

Worth of Air Rights

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WORTH OF AIR RIGHTS

The common understanding of real estate rights is "cuius est solum eius est ad coelum et ad inferos" which in Latin means he who owns the soil also owns the sky and the depths. However, this universal right has been limited by other laws such as Civil Aviation Act, Town and Country Planning Act, Housing Act, Telecommunications Act, Electricity Supplies Act, etc. which restrict the sort of development that can take place.

Therefore, within the restricted air space area over the physical land, the owner of the land can erect any structure of any height and use it, provided he is allowed to do so by planning legislation. If anyone else were to use the space over that particular land by erecting some structures over the land or occupying permanently such space, then that person will be guilty of trespass. The injured landowner can then file an injunction and also claim for damages. A number of cases have been decided in favour of the landowner in the United Kingdom (John Trenberth Ltd v National Westminster Bank Ltd 1979).

Chan (1989) in his excellent paper on "Valuation of Air Space" predicted that in the "near future, as the city (Kuala Lumpur) grows and the demand for choice land becomes critical, there may be a need to build upwards, and hence unused air space may be considered for development".

Spurred by privatisation and the need to maximise scarce urban land and in the face of escalating land prices large tracts of underutilised public land such as railroad stations, river basins, open or single storey markets, wide highways and bus depots are becoming prime targets for air space utilisation in Kuala Lumpur.

Some Malaysian Examples

Some of the existing utilisation of air rights have been by owners of real estate themselves. Owners have built offices or other beneficial building improvements over road space within their own land without surrendering the road to the local authority. This is to allow roads on the ground whilst the air space above it is used for building. Since no transfer of ownership is involved, there was no need to ascertain the value of the rights. Any valuation of the real estate would include the development of the air rights.

Kuala Lumpur Railway Terminal

However, the privatisation of the development of the Kuala Lumpur Railway Terminal (KLRT) was a turning point in the valuation of air rights in Malaysia. This was anticipated by Chan (1989) *supra*. "The land (KLRT) which is located in a prime area is underutilised and since it is not feasible to relocate the terminal, the most logical approach is for KLTM to sell or lease out the air space above the terminal".

This was done in 1995. Malaysian Resources Corporation Berhad decided to build a brand new railway station, realign the railway tracks and cover the whole area with a deck and build over the deck office buildings, a retail complex, hotels and condominium.

Kuala Lumpur Linear City (KLCC)

Following on the successful privatisation completion of the KLRT was the proposal to exploit the river bed of the Klang River which flows through the city by erecting supports on both banks of the river and erecting offices, retail complexes, theme parks, hotels and condominium all along the space over the river. In the process, the river beds will be cleared and the environment made more attractive. The impetus for this development was the growing increase in land prices in the Central Business District.

Other examples

A few more examples have come about. One is to cover an existing wide highway with a concrete deck and utilise the space over it for retail complex (Proposal for Batu Road School).

Another is to create a highway on top of river banks or existing highways called elevated highways, a sort of double decker roads.

A third example is to erect office and retail complexes over markets or to lease the space over markets for more economic development.

There is also a proposal to run elevated monorail over existing roads, thus utilising the air space over roads.

In other countries in Europe, United States, Japan and Hongkong, air space developments have been going on over a long time successfully. It may be new in Malaysia. But there has been a tremendous amount of interest for such air space utilisation.

In New York it is possible to buy the air rights over a neighbouring land to enhance the subject land. If the building height is 20 storeys, and the neighbour has only built up to 10 storeys, the air rights of the remaining 10 storeys can be bought by an adjoining owner. He would be allowed to build up to 30 storeys. The neighbour of course will be restricted to only 10 storeys.

Though the physical development of such structures do not pose too great a technical problem, the determination of the economic worth of that right is not necessarily a straight forward task.

WHAT ARE AIR RIGHTS

In all the published literature surveyed, "air space" and "air rights" have been used interchangeably. However, as pointed out by Williams and Mc Nichol (1973) "air space is a physical concept whilst air rights a legal concept". For practical purposes we will use the terms interchangeably in this paper.

