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# AIRFIELD NOISE ABATEMENT IN THE FEDERAL REPUBLIC OF GERMANY

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On March 30, 1971, the Federal Republic of Germany, after prolonged debate in both houses of parliament, passed legislation providing for the abatement of noise around airfields.<sup>1</sup> The legislation reflects a compromise of the positions of many interest groups, both public and private, concerned with airport problems, but by its very passage points to the increasing attention given to environmental protection measures in the Federal Republic. The concepts embodied in the law are novel and therefore should be instructive to the American lawyer interested in environmental law. This article, in addition to describing the law in detail, will also describe the events which led to its passage, with particular emphasis on the roles played by the many interests concerned.

## BACKGROUND

### *A. Area and Population.*

Any discussion of the problems inherent in the operation of airports must take into account the extent of available land relative to the population density. The Federal Republic of Germany (excluding Berlin) consists of an area of 95,774 square miles with a population of approximately 60 million. The area of the Federal Republic is thus approximately the same as that of the State of Oregon, but the population density is about 30 times that of Oregon.<sup>2</sup> Open territory is therefore scarce and crowding the general condition.

### *B. Airport Statistics.*

There are eleven major commercial airports open to scheduled airlines in the Federal Republic, almost all of which accept jet traffic.

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1. Gesetz zum Schutz gegen Fluglärm (Law on Protection Against Aircraft Noise), Law of Mar. 30, 1971, BGBl. I 282 (hereinafter cited as the Airport Abatement Law).

2. For facts concerning the territory and demography of the Federal Republic, see *Facts About Germany*, published yearly by the Press and Information Office of the Federal Government.

In addition there are numerous military airfields also intended to serve jet aircraft, and numerous other airfields which serve private and sport aircraft. The major commercial airports in the Federal Republic rank in terms of number of take-offs and landings with those in the United States.<sup>3</sup> All are located adjacent to or within densely populated areas, as are many of the military airports.

### *C. Early Noise Abatement Measures in the Federal Republic.*

The problem of noise abatement was first scientifically attacked in Germany in 1928 when the acoustimeter was first made available to scientists by a German firm.<sup>4</sup> Early efforts were directed toward the relief and protection of factory workers. The Second World War suspended these efforts, which were resumed when the Deutscher Arbeitsring fuer Laermbeakaempfung (DAL) (German Study Group for Noise Abatement) was founded in 1952 to cope with the growing level of noise. The problem was again energetically tackled. The object of the DAL was to combine the efforts of those scientific, industrial and administrative bodies interested in noise abatement in factories, in traffic and in households, with the aim of preserving the health and efficiency of the population. Its efforts were assisted by new discoveries regarding the physical and mental effects of noise on humans resulting from the research work of scientists at the Max-Planck Institute for Industrial Physiology at Dortmund. The present effort for noise abatement around airfields, although in some aspects qualitatively different from other noise nuisances, should be viewed as an extension of prior work in the noise abatement field.

### *D. Existing Legal Provisions Relating to Noise Abatement.*

There is no uniform German noise abatement legislation. Legal provisions of general application contained in the Basic Law<sup>5</sup> (in effect, the Constitution of the Federal Republic of Germany), the

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3. The Arbeitsgemeinschaft Deutscher Verkehrsflughafen (Study Group on German Commercial Airports) in Stuttgart compiles statistics on commercial air traffic. See *Wirtschafts correspondent*, Nr. 4, Jan. 23, 1971, at 13, for a compilation of the 1970 statistics.

4. For a discussion of the history of noise abatement measures in the Federal Republic, see Oels, *Noise Abatement and Measures to Combat Pollution of the Atmosphere*, in the monograph series, Fed. Ministry of Labor and Social Structure, *Social Policy in Germany* (1964).

5. Grundgesetz, (1949, amended 1961, 1968) (Ger.). § 2 of the Basic Law provides:

1. Everyone has the right to the free development of his personality, insofar as he does not infringe the rights of others.
2. Everyone has the right to life and to inviolability of his person. . . .

§ 14(2) of the Basic Law, which is of special importance, provides:

Property shall involve obligations. Its use shall simultaneously serve the general welfare.

Criminal Code,<sup>6</sup> the Civil Code,<sup>7</sup> and various state and local legislation and regulations did enable some action to be taken, albeit insufficient. Specific legislation was required and has been enacted in several areas. In the field of motor vehicle traffic, the Law Concerning the Safety of Road Traffic<sup>8</sup> contains provisions relating to the abatement of noise resulting from the operation of motor vehicles. The Law of Protection Against Construction Noise<sup>9</sup> provides that operators of certain construction machinery must take technically feasible measures to protect the public from dangers or considerable disadvantages or disturbances resulting from construction noise. The Trade Law,<sup>10</sup> Section 16, provides that the permission of the com-

6. § 360(1)(11) of the Criminal Code provides that "whoever improperly causes noise to the disturbance of the peace" shall be liable to punishment. § 366(10) provides that "whoever infringes police regulations issued for the maintenance of safety, convenience, cleanliness and quiet upon public ways, streets, places and waterways" shall be liable to punishment. StGB Sections 360, 366 (Beck 1970).

7. § 1004 and 906 of the Civil Code, when read together, provide that the owner of property is not compelled to tolerate substantial damage to his property from emissions from other properties even though the offending party is utilizing his own property in a manner customary in the district but fails to make such use of technical means of abatement for the mitigation of the resultant nuisance as may reasonably be expected of him. Where, however, the owner is obliged to tolerate a nuisance from noise or vibration, because the technical means of abatement that the offender could reasonably be expected to use are unavailable, he can demand suitable monetary compensation where the effect is such that customary use of his property becomes impossible, or where its yield is impaired beyond reasonable limits. BGB §§ 906, 1004 (Beck 1970). The Bundesgerichtshof (German Supreme Court) has interpreted § 906 to apply to all imaginable forms of emissions, including noise, smoke, soot, heat, steam, vibration and all types of waves and radiation. The Court refused to view toleration of noise sources as a necessary result of urban development and held that the producer of a noise must take economically expected measures to mitigate the effects of the resultant nuisance. Judgment of Sept. 28, 1962, 38 BGHZ 61.

8. Gesetz zur Sicherung des Strassenverkehrs (StVG), Dec. 19, 1952, BGBl I 837, as amended. This law empowers the Federal Minister of Traffic to issue regulations to prevent nuisances caused by road traffic, including noise abatement. This authority has been used several times in amending and supplementing the Strassenverkehrsordnung (Road Traffic Ordinance) (StVO), Nov. 16, 1970, BGBl I 1565, and the Strassenverkehrszulassungsordnung (Road Traffic Licensing Regulation) (StVZO), Dec. 6, 1960, BGBl I 897. § 1 of the StVO provides that one must behave in traffic so as not to endanger, harm or inconvenience others and § 30 of the StVZO contains noise abatement regulations relating to vehicles.

9. Gesetz zum Schutz Gegen Baulärm, Sept. 9, 1965, BGBl I 1214, as amended 24 May 1968, BGBl I 503. § 2 provides as follows:

Whoever operates construction machinery must take care that:

1. noise from the construction machinery is prevented to the extent it can be avoided according to the state of the technology; and
2. preventive measures are taken which limit the dispersion of unavoidable noise from the construction site to the minimum, as far as this is required in order to protect the public from dangers or considerable disadvantages or disturbances.

10. Gewerbeordnung fuer das Deutsche Reich, July 26, 1900, RGBl 871; as amended Sept. 29, 1953, BGBl I 1459; Dec. 22, 1959, BGBl I 781; Jan. 21, 1960, BGBl I 17; Feb. 5, 1960, BGBl I 61; Aug. 9, 1960, BGBl I 665; May 16, 1961, BGBl I 533; July 25, 1961, BGBl I 1076. § 27 additionally provides that installations which do not require a license under § 16, but whose operation causes an unusual amount of noise, must be reported to

petent authorities is necessary for the erection of an industrial or commercial installation which may cause considerable disadvantage, danger or nuisance through any means, including noise, to owners or inhabitants of neighboring properties or to the general public. The Federal Building Law, which contains provisions relating to land use planning, contemplates noise as an element to be considered in planning real estate use.<sup>11</sup> Of particular interest is the Ordinance Governing Air Traffic,<sup>12</sup> which contains the basic provision that "nuisance caused by noise must be prevented as far as possible." The Ordinance also provides that "when an airport is licensed, the licensing authority will determine the types of aircraft permitted to use the airport." The authority approving the construction and operation of the airport can thus take into consideration the possible effect of noise on the surrounding area and prohibit the use of the airport by any aircraft which in its opinion causes excessive noise. Certain air traffic regulations which stipulate general minimum safe altitudes also contribute to noise abatement. These measures, however, have not proved sufficient for the protection of the general public, which has necessitated the passage of the Airport Noise Abatement Law, to which we shall now turn.

#### EVENTS LEADING TO PASSAGE

##### A. *The Scientific Basis.*

Early attempts at passage of airfield noise abatement legislation in the Federal Republic foundered for much the same reasons in the United States. Even though there was a substantial body of scientific literature showing that airport noise had an adverse physical and mental effect on human beings,<sup>13</sup> opponents nevertheless argued that this had not been conclusively shown, and therefore, since evidence of dangers to surrounding inhabitants was lacking, passage of such legislation was not warranted. There was further no agreement as to which measuring methods should be employed for the measurement of noise in the area of airports or how such measurements

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the local police. If there are churches, schools, hospitals, or other public buildings in the area whose designated use may suffer considerable disturbance, the police must obtain an opinion from the high administrative authorities whether the operation of the installation is to be prohibited or merely permitted under certain conditions.

11. Bundesbaugesetz, June 23, 1960, BGBl I 341; as amended Mar. 21, 1961, BGBl I 241; May 24, 1968, BGBl I 503; June 23, 1970, BGBl I 805. As to the effectiveness of the law see *infra* note 26.

12. Luftverkehrsordnung, Nov. 4, 1968, BGBl I 1113, as amended by the Law on Protection Against Aircraft Noise, *supra* note 1.

13. G. Lehman and J. Meyer-Delius, *Die Einwirkung des diskontinuierlichen Laerms auf den Menschen unter besonderer Beruecksichtigung des Flugverkehrs*, (1958); and G. Carlsson and H. Ronge, *Attitude and Opinion Studies on Human Reactions to Aircraft Noise* (1962).

should be evaluated in terms of the disturbances caused. Finally, and most controversial, was the question of standards or limits which should be applied for the protection of the public and how these standards should be implemented. Without a scientific evaluation of these questions, passage of legislation appeared to be slim. The Federal Ministry of Health, which had been concerned with airport noise problems for some time, recognized the difficulty and commissioned a study of the entire problem. This comprehensive study, which was made by five leading German scientists, was completed in 1965 and provided a scientific groundwork upon which those advocates of noise abatement legislation could base their position.<sup>14</sup> It merits close examination since it represents a landmark on the long road to passage of the Airport Noise Abatement Law and when compared to the final legislation, provides a basis for analysis of the compromises which were required in view of political and economic realities.

