested in promoting economic efficiency, should try to

minimize transaction costs, for example by defining property rights clearly, by making them readily transferable, and by creating cheap and effective

remedies for breach of contract. The second corollary of the Coase Theorem is that where, despite the law's best efforts, market transaction costs

remain high, the law should simulate the market's allocation of resources by assigning property rights to the highest-valued users. An example is the

fair-use doctrine of copyright law, which allows writers to publish short quotations from a copyrighted work without negotiating with the copyright

holder. The costs of such negotiations would usually be prohibitive; if they were not prohibitive, the usual result would be an agreement to permit the

quotation, and so the doctrine of fair use brings about the result that the market would bring about if market transactions were feasible. In fact, in

certain branches of Law there is a direct impact of Economics and economic considerations play predominant role, which are even recognised as legal

principles. Monopoly laws (popularly known as "Antitrust Laws" in USA) have been transformed by Economics. The issues arising in competition

laws (which has replaced monopoly laws) are decided primarily on economic analysis of various provisions of the Competition Commission Act.

Similar approach is to be necessarily adopted while interpreting bankruptcy laws or even matters relating to corporate finance, etc. The impress of

Economics is strong while examining various facets of the issues arising under the aforesaid laws. In fact, economic evidence plays a big role even

while deciding environmental issues. There is a growing role of Economics in contract, labour, tax, corporate and other laws. Courts are increasingly

receptive to economic arguments while deciding these issues. In such an environment it becomes the bounden duty of the Court to have the economic

analysis and economic impact of its decisions.

38) Applying the aforesaid principle, in the first blush it may appear that the aforesaid argument has substantial force in it. However, that would be

only one side of the picture as there are two contra arguments which are sufficient to take the sheen out of the aforesaid plea. First aspect is that the

argument of economic hardship is pitched against right to health and life. When the Court is called upon to protect the right to life, economic effect of

a particular measure for the protection of such right to health will have to give way to this fundamental right. Second factor, which is equally

important, is that the economic loss to the State is pitched against the economic loss in the form of cost of treatment for treating the ailments with

which people suffer as a result of burning of these crackers. Health hazards in the form of various diseases that are the direct result of burning of

crackers have already been noted above. It leads to asthma, coughing, bronchitis, retarded nervous system breakdown and even cognitive impairment.

Some of the diseases continue on a prolonged basis. Some of these which are caused because of high level of PM2.5 are even irreversible. In such

cases, patients may have to continue to get the medical treatment for much longer period and even for life. Though there are no statistics as to what

would be the cost for treating such diseases which are as a direct consequence of fireworks on these occasions like Diwali, it can safely be said that

this may also be substantial. It may be more than the revenue which is generated from the manufacturers of the crackers. However, we say no more

for want of precise statistical data in this behalf.

39) With this, we come to the most important issue, viz. whether there has to be a complete ban on display of fireworks during Diwali or it can be

controlled/regulated in a manner which may not result into air pollution or may be least intrusive.

40) It would be significant to mention at this stage that there have been lots of efforts for production of firecrackers which do not contain harmful

chemicals and thereby not causing air pollution, which are even termed as 'Green Crackers'. The Union of India was asked to delve on this aspect. In

fact, during the hearing of this matter, order was passed on August 14, 2018 giving direction to respondent No.1 to give its complete suggestions to

deal with the problems and issues involved which have been recapitulated above. This order reads as under:

Further arguments heard in these matters. Arguments have not been concluded.

We are of the opinion that Union of India/Ministry of Environment should come out with its concrete suggestions to deal with problems and issues

which are involved in these petitions and what short term measures can be adopted to tackle the pollution problem which occurs due to firecrackers

during Diwali. Such affidavit shall be filed by or before next date of hearing.

List on 21.8.2018.

41) Pursuant to the aforesaid direction, respondent No.1 has filed its affidavit on August 21, 2018. This affidavit states that the Ministry consulted : (i)

The Council of Scientific & Industrial Research (CSIR) - National Environment Engineering Research Institute (NEERI), (ii) PESO, and (iii) CPCB

regarding concrete solutions and short-term measures to be adopted to tackle the pollution problem which occurs due to firecrackers during Diwali.

Suggestions are received from the aforesaid bodies which are annexed as Annexures R-1, R-2 and R-3 respectively. Based on those suggestions, the

Ministry has given the following short-term measures/actions which it proposes to tackle the pollution problem due to firecrackers during forthcoming

Diwali in November 2018:

1. To address issue of high contents of unburnt material or partially combusted material due to usage of poor quality of raw material, Raw Material

Characterisation Facilities shall be established to maintain quality of the raw materials in gun powder and flash powder as per specifications of PESO.