"Air rights are essentially the ownership rights to air space, and permit the treatment of air space on real property. Air space is subject to the usual governmental powers linking ownership rights and use of real property i.e. taxation, eminent domain, police", Williams and Mc Nichol 1993.

Air space, on the other hand, is the volume of space above and over the determined parcel of land, subject to the upper limits demarcated by planning and other legislation.

Therefore, it is clear that the extent of air rights and what can be done within the air rights determine its ownership and hence its value.

Creation of Air Rights

There are several ways how air rights are created. The simplest way is by utilising the space over an existing use. Figure 1 shows how this is done. The existing road or highway continues in its present form, whilst the space over it may be used either by way of supports on the highway itself or through

Figure 1

HIGHWAY AIR SPACE ABOVE HIGHWAY AT GRADE

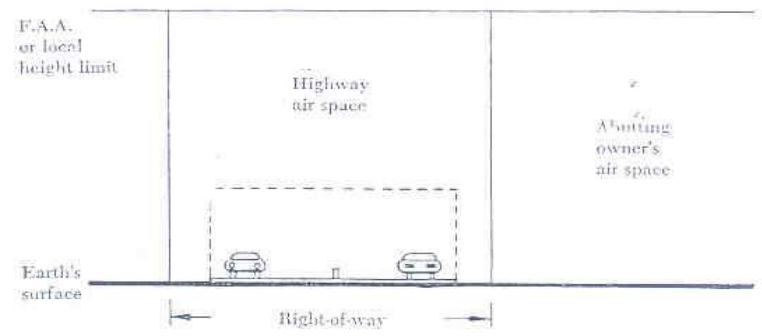
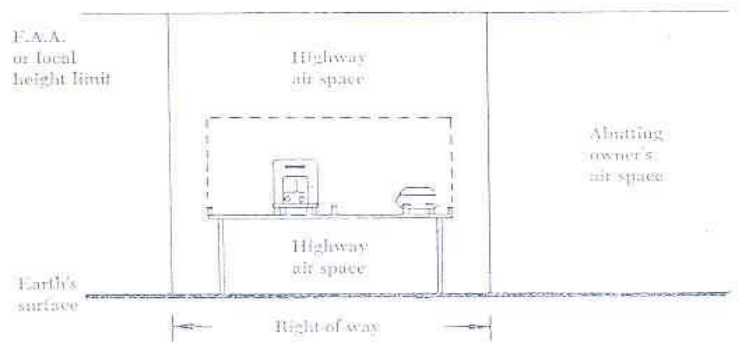


Figure 2

HIGHWAY AIR SPACE ABOVE AND BELOW VIADUCT HIGHWAY



supports on neighbouring land, to use the space over it (Kuala Lumpur Linear City). A variation of this use is to build over an existing market or existing buildings.

The second way is like the KLRT i.e. using existing land and carving out a broad tunnel for the use of railway tracks. Figure 2 illustrates how this can be done:

A third feature is where the air rights above and below an existing use are utilised for more economic development.

Ownership and Dealings

As explained above, he owns the soil also owns the sky and the depths, but of course his rights are limited by legislation. However, when we attempt to separate the air rights over a certain use, legal problems surface.

In Malaysia strata titles are recognised but strata titles are only for strata units which must be uniquely identified in terms of floor area. There is legislation for issuing a permit for the use of air space for a period not exceeding 21 years on air space over state land or reserved land (Section 42(1)(e) and 75A of the National Land Code). This section still does not cover private land and there is a need to identify and spell the actual nature and extent of ownership.

Several mechanisms are possible. In the case of KLRT an easement in perpetuity had been created for the railway track tunnel below the concrete deck and given back to the Malayan Railway Administration, with the rest of the land alienated to the developer.

It is possible for the owner of land to apply for strata titles upon completion of the whole project and give the strata titles to the air space owners, whilst retaining what's his.

The commonest way of selling the air rights seems to be to transfer the whole title with an easement of what is already owned or built endorsed on the title. There may be minor hitches when strata titles are applied for in the future. But these can be overcome.

Though theoretically a land owner can divide the vertical column of space and sell horizontal layers separately, lack of strata titles and the specific requirements or conditions precedent to the application of strata titles make this process difficult.