The Ministry of Health's commission directed that five main questions be studied:

1. Which measuring methods (measuring apparatus and procedures) should be applied in the measurement of noise in areas surrounding airfields in the Federal Republic?
2. What degree of aircraft noise disturbance currently exists in the Federal Republic?
3. Which methods of evaluation of aircraft noise in areas surrounding airfields should be applied in the Federal Republic and which noise limits should be proposed for the protection of the population, taking into consideration the results of the investigations under numbers 1 and 2 above?
4. Which methods of airfield noise abatement should be applied?
5. Which criteria should be proposed to take into consideration aircraft noise in the determination of planning zones in areas surrounding airfields?<sup>15</sup>

The answer to the first question is necessarily of a very technical nature and not of immediate interest to the lawyer. Suffice it to say that the authors distinguished two types of required measurements—that necessary for the establishment of planning zones and that required for purposes of an airfield noise supervisory authority—and then proposed for both the adoption of draft recommendations of the International Standards Organization.<sup>16</sup>

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14. *Fluglaerm, Seine Messung und Bewertung, seine Beruecksichtigung bei der Siedlungsplanung, Massnahmen zu seiner Minderung* (Aircraft Noise, Its Measurement and Evaluation, Its Consideration in Settlement Planning, Measures for Its Abatement) Goettingen 1965.

15. *Id.* at 1.

16. *Id.* at 175.

Concerning the second question, the study group concluded that the degree of noise disturbance caused by either an overflying or stationary aircraft with engines running can be characterized by the following data: a. the loudest noise emission; b. the duration of the noise; and c. the frequency of noise disturbances. The group found that in areas surrounding the major German commercial airports, aircraft take-offs caused noise disturbances of varying intensity lasting from ten to thirty seconds on the average of two to nine times per hour. Landings caused a similar number of disturbances of lesser intensity but were of slightly longer duration. It was found that the daily average noise level caused by aircraft in the vicinity of airports far exceeded maximum noise limits established for industrial areas. The study group concluded that in some places in the Federal Republic noise disturbance to the population was already so great that permanent hearing damage could be expected.<sup>17</sup>

In answering question three, the study group devised a formula for calculation of a "disturbance index" ( $\bar{Q}$ ) which in addition to the three factors mentioned above also takes into account the factors: a. the classification of air traffic according to aircraft type, starting weight, and day, evening or night operation; b. take-off procedures, especially noise abatement measures; c. the fanning out of take-off paths (through formation of more or less wide take-off corridors); the degree of convergence at various points within landing corridors of aircraft approaching the runway; and d. noise of long duration such as caused by circling, taxiing or static aircraft with engines operating.<sup>18</sup> The calculation of the disturbance index is mathe-

17. *Id.* at 176.

18. *Id.* at 178. The disturbance index ( $\bar{Q}$ ) is calculated as a function of  $x$  and  $y$ , to be evaluated at a point  $(x, y)$  on the ground in the vicinity of the take-off and landing paths, as follows:

$$\bar{Q}(x, y) = \frac{40}{3} \log_{10} \frac{1}{T} \int_{-b(x)}^{b(x)} \sum_k 10^{3Q_k/40} \cdot t_k \cdot n_k \, dm$$

where  $Q_k$  is the maximum noise emission on the dB(A) scale for each class of aircraft  $k$  at a distance  $s_k$  of the measuring point from the flight path;  $t_k$  is the noise duration according to formula  $t_k = \text{the minimum of } \frac{3.4 s_k}{V_k} \text{ and } 30$ , where  $V_k$  is the flight speed and

$s_k = \sqrt{(y-m)^2 + h_k^2}$  where  $m$  is the distance of the aircraft along the  $y$ -axis from  $O$  and  $h_k$  is the altitude of the aircraft (the noise duration  $t_k$  is defined as that time span during which the noise level varies between a maximum noise level and the maximum level minus 10dB: the formula for  $t_k$  was arrived at on the basis of numerous measurements during which it was found that for large distances  $s_k$  the noise duration  $t_k$  could be replaced by a constant, which was found to be about 30 seconds, but which could be changed according to local circumstances);  $n_k$  is a distribution function which gives the number of aircraft of class  $k$ ,

matically complicated and better left to the mathematicians. The uses to which it is put or the manner in which it is applied is, however, of interest to this article. The study group concluded that the question of noise limits which a person should be expected to tolerate without recourse could not be answered through the determination of a disturbance index numerical value of general application since the effects of noise vary so greatly from individual to individual that a numerical value limit of general application cannot be established. The group did conclude, however, that noise limit numerical values could be applied as valid criteria in land use planning.<sup>19</sup>

The fourth question, concerning aircraft noise abatement measures, elicited from the study group several suggestions which it divided into five conceptual categories. First, the group suggested certain *organizational measures*, the most important of which were the formation of a standing scientific-technical advisory commission, increased participation on local airport commissions of representatives from local government units and interested organizations, aircraft licensing procedures which take into consideration noise production, and increased research. Second, *land-use planning*

weighted according to day, evening or night flights, which during the time reference T (here 24 hours) overfly between  $y + dy$  with  $x$  held constant; the constant  $\frac{40}{3}$  (or  $\frac{2}{3}$ ) is an equivalence parameter which was determined by experiment and makes possible the characterization of  $\bar{Q}$  as the level of the mean disturbance intensity;  $b(x)$  is the width of the take-off and landing corridors in normal usage measured from the center of the runway to the edge of the corridor; and the  $x$  and  $y$  axes are established on the ground with the  $x$ -axis coincident to the center line of the runway and the  $y$ -axis intersecting perpendicularly at the mid-point of the length of the runway. In the simple case where the corridor width is zero ( $b(x) = 0$ ), the formula for  $\bar{Q}$  is as follows:

$$\bar{Q}(x, y) = \frac{40}{3} \log_{10} \left\{ \sum_k 10^{3Q_k/40} \cdot t_k \cdot \bar{N} \right\}$$

where  $\bar{N}_k$  (the distribution function) is the maximum of  $N_k^1/14$  and  $(N_k^1 + 2N_k^2 + 4N_k^3)/24$  where  $N_k^1$  is the total number of flights between 6 A.M. and 8 P.M.,  $N_k^2$  the total number between 8 P.M. and 11 P.M. and  $N_k^3$  the total number between 11 P.M. and 6 A.M. If there is only one class of aircraft, the formula can be further simplified as follows:

$$\bar{Q}(x, y) = Q_1 + \frac{40}{3} \log_{10}(t_1 \bar{N})$$

The fact that  $\bar{Q}$  actually constitutes a "disturbance index" is demonstrated by application of the formula to the following four noise situations which according to the formula have the same noise equivalence: continuous noise level of 72 decibels; one flight per day with a maximum noise emission of 115 decibels; ten flights per day with a maximum noise emission of 102 decibels; and 100 flights per day with a maximum noise emission of 89 decibels.

19. A discussion of the employment of the disturbance index ( $\bar{Q}$ ) in land-use planning around airports can be found in the text surrounding footnote 14.



measures were suggested which take into account the public's need of quiet. The group suggested employment of a planning zone map for use in locating new airports or expanding existing airports whereby the effects of aircraft noise on surrounding areas could be determined. The group suggested that new airports not be established in populated areas and that existing airports which constitute a substantial disturbance be relocated. The group recommended use of planning criteria developed in answering question five and employment of experts in planning, construction and acoustics for the development of land surrounding airports so as to ensure sufficient noise protection measures are taken and that buildings are favorably sited. The group recommended that planning measures for areas surrounding airports be supported by tied financial grants or the withholding of expenditure of public funds. If encroachment on an airport cannot be prevented, the group recommended that considerable expenditures, financed through surcharges, be made for installation of noise abatement devices. *Flight operation measures* were also suggested, to include application of noise abatement starting procedures, use of take-off paths or directions favoring noise abatement, starting weight restrictions, night flight limitations, avoidance of flying below the glide path and of unnecessary applications of power. *Ground operation measures* were suggested for abatement of noise resulting from aircraft in the static, engine running position (night and holiday limitations, length and time of operation, operating conditions, place of operation, orientation of the aircraft so that resultant noise is directed toward vacant areas) and from taxiing aircraft (maximum limitations on engine speed, employment of tow vehicles). Finally, the group suggested that for each airport an *aircraft noise supervisory authority* be created which would ensure that each aircraft using the airport create as little noise as possible.<sup>20</sup>

Question five, which concerned the development of criteria for land-use planning in areas surrounding airports, is of special interest. The study group recommended employment of the disturbance index ( $\bar{Q}$ ) developed in response to question three and suggested four planning zones be created, as follows: Zone I, in which no type of living accommodation should be contemplated; Zone II, in which living accommodations should be permitted only for cogent reasons, and then only if comprehensive sound proofing measures are employed. It was recommended that public funds not be contributed toward financing of sound proofing measures in this zone; Zone III, in which construction of living accommodations is not to be recommended, but if nevertheless done, sound proofing measures

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20. *Supra* note 14, at 183.

must be built in. It was recommended that public funds be made available to defray the costs of sound proofing measures (special sound insulation, double pane windows, etc.); and Zone IV, in which housing developments may be contemplated, with the condition that hospitals, schools, churches and similar institutions not be erected near the border between Zones III and IV.<sup>21</sup>

### B. The Legislative Process.

Once the scientific study was completed it remained to be seen which groups would press for political realization of the recommendations and how (or indeed if) such realization would be accomplished. Instrumental in taking up the cudgel was the Interparlamentarische Arbeitsgemeinschaft (Interparliamentary Working Center), a non-partisan organization composed of parliamentarians from both the federal and state legislatures. Members of this group developed a draft law and introduced it as a bill in the Bundestag (the first chamber of parliament),<sup>22</sup> on 2 March 1966.<sup>23</sup> This bill was already the result of extensive preparation and compromise.<sup>24</sup> The difference between this bill and the recommendations of the study commissioned by the Ministry of Health is already indicative of the major issues at stake, while the similarities point to major areas of agreement.

21. *Id.* at 193. The study group's calculation of  $\bar{Q}$  was based on  $Q$  (the maximum noise emission) being determined in terms of the Perceived Noise Level, a measurement which takes into account the effect of varying frequencies on the listener. This system of measurement was developed in the United States especially for the measurement of noise effects around airports. See K. Kyter and K. Pearsons, *Some Effects of Spectral Content and Duration on Perceived Noise Level*, J. Acoustics Soc. Am. 866 (1963) and International Organization for Standardization, *Draft Secretariat Proposal for a Procedure for Describing Aircraft Noise Around an Airport*, I50/TC 43 (Secretariat-226) 350E, (1964). Using this measurement Zone I was set as  $\bar{Q}$  greater than 82, Zone II between 77 and 82, Zone III between 72 and 77, and Zone IV less than 72.