Testing of raw materials shall be initiated at CSIR - Kaliswari Joint Facility or PESO or any of the other manufacturer with requisite facilities.

II. Use of Reduced Emission firecrackers (Improved crackers) - (a) Avoidance of use of ash as desiccant or filler materials in crackers for reduction

in particulate matter by 15-20%. These can be implemented subject to approval by PESO, and (b) usage of charcoal meeting specifications of

explosives and pyrotechnics as prescribed by PESO.

III. Use of Reduced Emission firecrackers (Green crackers: Safe water and air sprinklers (SWAS) - Low emission sound and light emitting functional

crackers with PM reduction by 30-35% and significant reduction in NO_x and SO₂ due to in-situ water generation as dust suppressant and low cost

due to usage of low cost oxidants. These can be implemented subject to approval by PESO.

IV. PESO will ensure fireworks with permitted chemicals only to be purchased/possessed/sold/used during Diwali and shall test and check for the

presence of banned chemicals like lithium/arsenic/antimony/lead/ mercury. PESO will ensure suspension of the licenses of manufacturers of such

fireworks items and appropriate disposal of such stock.

V. PESO will ensure that only those crackers whose decibel (sound) level are within the limits are allowed in the market and will ensure to take action

by suspending the licenses of the manufacturers on such violations and disposal of such lots.

VI. Diwali data of 2017 shows that average PM_{2.5} was 604 ug/m³, whereas, Aluminum and Barium in PM_{2.5} were 159 ug/m³ (about 4 times of

AAQCVs) and 35 ug/m³ (about 9 times of AAQCVs) respectively. Iron was well within the prescribed limits. Aluminum is used as fuel in

fireworks in and to give white brilliant sparkle. Ba is added to give only attractive green colour which is not essential for pyrotechnics. Aluminum may

cause dermatitis and having bio-accumulation potential in case of long exposure. Ba salts emit poisonous gas causing respiratory problem in short-term

exposure too and may have other health complications in long- term exposure. Therefore, as immediate measure, banning of Barium salts in fireworks

may be considered. PESO may be asked to review the chemical composition of fireworks, particularly reducing Aluminum content.

VII. CPCB and respective State Pollution Control Boards/ Pollution Control Committees (SPCBs/PCCs) of the States and Union Territories shall

carry out short-term monitoring in their cities for 14 days (commencing from 7 days prior to Diwali and ending 7 days after Diwali) for the parameters

namely, Aluminum, Barium, Iron apart from the regulatory parameters against the short-term Ambient Air Quality Criteria Values (AAQCVs)

proposed by CPCB with regard to bursting of firecrackers. This will help in generation of data on pollution caused by the bursting of firecrackers and

would be helpful for regulation and control quantity of Aluminum, Barium and Iron used in the manufacture of firecrackers.

VIII. The manufacture, sale and use of joined firecrackers (series crackers or laris) may be banned as the same causes huge air, noise and solid

waste problems.

IX. Major Indian cities may explore the option of community firecracking with strict time restriction as adopted in some countries. Other restriction

that can be explored include - bursting of firecrackers may be allowed only in the areas/fields pre-identified and pre-designated by respective State

Governments.

X. Extensive public awareness campaigns shall be taken up by the Central Government/State Governments/Schools/Colleges informing the public

about the harmful effects of firecrackers.

42) We are of the opinion that the aforesaid suggestions strike a nice balance between the two competing interests. We accept the aforesaid

measures as suggested by the Union of India and direct the Union of India and other concerned authorities to implement the same with immediate

effect. In view thereof, following specific directions are issued:

(i) The crackers with reduced emission (improved crackers) and green crackers, as mentioned in Suggestion Nos. II and III above only would be

permitted to be manufactured and sold.

(ii) As a consequence, production and sale of crackers other than those mentioned in Suggestion Nos. II and III is hereby banned.

(iii) The manufacture, sale and use of joined firecrackers (series crackers or laris) is hereby banned as the same causes huge air, noise and solid

waste problems.

(iv) The sale shall only be through licensed traders and it shall be ensured that these licensed traders are selling those firecrackers which are permitted

by this order.

(v) No e-commerce websites, including Flipkart, Amazon etc., shall accept any online orders and effect online sales. Any such e-commerce

companies found selling crackers online will be hauled up for contempt of court and the Court may also pass, in that eventuality, orders of monetary

penalties as well.

(vi) Barium salts in the fireworks is also hereby banned.