If any of the ways suggested above is adopted, then that parcel of air right can be traded. This is because the rights are demarcated on the title. Without title, though dealings can take place, it would be difficult to enforce specific conditions or performance of contractual obligations.

Feature of Rights

Once the important hurdle of legality of air rights has been overcome, other features of rights can be easily endorsed. Some of the common features are:-

Status of title

Conditions/Restrictions of title

Dealings/Mortgages

Status of title

This refers to the right of ownership of legal rights. The greatest right is the freehold in perpetuity which extends to infinity in terms of time. Obviously for this right to exist the parent title must also be freehold in perpetuity.

It is also possible to create any number of leasehold rights for as long as possible. Though in Malaysia the maximum period is restricted to 99 years only, it may be possible to create longer periods in other countries. The nature of title will determine the value, the rights to improvements, the reversionary rights, review of rents and other rights and liabilities.

Conditions/Restriction of Air Rights

Air rights being a restricted form of ownership purely dependent upon the parent title, obviously will be affected by conditions and restriction placed on the parent title as well as the obligations and liabilities of the air right itself. Support is needed for any use of land. Therefore the ground owner will require the air rights owner not to infringe his rights, whilst the air rights owner would require the ground owner to provide him with rights of support, access etc. The extent of the conditions and restrictions will determine the economic value of the air rights.

Dealings/Mortgages

The air rights owner would require rights to deal i.e. sell or mortgage his property to raise fund. How easily this can be done, and the security that the development of air rights provide as a collateral are very important aspects that must be considered.

PRINCIPLES OF VALUATION

The principles of valuation of air rights are similar to those used to determine the full real estate value.

The air rights must be capable of being transmitted i.e. it must be capable of being sold. If no sale can take place then it would be difficult to determine its value.

The restrictions and conditions imposed on the air rights are also material facts to be considered in any valuation of air rights.

The air rights are affected by planning codes, i.e. approvals and/or restriction if any which will determine the best utilisation of air space.

Air rights must be capable of bringing on a profit over and above the cost of the improvements put on. Or it must have a utility function greater than the cost.

There must be demand for the air rights on the site over which the improvements will be constructed.

Additionally the extent of air rights i.e. the length breadth and height of air rights are material factors that must be considered.

Factors Affecting the Value of Air Rights

The factors that affect the value of air rights are generally those that affect real estate. In particular these are:-

Location

Like any other real estate, location is an important factor that determines value. In better location the value of air rights can be expected to be higher. In fact it is the high land values in better location that give rise to the creation and utilisation of air rights.

Access

Though air rights are rights of air space and hence, suffer from difficulties of horizontal and vertical access, air rights over river basin will have far more difficulties of access than air rights over landed real estate. Hence a proper appreciation of access problems in the development of air rights is important.

Shape and size

The width and breadth and height of air space are important factors for air right values. A narrow column of air space is not as marketable as a broader and wider column.

Soil Conditions/Rights of Support

Though air rights are concerned with the utilisation of space over ground, the utilisation of such space requires the construction of support from adjoining buildings or from the ground. The difficulties anticipated

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A modification of of this approach was to determine the value of an imaginary platform above a railroad right of way, at a level at which the air rights holder would acquire control of the air space. "The platform can then be appraised on the basis of comparables land values, with consideration of special costs, limitation on ownership and accessibility problems. This approach give rise to the deck equals land concept (Williams & Mc Nichol 1973).

Kuehnle and White writing in 1964 came out with the formula to value this air rights

Kuehnle Formula

$$V - (X + Y) - I = A \quad \therefore N - A = R$$

V = Value of the land before taking 3-dimensional interest

X = Economic value lost due to reduction of functional utility (net income) in modifying building for construction on the 'A' interest

Y = Additional cost of constructing the proposed building

I = interest on investment for the additional period of construction of the new building

A = Value of air rights after taking of 3-dimensional interest

R = Remainder of 3-dimensional interest

The White formula which is similar to the above has some variations:-

$$V_c - (X + (C-D) - I = A$$

$$V_c - A = R$$

- Vc = Land value by comparison
- A = Air rights value
- X = Loss of residual value from functional and economic obsolescence arising from the creation of the air rights
- C = Added capital improvement costs
- D = Savings in costs in excavation foundation, demolition costs
- I = added interest and carrying charges
- K = residual value of the interest

Essentially there are theoretically no differences between the two methods. Both can be used interchangeably.