22. The Bundestag members are chosen through direct popular elections while the members of the Bundesrat, the second chamber of parliament, are appointed cabinet ministers of the Laender (states). See Plischke, *Contemporary Government of Germany* 67 *et seq.* (1961).

23. Drucksache V/355, Deutscher Bundestag, 5. Wahlperiode, 2 March 1966, Entwurf eines Gesetzes zum Schutz gegen Fluglaerm in der Umgebung von Flughaefen (Draft of a Law for Protection Against Aircraft Noise in the Vicinity of Airports).

24. An important early compromise concerned the treatment of military airfields and whether they would also be covered by the law. It was decided that military airfields should also be subject to noise abatement regulations but that because they were qualitatively different from commercial airports, separate regulations should be promulgated. Thus a separate motion was introduced into the Bundestag recommending that the Government be tasked with the preparation of a suitable regulation, based along the lines of the legislation introduced for commercial airports. Drucksache V/356 (neu), Deutscher Bundestag, 5. Wahlperiode, Mar. 2, 1966, Antrag betreffend Laerm an Militaerflugplaetzen (Motion Concerning Aircraft Noise at Military Airfields).

The bill was based in the *Begründung* (explanatory note to a bill)<sup>25</sup> on the proposition that persons living in the vicinity of airports incur injury to their health and well-being and that the best way to solve this problem is through the voluntary resettlement of those persons to other areas and the prevention of further encroachment of residential areas on airports, for which existing legal provisions were not adequate.<sup>26</sup> The bill was also based on the zoning concept of the study described in Section A above and contemplated the creation of three zones,<sup>27</sup> from which certain legal consequences flow, whether or not the land in the zones is built up or vacant. For vacant properties, in Zones 1 to 3, construction of hospitals, schools, old peoples' and convalescent homes was to be prohibited; in Zones 1 and 2 construction of residential buildings was to be prohibited; in Zone 3, residential buildings may be constructed only if sound insulating measures are built in. To the extent that

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25. Under German parliamentary procedure bills introduced into the parliamentary bodies (Bundestag and Bundesrat) are in general accompanied by an explanatory note to the bill, called the *Begründung*.

26. Some of these deficiencies were discussed in the Bundestag Committee on Health Matters on June 22, 1966. 12 Sitzung des Ausschusses fuer Gesundheitswesen, Deutscher Bundestag, 5 Wahlperiode, June 22, 1966. Pursuant to § 3 of the Commercial Air Traffic Licensing Ordinance, before an aircraft is licensed it must be shown that according to the state of aeronautical science the noise generated by the aircraft does not exceed an avoidable measure. *Luftverkehrszulassungsordnung* (LVZO) Nov. 28, 1968, BGBl I 1264. However, it was explained that technical difficulties limited possibilities for noise abatement in this area. Additionally, it was mentioned that international agreements required that aircraft entering the Federal Republic be recognized without regard to noise protection. According to § 40 of the LVZO, prior to the licensing of an airport a medical and technical expert opinion is required to be made on the extent of the noise which may be expected and what its effects on the surrounding inhabitants will be. The license can be made conditional on noise abatement measures; however, it was explained that this provision is not applicable to existing airports. According to § 1 of the Air Traffic Ordinance, the noise caused by operation of aircraft may not be greater than that which is unavoidable due to prescribed operating procedures. This provision, however, was described as having limited application because of the priority given to necessary flight safety procedures. *Luftverkehrsordnung*, Nov. 14, 1969, BGBl 2118, § 12 of the Air Transport Law provides for the establishment of restricted areas around airports in order to guarantee the safety of air traffic and for the protection of the public. This provision was not seen as being an effective measure for noise abatement since the area of noise disturbance is generally much greater than that contemplated for inclusion in the restricted area. *Luftverkehrsgesetz*, Nov. 4, 1968, BGBl I 1114. The most effective measure for protection of the public against aircraft noise was seen as land-use planning, for which a certain basis already existed in the *Bundesbaugesetz* (Federal Building Law), June 23, 1960, BGBl I 341; as amended Mar. 21, 1961, BGBl I 241; May 24, 1968, BGBl I 503; June 23, 1970, BGBl I 805. Nevertheless, since experience had shown that residential areas increasingly encroached on airports in spite of the noise, this law also was described as inadequate in practice. The main reason for this was that the law imposes no encompassing obligation on local community governments to establish land-use plans and that many communities made no resort to such plans even if adopted.

27. The three zone proposal is actually the same as the four zone proposal of the Health Ministry's study group, *see* text surrounding note 20, since the study group classified everything outside of Zones I, II and III as Zone IV.

these prohibitions constitute an expropriation of building rights,<sup>28</sup> compensation was to be paid or the owner could demand that his property be purchased by the Flughafenunternehmer (airport operator) within ten years after establishment of the planning zones. For properties on which structures of the type listed above were already located, the same types of restrictions were to apply and would give rise to certain claims. Owners of residential structures in Zone 1 would be entitled to demand that the airport operator purchase their property within ten years and to compensation for any deprivation of use caused in the intervening period; persons residing as tenants in Zones 1 and 2 would be entitled to contributions towards increased rental expenses caused by their relocation to areas outside the zones; persons residing in Zone 3 would be entitled to reimbursement for expenses caused by installation of the necessary sound insulation measures. Once a living accommodation was vacated by relocation, either voluntarily (in which case the owner was entitled to compensation for lost rent up to the time of purchase of his property) or through compulsory extinguishment of lease contracts on properties purchased by the airport operator (fixed in the bill in all cases as three years after date of purchase), such properties could not be used again for purposes restricted by the bill.

Early draft versions of the bill included a provision which specifically set out the formula to be used for the calculation of the noise disturbance index ( $\bar{Q}$ ). However, a number of drafters of the bill believed that in the interest of ease of understanding it should be kept as uncomplicated as possible and recommended that the exact formula be left to an implementing regulation.<sup>29</sup> The formula for calculation of the noise disturbance index was therefore not set out in the bill. Rather, it was provided in general terms that the three planning zones were to be established by determining the noise

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28. Under German law no one has the categorical right to use real property for construction purposes. This is the so-called principle of "social bounding of property" (*soziale Bindung des Eigentums*) which finds a constitutional basis in Art. 14(2) of the Basic Law, *supra* note 5. Real property, including that located in rural or farm areas, may be used for construction purposes only if a *Bauerlaubnis* (building permit) has been granted. Generally, a building permit may be granted only if the land in question is in an area designated as *Bauland* (building land), where construction is permissible. In the public interest, especially the interest of land-use planning and urban development, it is within the discretion of the authorities to refuse to issue such permit. Consequently, a restriction on construction constitutes a compensable expropriation only where a building permit has been granted, where existing land-use plans may give claim to issuance of a construction permit, or where the property in question reasonably can be said to be in the path of construction development and that this expectation is viewed as an economic condition of the property.

29. To a certain extent such flexibility in a law conflicts with the dictates of § 80 of the Basic Law for specificity, which was adopted therein as a guard against the vague types of laws which contributed to the Nazi rise to power and subsequent dictatorship.

disturbance on the basis of the *average noise level*, measured in decibels (dB(A) scale) over a 14 hour period. The specific formula for calculation of the noise disturbance index ( $\bar{Q}$ ) was made a matter for regulation of the Ministry of Health, upon approval of the Bundesrat. However, it was envisioned in the Begründung that the formula to be provided for by regulation would be based on that recommended in the report of the Ministry's study group. While the bill left the details of the means of calculation of the noise disturbance index ( $\bar{Q}$ ) to regulations, it did specify, in the interest of some specificity, the limits of the three planning zones, in terms of the *noise level*  $Q$ —Zone I,  $Q$  greater than 72 decibels; Zone II,  $Q$  between 67 and 72 decibels; Zone III,  $Q$  between 62 and 67 decibels.<sup>30</sup> This attempt to simplify the bill led to certain inconsistencies in the establishment of the planning zones<sup>31</sup> and also to certain constitutional problems,<sup>32</sup> which were resolved by subsequent reincorporation of the formula into the bill.

As could be expected, the most controversial portions of the bill were those relating to financial costs. An early draft version envisioned that the airport operator would be responsible for compensation for restriction of building rights, for expenses caused by compulsory purchase of properties where demanded by the owner for compensation for restrictions on use. Compensation for sound insulating measures and rental increases was to be shared by the Länder (states) and the Bund (Federal Government). Insofar as affected properties were owned by local governmental units, it was

30. The difference in the numerical values set for zone boundary delineation in the bill (numerically ten less than those recommended by the study group) results from the measurement of  $Q$ , the maximum noise emission, in decibels rather than with reference to the Perceived Noise Level standard used by the study group. The difference does not necessarily indicate that the bill adopted a stronger position than the study group; however, measurement of  $Q$  in terms of decibels did delete from consideration the effects on noise disturbance of varying frequencies, which was included in the study group's formula by adoption of the Perceived Noise Level standards. See *supra* note 20. By way of comparison it is interesting to note that the permissible noise emission in industrial areas is 65 decibels and that the Verein Deutscher Ingenieure (German Engineers Association) has recommended 70 decibels as the maximum continuous noise level for eight hours office work and 50 decibels for work demanding continuous intensive mental activity.

31. While it was stated in the bill that the noise disturbance was to be determinative for the establishment of the planning zones, and was to be calculated on the basis of the *average noise level*, the limits of the zones were fixed in terms of the *noise level* in decibels. This resulted in problems because of the internal inconsistency and because the use of the noise level, or even the average noise level, for establishment of planning zones lacked the precise scientific basis of the noise disturbance index formula proposed by the study group.

32. See *supra* note 28. The constitutional problems were not overcome by the inclusion in the bill of the noise level boundaries set for establishment of the planning zones since the geographical boundaries of the zones (which in the practical sense are the important boundaries) could vary greatly depending on the formula adopted in the implementing regulations and how *all* the variables are treated in that formula.

not envisioned that compensation be paid. Of course, whether such a law was politically and economically feasible depended on resultant costs. Estimates of the Interparliamentary Working Center in 1965 indicated that for the eleven major commercial airports, compensation for restrictions on building rights would amount to DM 20 million; for purchase of properties and restrictions on use, DM 420 million; for sound insulating measures, DM 31.5 million; and for rental subsidies, DM 6.5 million. By the time the bill was introduced into the Bundestag one significant change had been made. The drafters decided that responsibility for compensation should be based on the *Verursachungsprinzip* (causal principle),<sup>33</sup> pursuant to which the airport operator, who was determined to be responsible for creating the noise disturbance, was therefore also deemed responsible for financial obligations resulting from the operation of the airport. The bill thus shifted all financial obligations resulting from the operation of the airport to the airport operator.