(vii) PESO is directed to review the chemical composition of fireworks, particularly reducing Aluminum content, and shall submit its report in respect

thereof within a period of two weeks from today. For undertaking this exercise, PESO would also associate FRDC.

(viii) Even those crackers which have already been produced and they do not fulfill the conditions mentioned in Suggestion Nos. II and III above will

not be allowed to be sold in Delhi and NCR.

(ix) PESO will ensure fireworks with permitted chemicals only to be purchased/possessed/sold/used during Diwali and all other religious festivals, of

any religion whatsoever, and other occasions like marriages, etc. It shall test and check for the presence of banned chemicals like Lithium/Arsenic/

Antimony/Lead/Mercury.

(x) PESO will ensure suspension of the licenses of manufacturers of such fireworks items and appropriate disposal of such stock.

(xi) PESO will ensure that only those crackers whose decibel (sound) level are within the limits are allowed in the market and will ensure to take

action by suspending the licenses of the manufacturers on such violations and disposal of such lots. To add to it, as mentioned in the order dated

September 12, 2017, the directions issued and restrictions imposed in the order passed by this Court on July 18, 2005 in Noise Pollution (V) shall

continue to be in force.

(xii) Direction Nos. 4 to 9 and 11 contained in the order dated September 12, 2017 shall continue to operate and are reiterated again.

(xiii) Extensive public awareness campaigns shall be taken up by the Central Government/State Governments/Schools/Colleges informing the public

about the harmful effects of firecrackers.

(xiv) On Diwali days or on any other festivals like GURPURAB etc., when such fireworks generally take place, it would strictly be from 8:00 p.m. till

10:00 p.m. only. On Christmas eve and New Year eve, when such fireworks start around midnight, i.e. 12:00 a.m., it would be from 11:55 p.m. till

12:30 a.m. only.

(xv) The Union of India, Government of NCT of Delhi and the State Governments of the NCR would permit community firecracking only (for Diwali

and other festivals etc. as mentioned above), wherever it can be done. For this purpose, particular area/fields would be pre-identified and

predesignated by the concerned authorities. This exercise shall be completed within a period of one week from today so that the public at large is

informed about the designated places one week before Diwali. The areas designated now for the purpose of Diwali shall be valid for community

firecracking on other occasions/festivals as well, as mentioned above. Even for marriages and other occasions, sale of improved crackers and green

crackers is only permitted.

Insofar as other States are concerned, an endeavour shall be made by them also to explore the feasibility of community firecracking. However, it is

made clear that Direction No. (xiv) pertaining to the duration within which fireworks can take place on all such occasions would be applicable

throughout India. Similarly, Direction No. (xiii) for extensive public awareness campaigns is also a pan India direction.

(xvi) All the official respondents, and particularly the Police, shall ensure that fireworks take place only during the designated time and at designated

places, as mentioned above. They shall also ensure that there is no sale of banned firecrackers. In case any violation is found, the Station House

Officer (SHO) of the concerned Police Station of the area shall be held personally liable for such violation and this would amount to committing

contempt of the Court, for which such SHO(s) would be proceeded against.

(xvii) CPCB and respective State Pollution Control Boards/ Pollution Control Committees (SPCBs/PCCs) of the States and Union Territories shall

carry out short-term monitoring in their cities for 14 days (commencing from 7 days prior to Diwali and ending 7 days after Diwali) for the parameters

namely, Aluminum, Barium, Iron apart from the regulatory parameters against the short-term Ambient Air Quality Criteria Values (AAQCVs)

proposed by CPCB with regard to bursting of firecrackers. This will help in generation of data on pollution caused by the bursting of firecrackers and

would be helpful for regulation and control quantity of Aluminum, Barium and Iron used in the manufacture of firecrackers.

43) One clarification needs to be given at this stage. Our discussion pertaining to the arguments based on Article 19(1)(g), Article 25 as well as the

argument of loss of substantial revenue and unemployment, in cases the manufacture and sale of the firecrackers is totally banned, is prima facie and

we have not given our conclusive determination. It is because of want of detailed studies on various aspects which have been mentioned and taken

note of during discussion in this order. However, we also make it clear that, prima facie, we do not find much merit in these arguments for which we

have given our reasons in brief.

44) Having regard to the overall circumstances, we have decided that, for the time being, a balanced approach to tackle this problem is needed, which

may take care of the concerns of both the parties and, at the same time, provide a reasonable and adequate solution. When the picture would become

clearer after the requisite studies/research is undertaken, more stringent measures can be adopted in future if the situation so warrants.

45) All the interlocutory applications seeking impleadment, intervention, directions, modification, etc. are disposed of in the aforesaid terms.

46) The writ petitions be listed on December 11, 2018.