Before and After Method

If the easement created or the value of the burdened land has to be determined, the "before and after" method can be utilised.

In the "before" approach a residual valuation is carried on the highest and best use utilising the whole land, deducting from this value all costs of development including piling, the residual value is the value of the real estate.

In the "after" approach, a similar valuation is done, but this time only taking into account all the costs construction of the air space and related development costs. The residual value would give a value of the air rights. The difference between the two residual values is the value of the remainder without air rights. This approach can be easily adopted to value any aerial easement, wherever it is situated in the air span.

Floor Area Ratio

This involves the determination of the value of the real estate by normal valuation methods, adding only additional value for site assembly. By reference to zoning and density allocation, the allowable number of floors are determined. The space retained in terms of floors is subtracted from the maximum to obtain the remainder, which expressed as a percentage is then applied to the total value to obtain the value of air space. If used, considerable care and subjective judgement are needed.

Comparison Method

Obviously comparison method can be used to value air rights, if air rights are traded. If comparable sales data is available, such information must be carefully analysed. Analysis can be by way of square foot, cubic foot or plot ratio. It must be noted that analysis is for comparison only. Adjustments must be made for differences between the land valued and the comparable data.

The factors that affect value as explained above must be given adequate consideration.

Residual Method

The residual method is a commonly used method to determine air rights. It still remains one of the better methods because, the actual type and nature of development is taken into account together with all attendant costs. Hence the residual land value would be the best value for the air rights.

Demand for the highest and best use

A survey and analysis would determine the best use of the land. This is even more important as the development is for the utilisation of air rights. Accessibility, restriction in movement and use are important factors to determine demand. Questions asked would be what would potential users of space pay for space on top of roads, rivers, markets etc.

Structure

As the proposal is to utilise the air rights, the appropriate structure suitable for the site must be considered. The type of soil, the span that must be covered, the type of construction material will affect the support system. Though any building will require support system the additional costs needed to strengthen or span must be considered.

Foundation

Though foundation are needed for any building, care must be taken to ensure that additional costs, because of the spacing of the highway or supporting columns and the ground conditions be taken into account.

Once all these factors are taken into account a residual valuation will give the value of the air rights.

COMMENTS AND OBSERVATION

As cities grow, traffic congestion require greater utilisation of scarce land for transportation. Increasing land prices adds pressure for more intensive use of air space over underutilised transportation lines such as highways, railroads, railway stations, bus depots and markets.

This pressure has already been seen in Malaysia where privatisation of property development has seen creative utilisation of air space requiring valuation of air space.

It is noted that where the costs of covering an existing road or railway track and the additional costs involved in providing access and support structure are less than the value of the land, theoretically it will be feasible to develop buildings using air rights.

In expensive cities where lands used for transportation take up a lot of space, air right development would naturally help to ease the pressure on land by increasing the supply of land. The other advantage is that land as such is no more available in city centres and perhaps the only recourse is to the utilisation of air space. Planning and zoning codes and the density of development are also relevant factors that may encourage or discourage development.

In the pursuit of economic optimisation, the quality of life should not be sacrificed. Environmental standards, flow of air, rights to normal light and the quality of air must be more available even to city dwellers.

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Bibliography

- Hanchen P.E. "On the Monopoly Bias in Airspace Appraisal". Appraisal Journal, July 1971 American Institute of Real Estate Appraiser US page 362-368
- Cook T.L. The Nature and Use of Airspace :Appraisal Journal July 1971 American Institute of Real Estate Appraisers US page 346-361.
- Williams L.E. Mc Nichol D.J. Valuation of Air Space Appraisal Journal April 1973 American Institute of Real Estate Appraiser US page 234-253
- Chan K.H. Valuation of Air Space Buletin INSPEN September 1989 Malaysia page 12-15