The fight over who should be responsible to pay compensation and how much should be paid, or could be paid, had thus begun. The *Begründung* to the bill stated that a compromise must be found which brings the "gesundheitsspolitische Erwünschte" (public health goals) in conformance with financial capabilities. Of course, the necessary expenditures would be directly related to the manner in which the planning zones were determined, thus giving rise to more than mere scientific controversy over the methodology employed. Early estimates of the costs which would result from passage of the bill varied greatly depending on the interests of those making the estimate. The drafters of the bill estimated DM 478 million, the Ministry of Health estimated DM 1 billion, while the Airport Operators' Association spoke of over DM 2 billion.<sup>34</sup>

33. This principle, simply stated, is the basic principle of law which holds that the person causing damage is responsible to pay compensation to the damaged person. In the environmental field, however, it is not always easy to determine who is primarily responsible for causing damage. The airport operators argued that even under this concept the airlines were responsible for causing the noise which in turn caused the damage, if any. The drafters of the bill, however, felt that it was the airport operators who caused the damage to the surrounding inhabitants since it was the airport which attracted the aircraft in the first place. The airport operators also argued that under German law it is the "Begünstigter" (person favored by an action) who is responsible for payment of compensation and that it has been determined that in the case of expropriations a private legal person cannot be held responsible for payment of compensation, even if benefits flow to such person as a result of the act of expropriation, but rather, that the "Begünstigter," as an entity responsible for compensation, could only be the state. See Judgment of July 4, 1963, 40 BGHZ 49. This concept is not so clear as it first appears when applied to the subject of aircraft noise in Germany since the major commercial airports, while technically constituting private corporations, are mainly owned by cities and states (Länder) with some participation by the Federal Government. See *infra* note 36 and surrounding text.

34. *Die Welt*, Apr. 14, 1966, at 6.

Faced with even the expense approximating the low estimate of DM 478 million, it could be expected that the airport operators would react strongly—and they did. In June 1966 the Arbeitsgemeinschaft Deutscher Verkehrsflughäfen (Working Group of German Commercial Airports) released a study it commissioned regarding the constitutionality of the bill.<sup>35</sup> This study concluded that reliable methods of measurement of aircraft noise and its disturbance effect did not yet exist, that the proposed legislation placed on the airport operators five new financial obligations having no precedent in law, that there was no legal reason or constitutional dictate to place this responsibility on the airport operators, that the minimum estimate of compensation to be paid would cause the airport operators to go bankrupt, that for this reason the provisions of the Basic Law guaranteeing the right of property would be violated,<sup>36</sup> that in view of the fact that international organizations were still in the process of developing standards it would be questionable to adopt legislation in the Federal Republic, and that it was not justified to leave out of consideration persons surrounding military airfields.

The political battle which was to ensue defied description in classical terms of political clashes of the left against the right, liberals against conservatives or public interests against private interests. The complex interrelationships of the varying interests threatened by the pending legislation resulted in coalitions being formed which in their composition surprised even the participants. This was partially due to the fact that the major German commercial airports are owned mainly by the cities and the Laender (states) serviced by the airports, with some participation by the Federal Government,<sup>37</sup> and that these public governmental bodies proceeded to act like private

35. G. Rinck, *Schutz gegen Fluglärm in der Umgebung von Flughäfen: Rechtsgutachten ueber die Verfassungsmaessigkeit eines Gesetzentwurfs* (Protection Against Aircraft Noise in the Vicinity of Airports: Legal Opinion on the Constitutionality of a Draft Law) (1966).

36. Art. 14 of the Basic Law provides that "property and the right of inheritance are guaranteed." This provision was interpreted to be applicable to public corporations, such as airport operators, see *supra* note 32, on the basis of decisions of the German Constitutional Court. See Judgment of July 24, 1962, 14 BVerfGE 221. It was not argued that the mere imposition of financial burdens constituted an unconstitutional act since the Constitutional Court had ruled in several cases that Art. 14 of the Basic Law is not violated by the imposition by law of financial obligations which do not affect the basic financial conditions of a person or corporation. See Judgment of July 20, 1954, 4 BVerfGE 7. Rather it was argued that the potential costs of compensation so far exceeded the financial resources of the airport operators so as to constitute an effective bankruptcy and extinguishment of the economic existence of the airport operators. See Judgment of July 24, 1962, 14 BVerfGE 221 at 241.

37. See Rinck, *supra* note 34, at 10 for a complete listing. Such listing is also obtainable in Drucksache 409 of the Interparlamentarische Arbeitsgemeinschaft, Jan. 14, 1966.

interests where their airport properties were concerned. This could have been expected, however, since under the bill these governmental units constituted the "airport operators" and therefore faced ultimate financial responsibility. In such a situation partisan politics were discarded and affected city and state governments of opposing party affiliations joined forces in opposing the bill. Nor was the ensuing debate always on the highest level. The mayor of one large city described the bill as "completely without thought" and an official of the Working Group of German Commercial Airports remarked that the bill was "uniquely absurd."<sup>38</sup> As could be expected, there were also differences of opinion in the Federal Government. While the Ministry of Health was pushing the bill, the Ministry of Transport, with its obvious interest in promoting air transportation, resisted passage. In the background the Ministry of Finance was keeping a mindful eye on the possible impact on the federal budget.

Initial opposition centered within the Ministry of Transport, and specifically the Minister's Advisory Council on Air Transportation (*Luftfahrtbeirat*), in which the airport operators, and consequently those city and state governments with airport ownership interests, were heavily represented.<sup>39</sup> The Council, in which Ministry of Transport officials also participated, was, of course, mainly interested in the promotion of air transportation. At a meeting of the Council held on 1 July 1966 one speaker regretted the obstinancy to increased development of air traffic which existed in the Federal Government, an oblique reference to the Ministry of Health. The Council was also not above sarcasm in its deliberations as a second speaker, in another oblique reference to the Minister of Health, who was a woman, stated that "the problem of noise abatement around airports was a 'Maennersache' (a matter for men only)" since it "could not be rightly evaluated by the female side." The Council's Committee on Air Law (*Luftrecht*) recommended in its report, which the Council approved and adopted as its own, that because of the legal objections to the bill the Minister of Transport should use his influence to have the bill defeated. Most remarkable among this Committee's conclusions was that the freedom of the air space must be guaranteed and that in this interest the general public must accept unavoidable noise when it is annoying or even injurious to health. The Committee on Aircraft Noise (*Fluglaerm*), which had been expanded to include four of the scientists who authored the original study on which the bill was based, recommended that the Minister of Transport raise the Committee's objections to the bill in the further

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38. *Frankfurter Allgemeine Zeitung*, Oct. 20, 1966, at 15.

39. *Frankfurter Allgemeine Zeitung*, June 28, 1967, at 7.



legislative deliberations. The Committee objected to the bill's emphasis on land-use planning measures, the resultant cost of those measures which were estimated at more than 2 billion Marks, the lack of emphasis on aircraft and airport operation noise abatement measures and the lack of scientific basis and international recognition of the criteria and formula employed for establishment of the noise protection zones. That these recommendations were amenable to the Council can be seen from the Chairman's statement that noise effects must be clearly defined as, for example, in the case of lead poisoning, that efforts against noise production are more important than protection against noise and that at any rate as a protection against undesirable noise effects ear muffs could always be employed.

Perhaps of greatest concern to the Ministry of Transport was the possible effect which passage of the bill, especially the provisions relating to compensation, could have on other forms of transport and traffic. The question of noise abatement had also come up for discussion in the Bundestag Committee for Community Policy, Land-Use Planning and Housing where it was suggested that noise abatement legislation should not be limited to airports but rather should also encompass other noise emissions, especially those from motor vehicle traffic. It was thus suggested by this committee that a comprehensive noise abatement law was needed.<sup>40</sup> The Ministry of Transport was concerned that the airport noise abatement bill would constitute a precedent which could be carried over into other areas, especially motor vehicle traffic. This was especially true, the Ministry maintained, since measurements had shown that motor vehicle noise in large cities was within the same range as that deemed to be deserving of protection in the airport noise abatement bill. A law relating to motor vehicle traffic with the same provisions as those in the airport noise abatement bill, in the view of the Ministry of Transport, would require the expenditure of billions of Marks and constitute a severe burden on transportation.

All of these concerns were brought up in the subsequent hearings of the Bundestag Committee on Health Matters, in which much time was spent estimating costs under the bill. It eventually became clear that not all land-use planning principles of the bill could be realized financially since the cost estimates ranged between 400 million and 2 billion Marks for civilian airports and upwards of 10 billion Marks if

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40. Such suggestion was rejected by the drafters of the bill as not possible because of many technical legal difficulties. See Schmidt, *Stand der gesetzlichen Massnahmen zum Schutz vor Fluglaerm* (Status of the Legal Measures for Protection against Aircraft Noise), Kampf dem Laerm (1969).

military airfields were considered. The original conception of the bill, which was to stimulate a voluntary resettlement away from airport areas by providing compensation had to be abandoned<sup>41</sup> in favor of one emphasizing protection from aircraft noise. Modifications to the bill thus were proposed in committee which would reduce costs; at the same time a second chapter was included in the bill which related to aircraft and airport operation noise abatement (so-called "active measures" as opposed to the "passive measures" of land-use planning).<sup>42</sup> The new land-use planning concept envisioned two zones instead of three, as well as an increase in noise levels establishing the zones. In both zones it was still contemplated to prohibit the construction of schools, hospitals, convalescent homes and similar institutions. In Zone I (noise level greater 70 decibels) construction of residential dwellings was to be prohibited except where a construction permit had already been issued. In Zone II (noise level between 65 and 70 decibels) construction of residential dwellings would be permitted as long as sound insulation measures were built in which met standards the Federal Government would be empowered in the bill to promulgate. Owners of existing residential dwellings in Zone I would be permitted to continue the present use of the property and would be entitled to reimbursement for expenses in the installation of noise insulation measures while owners in Zone II would not be entitled to such compensation. Compensation for expropriation of building rights and for installation of noise insulation measures qualifying for reimbursement would be borne by the airport operators.<sup>43</sup> Finally, in the interest of equal treatment of persons residing in the vicinity of military airfields, it was recommended that military airfields serving jet aircraft be included under the bill.<sup>44</sup> Since the purpose of the bill was no longer to stimulate a

41. An additional consideration was that the resettlement concept of the original bill would have endangered the financial existence of many local communities. Drucksache V/4427, Deutscher Bundestag, 5 Wahlperiode, June 19, 1969, Schriftlicher Bericht des Ausschusses fuer Gesundheitswesen ueber den Entwurf eines Gesetzes zum Schutz gegen Fluglaerm in der Umgebung von Flughaeften.

42. Interparlamentarische Arbeitsgemeinschaft, Drucksache 467, Nov. 29, 1967. The measures recommended for aircraft and airport operation noise abatement were essentially those suggested by the Ministry of Health's expert study group. See also Schmidt, *supra* note 39, at 114.

43. On the basis of data supplied by the airport operators it was estimated by the various ministries that for civilian airports compensation arising from Zone I under this new concept would amount to 410 million Marks. Compensation arising from Zone II was estimated to amount to only a few million Marks. Frankfurter Allgemeine Zeitung, June 31, 1968, at 8.

44. Frankfurter Allgemeine Zeitung, June 28, 1967, at 7. Opponents of the bill had raised from the very first the constitutional objection that the exclusion of military airfields violated the principle of equality (Gleichheitsprinzip) of Art. 3 of the Basic Law. See Rinck, *supra* note 34, at 19. They argued that derogation from this principle was not justified merely because the Federal Government would be responsible for payment of compensation

voluntary resettlement away from airports, existing residential buildings were no longer affected and the provisions of the original bill relating to compulsory property purchases, property use restrictions (and compensation therefore) and compensation for increased rental expenses were deleted. The changes in the bill were especially disappointing to the many citizens' action groups which had been actively campaigning for its passage.

The above amendments were incorporated into a new draft which was introduced into the Committee on Health Matters in June 1968.<sup>45</sup> While it was recognized that the original concept of the bill and its protective measures had been diluted, it was thought that the reduction of potential costs would make passage possible.<sup>46</sup> However, opposition from a new quarter soon arose. The Ministry of Finance saw in the bill a danger to the Government's long-range financial planning as well as to the federal budget and feared that through court decisions and political pressure the noise protection and compensation principles of the bill would be extended to other areas, especially motor vehicle noise, for which the Federal Government could not accept financial responsibility. The preliminary position of the Federal Government partially reflected the Finance Ministry's budget concerns and concluded that the prospective costs arising from the original resettlement concept of the bill would not permit realization of its total concept but that certain measures could be realized, particularly aircraft and airport operation noise abatement measures and even a limited construction prohibition and program for contributions for installation of sound insulation. The Government's position was considered and the areas in the planning zones reduced by raising the boundary of Zone I to 75 decibels and Zone II to 67 decibels.<sup>47</sup> The Bundestag Committees on Health

resulting from operation of the military airfields and that this potential financial cost would severely burden the Federal Government's budget. Of course, opponents of the bill recognized that if military airfields were included, the potential burden on the federal budget, which the Government estimated to be 8 billion Marks under the original concept of the bill, would force the Government to oppose enactment of the bill in its original form.

45. Drucksache 119 des Bundestagsausschusses fuer Gesundheitswesen, June 27, 1968.

46. Frankfurter Allgemeine Zeitung, June 31, 1968, at 8.

47. Objections concerning the criteria and means used to establish the planning zones by this time already had been considered and the formula for calculation and establishment of the zones made an integral part of the bill instead of being left to regulations. See text surrounding note 28. The bill now provided that the zones would be established on the basis of the "equivalent continuous noise level" (aequivalente Dauerschallpegel) measured in decibels calculated according to the formula

$$L_{eq} = 13.3 \lg \sum_i g_i \frac{L_i}{T} 10^{13.3}$$

where  $L_i$  is the maximum noise emission for each individual passing flight (i),  $g_i$  is a set

Matters, Transport, Defense and the Committee on Community Planning, Land-Use Planning, City Planning and Housing approved the new draft of the bill. It was then sent to the Budget Committee of the Bundestag where it was suggested that compensation be payable only to owners whose properties were acquired prior to January 1, 1961.<sup>48</sup> This suggestion was also adopted by the Committee on Health Matters, although considerable objections were raised on public health, constitutional and policy grounds. Nevertheless, in order not to endanger the chances of success, the committee approved and introduced into the Bundestag on 19 June 1969 the Committee's Report on the original bill plus a new bill which incorporated all prior agreed upon suggestions.

In the Health Committee's Report to the Bundestag, which accompanied the bill, special care was taken to allay certain reservations which some members may have had.<sup>49</sup> First, the Committee Report pointed out that most technical experts were skeptical that technological means would be available in the foreseeable future to reduce jet engine noise. The only possibility seen in this area in view of increases in air traffic was to hold the aircraft noise situation at its present level. It was pointed out, however, that the bill's provisions on aircraft and airport operation noise abatement required that all available technical means for reducing noise production and its effects be employed. Criticism on this basis thus was diffused. Secondly, the prospective costs of the bill had been reduced so that even the study group on German Commercial Airports estimated the cost for civilian airports to be only 32 million Marks; the cost for military airfields was estimated by the Defense Ministry to range between 117 and 150 million Marks. These costs were not considered to present a financial danger to either the airport operators or the Federal Government, especially since they would be spread out over a number of years. Thirdly, efforts were made to dispel the notion

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factor for day or night flights,  $t_i$  is the length of the noise disturbance, and  $T$  is the time of reference. Each of these factors is in turn determined according to specific procedures set out in the bill and is the same as those in the final legislation, the translation of which is contained in Annex A to this article.

48. The purpose of such a limitation once again, would be to reduce prospective costs and also to not reward those persons who had purchased residential properties in areas they knew, or reasonably could have expected to know, would be affected by aircraft noise. Additionally, the provision was proposed since there was considerable belief that starting in 1961 speculators had purchased properties in the vicinity of airports with the thought of later pressing for noise abatement or land-use legislation, which would then cause property values to rise and unjustly reward the speculators. See *Informationen der Sozialdemokratischen Fraktion im Deutschen Bundestag*, June 13, 1969.

49. Drucksache V/4427, Deutscher Bundestag, 5. Wahlperiode, June 19, 1969, *Schriftlicher Bericht des Ausschusses fuer Gesundheitswesen ueber den Entwurf eines Gesetzes zum Schutz gegen Fluglaerm in der Umgebung von Flughaeften*.

that such a law would constitute a precedent for other forms of traffic and transport.<sup>50</sup> Lastly, the Report expressed the Committee's conclusion that it was not necessary to await an international agreement on aircraft noise protection since even at the London Conference on Aircraft Noise in 1966 it was concluded that the establishment of noise protection zones was a matter for individual states because of the dependence of the zones on each state's zoning and land development structure and policy.<sup>51</sup> After only a minimal amount of debate on the floor of the Bundestag the bill was approved on 26 June 1969.

In accordance with German parliamentary procedure, the bill was then sent to the Bundesrat for its consideration and approval. It should be recalled that Bundesrat members are appointed cabinet members of the Laender (state) governments and that in many cases these governments shared extensively in the ownership of the airports and viewed certain aspects of the bill with hostility. The airport operators, however, were not the only group which voiced opposition at this time. They received support from the Deutsche Forschungsgemeinschaft (German Research Association) a powerful and influential scientific establishment, which felt that it had to object in principle because it had not been consulted concerning the scientific and technical aspects of the bill.<sup>52</sup> The Institute stated that it had created a Commission in 1962 to study the effects of noise, that these studies were continuing and had already yielded certain results, and that in spite of the knowledge of the Ministry of Health of the studies, the Commission had not been consulted.<sup>53</sup> Opponents of the bill saw in this an opportunity to criticize the alleged

50. The Report argued that the bill was specifically and clearly limited to airports and aircraft noise, that only on streets with the highest traffic density could an equivalent continuous noise level be reached approaching the 75 decibels specified for Zone I, that certain measures are available to combat street noise (for example, placement of rooms) that are not effective against aircraft noise and that possibilities for reduction of the noise produced by motor vehicles is much greater than for aircraft.

51. The Committee gathered further support for its position from the fact that its proposed bill corresponded in essential parts with recommendations for noise abatement approved by the Social Committee of the European Council in September 1968. While the Committee decided that the establishment of planning zones around airports was not a matter requiring international agreement, it recognized that the matter of highest permissible aircraft noise production may be suitable for international regulation and attached to the bill a motion for approval by the Bundestag requesting the Government to commence negotiations on the subject. Of course, as opposed to the matter of planning zones, since the Federal Republic does not manufacture commercial jet passenger aircraft, the only way for the Federal Republic to combat aircraft noise production at its source (other than banning aircraft from its territory) would be to seek international regulation.

52. *Die Welt*, June 28, 1969, at 4.

53. This statement of the situation, which was reported in *Die Welt*, *supra* note 51, was disputed by the proponents of the bill in a letter to the editors of *Die Welt*, July 10, 1969, page 16.

lack of cooperation between science and politics and to recommend that enactment of legislation be postponed pending further coordination and consultation with the scientific community. The Finance Committee of the Bundesrat adopted this line of reasoning, characterizing the bill as premature, and recommended that it not be approved.<sup>54</sup> The Bundesrat Committee on Health Matters contested that position and recommended approval. Other Committees (Legal, Transport and Posts, and Reconstruction and Housing) proposed certain changes and recommended that in accordance with Article 77 of the Basic Law the Bundestag/Bundesrat Conference Committee be called in order to negotiate a compromise bill.<sup>55</sup> This suggestion was approved by the Bundesrat on July 10, 1969, and the Conference Committee met shortly thereafter. The results constituted a defeat for supporters of the bill. Strong interests in the Federal Government and in those Laender (states) participating in airport ownership exerted considerable influence against the bill. Aside from the financial questions relating to airports, many Bundesrat members were still concerned that the bill would constitute a precedent for other forms of traffic, especially motor vehicle traffic. The Conference Committee struck the provisions relating to reimbursement for installation of sound insulation, thereby further reducing the bill, as described by one of its supporters, from one providing for noise protection to a zoning law providing for limited construction prohibitions on properties lying in the immediate vicinity of airports.<sup>56</sup>

Before the recommendations of the Conference Committee could be acted upon, however, the legislative period expired. In order for the bill to be considered in the next period, it was necessary to start once again at the beginning. In effect, this turned out to be advantageous to the supporters of the bill since a change of government had occurred, which was more favorable to such legislation. There was also a sudden surge in public awareness in the environmental area

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54. *Die Welt*, July 10, 1969, at 16. See also Bundesrat Drucksache 407/1/69, July 4, 1969.

55. Under German procedure if the Bundesrat does not approve a bill as passed by the Bundestag it can refer the matter to the Conference Committee (Vermittlungsausschuss), composed of eleven members from each of the Bundestag and Bundesrat. The members are not bound by instructions from either house and in a true sense negotiate. If the Conference Committee adopts changes, they must be approved by both Houses before becoming law. See *Facts About Germany*, *supra* note 2, at 59 and Plischke, *supra* note 21, at 84.

56. *Frankfurter Allgemeine Zeitung*, July 17, 1969, at 5. This statement was criticized as being exaggerated since the bill approved by the Conference Committee still contained the provisions relating to compensation for building restrictions, to authorization of the Government to prescribe regulations for installation of sound measures in buildings to be erected in Zone II, and to the active measures of aircraft and airport noise abatement. *Die Welt*, July 19, 1969, at 9.

which had its effect on the legislators and by the time the legislature convened again pressure for the bill was so great that both the coalition-majority party as well as the minority party introduced airport noise abatement bills into the Bundestag almost immediately.<sup>57</sup> The former corresponded to the version approved by the Bundestag in the prior legislative period while the latter corresponded to the version recommended by the Conference Committee. Both bills were referred to the Interior Committee, which reflected that under the new government environmental problems had become a responsibility of the Ministry of Interior,<sup>58</sup> as well as to several other committees for advice and consultation. The latter committees recommended that the provisions pertaining to reimbursement of sound insulation measures for persons in Zone I be retained, that the Federal Government be empowered to set maximum amounts for such reimbursement on the basis of developing economic conditions, that no cut-off date be set for property owners qualifying for reimbursement,<sup>59</sup> and that the noise protection zones be established on the basis of the future maximum capacity of the airport rather than its present actual use.

The Interior Committee adopted these suggestions in principle but recognized that even with these improvements the bill did not constitute a comprehensive solution. The Committee realized, however, that such a solution would present a number of difficult technical, legal and financial questions which would postpone considerably the passage of the bill.<sup>60</sup> In view of this situation, as

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57. Drucksache VI/4, Deutscher Bundestag, 6. Wahlperiode, Oct. 21, 1969, and Drucksache VI/7, Deutscher Bundestag, 6. Wahlperiode Oct. 21, 1969.

58. Under the new Government, the Ministry of Interior was competent for matters pertaining to protection from emissions (Immissionsschutz), including noise, air and water pollution. Thus, in the bill eventually approved by the Interior Committee, responsibility for determination of the noise protection zones was shifted from the Ministries of Transport and Defense, for civilian and military airports respectively, acting in consultation with the Ministry of Health, to the Ministry of the Interior, acting in consultation with the Ministries of Transport and Defense for civilian and military airports respectively, with approval of the Bundesrat. Drucksache VI/1377, Deutscher Bundestag, 6. Wahlperiode, Nov. 12, 1970, Schriftlicher Bericht des Innenausschusses ueber eines Gesetzes zum Schutz gegen Fluglaerm in der Umgebung von Flughafen.

59. This restriction was deleted, besides possible constitutional reservations, mainly on the basis that in most cases the person disadvantaged by such a restriction would be not the property owners, who often reside away from the airport, but rather their tenants. *Id.*

60. During the hearings before all concerned committees certain cities and states with airport interests continued to stubbornly fight the bill. One large city still pressed the position that noise protection zones should be established on the basis of the highest noise level instead of the equivalent continuous noise level (thereby negating the effect of the frequency of noise disturbances) and that the Zone I border should be raised from 75 to 85 decibels. This position fell on more receptive ears in the Bundesrat. See text surrounding note 63. One state also argued that the airport operators should not carry the financial responsibility, but rather the airlines, taking into consideration the noise level produced by

well as of the pressing urgency of the problem, the Committee decided to approve the bill with some minor changes, especially since the constantly increasing encroachment of residential areas on airports was becoming more acute. The Committee's own changes, while minor, also contributed to a more effective bill. It refined the suggestion that the noise protection zones be established on the basis of the maximum capacity of the airport and suggested that the zones be established on the basis of the type and extent of aircraft operation which is contemplated after ten years, taking into consideration any probable expansion of the airport.<sup>61</sup> Secondly, it recommended that the zones be established anew when the equivalent continuous noise level at the outer border of the noise protection zone increased more than 4 decibels and that after five years at the latest from the date of establishment of the zones, an examination be conducted to determine whether the noise disturbance had changed essentially or would change essentially within the next ten years.<sup>62</sup> The bill, encompassing the above recommendations, was brought out of the Committee and submitted to the Bundestag for its approval on November 13, 1970<sup>63</sup> and was approved on December 16, 1970.

The bill was then transmitted to the Bundesrat, where resistance again was encountered. The Finance Committee made several recommendations, the most startling of which was that Zone I of the noise protection zones encompass the area in which the equivalent continuous noise level was above 85 decibels (an increase of 10 decibels) and that Zone II encompass the area, minus Zone I, in which a maximum noise level of 75 decibels is exceeded.<sup>64</sup> The Finance Committee was still concerned that the evaluation of noise effects on the basis of the equivalent continuous noise level would lead to the mistaken impression that the application of these legal criteria could be extended to other noise sources, which are not characterized by the special characteristics of aircraft noise.<sup>65</sup> In

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various aircraft. Innenausschussdrucksache 15, Mar. 23, 1970. This latter suggestion had been gaining support in other circles where it was argued that a system of landing and take-off fees which take into consideration the noise production of aircraft would have the effect of stimulating research and investment in quieter engines.

61. The establishment of the noise protection zones on the basis of estimated increases in air traffic in the future would result in expanded zones and therefore greater costs. On the basis of the expected growth in air traffic through 1975, costs for civilian airports were estimated at 70 million Marks, as opposed to 32 million Marks for present day estimates. See *supra* note 57.

62. *Supra* note 57.

63. *Id.*

64. Drucksache 9/1/71, Deutscher Bundesrat, 6. Wahlperiode, Jan. 15, 1971.

65. The continued concern in certain quarters over the effect that the bill might have on other forms of traffic was not without some basis. Even some supporters of the bill had to admit that street noise could reach the same levels as those fixed in the bill for the establish-



effect, this suggestion would have so reduced Zone I as to make it almost negligible and, as regards Zone II, by establishing criteria on the basis of the *noise level*, would have neglected the cumulative effect of the frequency of flights.<sup>66</sup> Fortunately, the Bundesrat elected to reject this suggestion. The Finance Committee also suggested, *inter alia*, that the cut-off date for properties qualifying for compensation for building restrictions and installation of sound insulation be reinstated, that the noise protection zones be calculated on the basis of the end capacity of the airports rather than on their foreseeable size and use after ten years,<sup>67</sup> and that responsibility for establishment of the noise protection zones also be established for airports which are in the planning stage and, where the protection of the general public is required, that other airports serving jet aircraft besides the major commercial airports and military airfields be included under the law.<sup>68</sup> These recommendations, along with several others pertaining mostly to the "active" aircraft and airport noise abatement measures of Chapter II, were adopted by the Bundesrat and once again the Conference Committee was called.<sup>69</sup> The above recommendations, with the exception of those pertaining to the cut-off date and the shift in responsibility to Laender authorities for establishing noise protection zones for civilian airports, were adopted by the Conference Committee.<sup>70</sup> This version of the bill

ment of the noise protection zones. To counteract this objection it was argued that aircraft noise was essentially different in its effect in that it penetrated from all sides, making certain protective measures ineffective, while protective measures against street noise are more effective and less costly. The question of street noise had been receiving increasing attention in Germany and certain sectors were concerned with any action which could spill over and influence decisions in the area. That there was some decision of the Bundesgerichtshof (Federal Supreme Court) that a person residing directly adjacent to a highway which was upgraded was entitled to compensation for the disturbance and inconvenience caused by the noise and dirt created as a result of the road construction. The Court decided, however, that compensation was not justified for the increase in noise, exhaust gas and dirt caused by the increased traffic on the completed highway. Judgment of Oct. 30, 1970, 54 BGHZ 385.

66. Since this recommendation would cause an increase in the area of the noise protection zones, and therefore also in the associated compensation costs, it would not be expected that it would originate from the Finance Committee. However, since it already appeared assured that the zones would be expanded periodically on the basis of increased air traffic, the Committee recommendation would avoid the eventual increased costs of including properties in the zones which were originally not affected thereby. It must also be stated that from a land-use planning standpoint, the suggestion had merit.

67. The Finance Committee attempted to justify its recommended shift for calculating Zone II on the basis of the noise level instead of the equivalent continuous noise level on the basis that medical research had shown that it was the high noise levels which were especially disturbing and that by establishing Zone II on the basis of a noise level of 85 decibels these results were taken into consideration. *Id.*

68. The Interior Committee was of the opinion that even for airports in the planning stage the necessary noise data could be estimated and that the noise protection zones could be established. *Id.*

69. Drucksache 9/71, Deutscher Bundesrat, 6. Wahlperiode, Jan. 29, 1971.

70. Drucksache VI/1832, Deutscher Bundestag, 6. Wahlperiode, Feb. 11, 1971.

was then transmitted to both the Bundestag and Bundesrat where with very little discussion or debate the bill was approved.

A translation of the text of the law is included as Annex A to this article. It has been attempted to describe the intent and meaning of the specific provisions in terms of the only available reference, that is, the legislative background and history. The short time since passage of the law has not provided significant opportunity for further comment to be made. German authorities are at work in making preparations for implementation of the law, but this will understandably take some time.

## CONCLUSION

### *A. The Legislative Process: Model for Study.*

The passage of the German Airport Noise Abatement Law can serve as one model of achieving legislative action in the environmental field, and especially as an example of how interested groups, government agencies and private persons can work together toward such goals. In the environmental field several elements appear indispensable. First, since environmental problems are largely an outgrowth of science and technology, proposals to ameliorate or combat such problems must have a firm scientific or technical basis. In the instant case, such a study was first made and then used as a basis. While controversy surrounded the study, and many criticisms were made, the study had a firm scientific basis, which while subject to attack, was also capable of a highly reasoned defense. Without the scientific study, passage of the bill would have been inconceivable.

Second, it is very important that the scientific basis be translated into legislative proposals which are capable of being understood not only by the legislators, but also by the press and the general public. There must be an amalgamation of science and politics which results in solutions which are scientifically sound, politically feasible and readily understandable by all segments of the political process.

Third, it must be realized that any proposed legislation, in order to eventually become law, must successfully compete against many other proposals for both the time and interest of the legislators. One successful method by which to accomplish this is to interest or convince a number of legislators, preferably of all parties, to adopt the cause as their own. Such a grouping, if well-organized and cohesive, can be very effective in convincing other legislators that the proposed legislation is deserving of passage. In the German case, the members of the Interparlamentarische Arbeitsgemeinschaft played the crucial role of an organized, non-partisan group of legislators

which, in addition to asserting considerable influence in the parliament, also guided the legislation through the complex process of drafting, committee hearings, negotiations and compromise.

Fourth, political and economic realities must be considered. Legislation which has as its goal the improvement of the environment will usually adversely impact on some group or interest, generally in the financial or economic sphere, as well as upon the public treasury. The costs of proposed programs must be accurately assessed, as well as the capabilities of institutions to absorb the economic and financial burdens of these programs. Of course, the maximum effective program should be the goal, but such goals are often in conflict with the capability, or willingness, of both public and private institutions to fulfill them. In the event this should be the case, it is often better to take into account political and economic realities. The proponents of the German legislation recognized these difficulties even in the *Begründung* to the bill in which it was stated that the bill attempted to balance desirable public health goals with financial capabilities. When this balance encountered severe criticism on the basis that it was too heavily weighted on the side of the public health goals, the proponents, recognizing possible defeat, compromised to the extent that the balance appeared to need adjustment.

Fifth, and closely related to the third aspect above, is the question of the fair and just distribution of the financial and economic burdens resulting from the legislation. Intermingled with this question is the objective of distributing such burdens in a manner which would encourage and stimulate eventual voluntary resolution of the problem. In the instant case, the legislature adopted the view that those causing the disturbance should pay for its amelioration. While it often may be difficult to make such a determination in the environmental field, or to assess with absolute accuracy the exact responsibility of all participants, such was not the case here. The choice was between the public treasury, the airport operators and the airlines. Burdening the public treasury for civilian airports would be unfair and would not have stimulated the airports or airlines to attack the problem. Placing the financial burden on the airport operators would encourage the airports to take measures to reduce noise production and also probably induce the airlines to take measures.

Sixth, environmental measures usually cut across many sectors of society both in a functional and operational context. Much resistance can be diffused if all these interests are given an opportunity to express their opinions and point out their particular problems. If a group or interest with particular concerns is in a position to claim

that it has not been consulted, opportunities are presented to the opposition which can be used to slow down or prevent passage. It may be recalled that such a situation arose during the legislative process described above and that it gave the opposition much fuel for fire.

Seventh, while not emphasized in this article, active and articulate citizens' interest groups are very effective in informing legislators of problems and concerns and in exerting pressure. Such groups were formed during the German legislative process and played an effective role in keeping attention drawn to the problem.

#### *B. Substantive Comments.*

The German legislation is perhaps the first of its kind to obtain legislative approval. It thus presents an example of one legislative approach to ameliorating the effects of aircraft noise in the jet age. Criticisms can be made, especially that the scope of the legislation was allowed to be watered down and the original concept of the bill, the voluntary resettlement away from airports, defeated. Additional concessions were made in the procedure established to calculate the noise protection zones, including the omission from the formula of the frequency of the noise (in terms of pitch) as a variable. However, the proponents recognized that the legislation was not a comprehensive solution but nevertheless made the reasoned judgment that a compromise law was better than no legislation. While this judgment was probably correct, a final opinion will have to await the experience gained through implementation of the law and whether supplementary or new legislation will increase the law's effect. This will take some time, especially since the process of collecting the necessary data to calculate and establish the noise protection zones is very time consuming.

Looking toward the future, it is possible, however, to make two comments. The first concerns the effect that the law may have on flights of the supersonic transport in the Federal Republic. To the extent that such aircraft produce more noise than regular jet aircraft, the noise protection zones around airports will have to be expanded. Such expansion may cause sufficient increased costs so as to make flights by supersonic aircraft uneconomical. Secondly, indications are that the airport operators, in order to raise funds to assist in payment of required compensation, will assess a charge against the airlines using the airport. By partially passing the costs on to the airlines, the airlines will also have an interest in keeping noise caused by their aircraft as low as possible so as to reduce the extent of the noise protection zones. While the law does not direct such a sharing of

costs, it envisioned that leaving the question of cost funding for resolution by the airport operators would result in a distribution of costs to all participants, thereby encouraging further voluntary noise abatement measures.

## APPENDIX

### Law on Protection Against Aircraft Noise

With the concurrence of the Bundesrat, the Bundestag has passed the following law:

#### CHAPTER ONE

##### Article 1

##### Purpose and Area of Application

In order to protect the general public against dangers, serious disadvantages, and serious disturbances, caused by aircraft noise in the vicinity of airports, noise protection zones shall be established for:

- (1) Commercial airports serving scheduled air services; and
- (2) Military airfields serving the operation of jet aircraft.

If required for the protection of the general public, noise protection zones shall also be established for other airports designed to serve the operation of jet aircraft. Noise protection zones shall likewise be established for proposed commercial airports designed to serve scheduled air operations once the authority for the construction of a commercial airport in accordance with Article 6 of the Air Transport Law (Luftverkehrsgesetz) has been issued.

##### Article 2

##### Extent of Noise Protection Zone

- (1) The noise protection zone shall comprise the area outside of the airport boundaries where the equivalent continuous noise level caused by aircraft noise exceeds 67 dB(A).
- (2) The noise protection zone shall be divided into two protection areas according to the extent of noise disturbance. Protection area I shall include the area in which the equivalent continuous noise level exceeds 75 dB(A), protection area II the remaining area of the noise zone.

##### Article 3

##### Assessment of the Noise Disturbance

The equivalent continuous noise level shall be determined in accordance with the attachment to this law. Type and extent of the foreseeable operations, based on the expected expansion of the airport, shall be taken into consideration.

##### Article 4

##### Establishment of the Noise Protection Zone

- (1) The noise protection zone shall be established by the Federal Minister for the Interior, for commercial airports in agreement with the Federal Minister for Transport, for mili-

tary airfields in agreement with the Federal Minister for Defense, through legal ordinance with the concurrence of the Bundesrat. Maps and plans forming a part of the ordinance may be deposited in archives at a public office so as to be available for public inspection. The ordinance shall refer to this procedure.

- (2) The noise protection zone shall be revised if any change in the installations or operations at the airport lead to a substantial change in the noise disturbance in the vicinity of the airport. A change in the noise disturbance in particular shall be regarded as substantial if the equivalent continuous noise level increases by more than 4 dB(A) at the outer boundary of the noise protection zone.
- (3) At the latest five years after the establishment of the noise protection zone, an examination shall be carried out to determine whether the noise disturbance has changed substantially or is likely to change substantially within the next ten years. The examination shall be repeated every five years unless special circumstances require an earlier examination.

#### Article 5

##### Construction Prohibitions

- (1) Within the noise protection zone, no hospitals, old-age homes, convalescent homes, schools and similar institutions deserving equal protection shall be built. The authority responsible pursuant to state law may permit exceptions if this is urgently required for the supply of the population with public utility installations or is otherwise in the public interest.
- (2) No housing shall be constructed in area I.
- (3) Paragraph 2 shall not apply to housing authorized pursuant to Article 34 of the Federal Building Law (*Bundesbaugesetz*) based on a construction development plan, or within a built-up area at the time of the establishment of the noise protection zone, even if the built-up area is included within the purview of a construction plan. Paragraph 2 further shall not apply to the construction of:
  1. Housing for supervisory and operating personnel of plants or public facilities as well as for the owners of such plants and their managers;
  2. Housing authorized pursuant to Article 35, paragraph 1, of the Federal Building Law in the outer area;
  3. Housing and barracks for members of the Federal Armed Forces and Forces stationed in the Federal Republic of Germany by international agreements.
- (4) Paragraph 1, sentence 1, and paragraph 2 shall not apply to construction having been approved officially prior to the establishment of the noise protection zone.

#### Article 6

##### Other Restrictions on Use for Construction Purposes

Constructions permissible under Article 5, paragraph 1, sentence 2, and paragraph 3 as well as housing in area II, may only be erected if they satisfy the requirements for sound insulation in accordance with Article 7.

#### Article 7

##### Sound Insulation

The Federal Government shall be empowered to determine by legal ordinance, with the concurrence of the Bundesrat requirements for sound insulation with due regard for the current state of sound-proofing techniques in buildings, so that construction shall be sufficient for the protection of its inhabitants against aircraft noise pursuant to Article 6.

#### Article 8

##### Compensation in Connection with Construction Prohibitions

- (1) If valid permission to set up buildings is revoked by a construction prohibition in accordance with Article 5, paragraph 1, sentence 1, or paragraph 2, and the value of the

property is thereby significantly reduced, the owner may claim reasonable pecuniary compensation. Furthermore, the owner may claim reasonable pecuniary compensation where expenses in respect of preparations for the utilization of the property were incurred by the owner on the assumption that the already granted permission would remain valid but is subsequently voided as a result of the construction prohibition.

- (2) The provisions of Article 93, paragraphs 2, 3, and 4, Article 95, paragraphs 1, 2 and 4, Articles 96, 97, 98 and 99, paragraph 1, of the Federal Building Law as well as the provisions of Articles 17, 18, paragraphs 1 and 2, sentence 1, paragraph 3 and Articles 19 to 25 of the Restricted Areas Law (*Schutzbereichsgesetz*) of December 7, 1956 (BGBl I 899), as amended by the Introductory Law to the Law Concerning Violations of Good Order (*Einfuehrungsgesetz zum Gesetz ueber Ordnungswidrigkeiten*) of 24 May 1968 (BGBl I 503) shall apply *mutatis mutandis*.

#### Article 9

##### Reimbursement of Expenditures for Structural Sound Insulation Measures

- (1) Owners of property located in area I where, upon the establishment of the noise protection zone, installations in accordance with Article 5, paragraph 1, sentence 1, or housing have been erected, or where the erection of construction is permissible in accordance with Article 5, paragraph 4, shall be reimbursed upon application for expenditures for sound-proofing measures pursuant to paragraphs 2 and 3 of Article 10. If the buildings or part of the buildings are the property of a person with a hereditary building right (*Erbbauberechtigter*) or of a house owner, he shall take the place of the owner of the property. Claims can only be made within a period of five years after the establishment of the noise protection zone. In connection with noise protection zones established in accordance with Article 1, third sentence, claims for reimbursement can be filed only from the effective date of inauguration of the airport operation.
- (1a) Expenditures for structural sound-proofing measures in connection with apartments or living quarters within the meaning of Article 3 of the Seventh Federal Rental Law (*Bundesmietengesetz*) of June 18, 1970 (BGBl I 786) shall not be reimbursable.
- (2) Expenditures for sound insulation shall only be reimbursed as far as the measures are kept within the framework of the legal ordinance issued pursuant to Article 7. Expenditures on housing shall not be refunded where they exceed the amount of DM 100 per square meter of living space. For the calculation of the living space, Articles 42 and 43 of the Ordinance on the Calculation of Housing Costs (*Verordnung ueber wohnungswirtschaftliche Berechnungen*) shall apply in its latest amended version.
- (3) The Federal Government shall be empowered to amend by legal ordinance, with the concurrence of the Bundesrat, the limit cited in paragraph 2, sentence 2, whenever the necessary expenditure for sound insulation pursuant to Article 7 has, generally speaking, increased to a substantial extent.

#### Article 10

##### Procedure for the Reimbursement of Expenditures

The authority responsible pursuant to valid state law shall, after hearing the parties concerned (debtor and recipient of payments) confirm by written notification the extent to which the expenditures may be refunded. The notification must include instructions on rights of appeal. It must be forwarded to the parties concerned.

#### Article 11

##### Information

- (1) The operator of a commercial airport shall be obliged pursuant to Article 1, paragraph 1, to supply the Federal Minister of Transport and his agencies with the required information for the determination of the equivalent continuous noise level (Article 3) and to submit related documents and plans.

- (2) The party obliged to provide information may withhold information in response to questions, where a reply would expose him or a dependent (as defined in Article 383, paragraph 1, numbers 1-3 of the Civil Code) to the danger of prosecution or to a proceeding pursuant to the Law Concerning Violations of Good Order.
- (3) The knowledge and documents obtained under the terms of paragraph 1, may not be used for internal revenue proceedings or for prosecution for tax evasion. In this context, the provisions of Articles 175, 179, 188, paragraph 1, and Article 189 of the Reich Ordinance Concerning Obligations to Furnish Assistance and Notice to Tax Authorities (Reichsabgabenordnung ueber Beistands-und Anzeigepflichten gegenueber den Finanzaemtern) is not applicable.

#### Article 12

##### Party Responsible for Payments

- (1) The operator of an airport shall be liable for payments in respect of compensation granted in pursuance of Article 8 and for the reimbursement of expenditures for sound insulation measures pursuant to Article 9.
- (2) Insofar as Forces stationed in the Federal Republic of Germany under international agreements use airports in the Federal territory and a Sending State becomes liable to effect payments in its capacity as the operator of an airfield, the Federal Republic shall take over the latter's liabilities. Legal actions in respect of the payment of compensation or reimbursement of expenditures for sound insulation measures shall be conducted by the Federal Republic of Germany in its own name on behalf of the Sending State against which the claim is directed.

#### Article 13

##### Violation of Obligation to Maintain Secrecy

- (1) Any person who, without authority, discloses classified information, in particular industrial or commercial secrets, which he has learned of in his official capacity as a member or agent of an authority executing this law, shall be punished by imprisonment of up to one year or/and a fine.
- (2) If the perpetrator acts for remuneration or with the intent of enriching either himself or a third party, or to cause damage to a third party, the penalty shall be up to two years of imprisonment; in addition a fine may be imposed. In the same way, a person shall be punished if he makes unauthorized use of classified information, in particular of industrial or commercial secrets, which he has learned of in the manner described in paragraph 1.
- (3) The offense shall only be prosecuted upon application by the injured party.

#### Article 14

##### Special Arrangements for Berlin

- (1) Articles 1 to 13 shall not be applicable to Berlin.
- (2) Berlin, by state law, may issue a legal regulation suitable to its particular circumstances, with a mutatis mutandis application of the principles laid down in Articles 1 to 13 of this Law.

### CHAPTER TWO

#### Article 15

##### Amendments to the Air Transport Law (Luftverkehrsgesetz)

The Air Transport Law in its published version of November 4, 1968 (BGB1 I 1113) shall be amended as follows:

1. In Article 6, paragraph 2, first sentence, after the words "urban development" (Staedtebaues) insert the words "as well as the protection from aircraft noise". (Transla-



tor Note: The entire first sentence now reads as follows: "Prior to issuance of the license for airport operation a special examination shall be made whether the planned measures appropriately take into consideration the requirements of land-use planning and urban development, as well as the protection from aircraft noise".)

2. Following Article 19, Article 19a shall be inserted:

"Article 19a

The operator of a commercial airport serving scheduled air transportation, within a period to be fixed by the licensing authority, shall install and operate at the airport and in its vicinity equipment for continuous registration of measurements of noise created by arriving and departing aircraft. The measurements and their evaluation shall be notified to the licensing authority and to the Commission established in accordance with Article 32b as well as to other authorities at the request of the licensing authority. In the event that there is no requirement for the acquisition and operation of equipment as outlined in sentence 1 above, the licensing authority may grant a waiver."

3. In Article 29, paragraph 1, insert following new third sentence:

"Measures for the prevention of dangers, appreciable disadvantages or appreciable disturbance due to aircraft noise or air pollution caused by aircraft in the vicinity of airports shall be effected only in consultation with the state authorities (Landes-behoerden) responsible for emission control."

4. After Article 29a, insert Article 29b:

"Article 29b

(1) Airport operators, aircraft operators and pilots shall be responsible for preventing, in connection with the operation of aircraft both in the air and on the ground, avoidable noise and for limiting the emission of unavoidable noise to a minimum if this is required in order to protect the population from dangers, appreciable disadvantages and appreciable disturbances due to noise. To a particular extent, consideration shall be given to the nighttime sleeping hours of the population.

(2) The aviation authorities shall undertake to assure the protection of the population with respect to unreasonable aircraft noise.

5. Article 32 shall be amended as follows:

(a) In paragraph 1, sentence 1, sub-paragraph 1, strike out "and avoidance of excessive noise caused by aircraft in the air and on the ground"; (Translator Note: Sub-paragraph 1 now reads as follows: "The Federal Minister of Transport, with approval of the Bundesrat, is authorized to issue the necessary legal ordinances for the implementation of this law concerning: (1) Procedures in airspace and on the ground, especially flight preparation, procedures for starts and landing and the use of airports").

(b) In paragraph 1, sentence 1, substitute a comma for the period and add sub-paragraphs 15 and 16:

"15. the protection of the population from aircraft noise, especially through measures reducing the noise of the aircraft, in connection with the operation of aircraft on the ground during take-offs and landings and while overflying populated areas, including facilities for measuring of aircraft noise and for the evaluation of such measuring results,

16. the protection from air pollution through aircraft, especially that the pollution of the air through exhaust fumes of aircraft shall not exceed the unavoidable extent conforming to the prevailing state of technology at any given time."

(c) In paragraph 1, insert the following fifth sentence: "Legal ordinances necessary for the application of sub-paragraphs 15 and 16 shall be issued by the Federal Ministers of Transport and of the Interior."

(d) In paragraph 5 after the second sentence, add the following third sentence: "To the extent that general administrative rules serve to protect against aircraft noise or to protect against air pollution by aircraft, they shall be issued by the Federal Minister

for Transportation and the Federal Minister of the Interior with the approval of the Bundesrat.”

6. After Article 32, insert Articles 32a and 32b:

“Article 32a

- (1) The Federal Minister of the Interior and the Federal Minister of Transport shall establish an Advisory Committee which shall be heard prior to the issuance under this Law of legal ordinances and general administrative rules which serve to protect against aircraft noise and air pollution by aircraft. The Committee shall be composed of representatives from the fields of science and technology, airport operators, air carriers, major community organizations, the Federal Association against Aircraft Noise, the Commission according to Article 32b, the aviation authorities, and representatives of the supreme state (Laender) authorities designated by the state government. Membership in the Committee shall be honorary.
- (2) The members of the Advisory Committee shall be appointed by the Federal Minister of the Interior and the Federal Minister of Transport. The Committee shall draft its rules of procedure and elect its Chairman. The rules of procedures and the election of the chairman shall be subject to the concurrence of the Federal Minister of the Interior and the Federal Minister of Transport.

Article 32b

- (1) For the purpose of advising the licensing authority on actions for the protection against aircraft noise, a Commission shall be established for each commercial airport, for which a noise protection zone is to be laid down in accordance with the Law on Protection Against Aircraft Noise of 30 March 1971 (BGB1 I 282). Whenever the construction of a new airport is planned, the Commission shall be established prior to the initiation of the licensing procedure.
- (2) The licensing authority shall inform the Commission of actions contemplated for reasons of noise protection. Prior to the issuance of the license for construction or expansion of an airport in accordance with Article 6, paragraph 4, second sentence, the Commission shall be provided with the application for license and the prescribed supporting documents.
- (3) The Commission shall be authorized to recommend to the licensing authority measures for the protection of the population against aircraft noise in the vicinity of the airport. In the event that the licensing authority does not consider the proposed measures as appropriate or practicable, it shall so inform the Commission stating its reasons.
- (4) The Commission shall be composed of: representatives of the communities in the vicinity of the airport affected by the aircraft noise; representative of the Federal Association Against Aircraft Noise; representatives of the aircraft operators; representatives of the competent air traffic control authorities; representatives of the airport operators; representatives of the supreme state (Laender) authorities designated by the state government. Additional members may be appointed to the Commission to the extent that this is necessary under the particular circumstances of individual cases. No more than 15 members shall be appointed. Membership shall be honorary.
- (5) The members of the Commission shall be appointed by the licensing authority. The Commission shall draft its rules of procedure and elect a Chairman from among its members. The rules of procedures and the election of the chairman shall be subject to the concurrence of the licensing authority.
- (6) The licensing authority shall be invited to the meetings of the Commission. Costs arising in connection with such meetings shall be born by the state (Land) in which the airport is located.
- (7) For airports other than those covered by the provisions of paragraph 1 above, the licensing authority shall order the establishment of a Commission if there is a requirement for reasons of noise protection. Paragraphs 1 through 6 shall apply analogously.”

## Article 15a

## Additional Planning Ordinances

Ordinances which permit further planning measures or additional compensation shall not be affected.

## Article 16

This Law shall be applicable also in the state of Berlin in accordance with the provisions of Article 13, paragraph 1, of the Third Transitional Law of 4 January 1952 (BGB1 I 1).

## Article 17

This Law shall enter into force on the day following its promulgation.

## Attachment to Article 3

1. The equivalent continuous noise level at any given point in the vicinity of an airport (noise intromission point) shall be determined on the basis of:
  - (a) the highest noise level for each aircraft flying past the point; and
  - (b) the duration of the noise for each aircraft flying past the point. The six peak traffic months of the year shall be taken as the basis for the determination. Day flights (between 0600 and 2200 hours) and night flights (between 2200 and 0600 hours) shall be assessed differently.
2. Noise levels shall be quoted in decibels (dB(A)).
3. The highest noise level at the point of intromission for the flight past it, shall be determined from the noise emission of the aircraft, taking into consideration the distance to the flight path and the sound radiation conditions.
4. The period of time during which a sound level 10 dB(A) lower than the highest sound level is exceeded shall count as the duration of the noise of a flight by an aircraft past the noise intromission point.
5. The formula

shall be used to determine two continuous noise level equivalents, using

a)  $g_i = 1,5$  for daytime flights

$g_i = 0$  for night flights

b)  $g_i = 1$  for daytime flights

$g_i = 5$  for night flights;

the highest level shall constitute the continuous noise level equivalent in accordance with Article 2 of the Law.

## 6. Formula legend:

$\lg$  The logarithm to base 10.

$\Sigma$  The total of all flights past a point during the period of determination.

$i$  The current index figure of individual flights.

$g_i$  The evaluation factors for daytime and night flights.

$t_i$  The duration of the noise according to (4) above.

$T$  The period of determination according to (1) above, second sentence.

$L_i$  The numerical value of the highest noise level according to (3) above.