

**Jean Marie Tjibaou Cultural Centre. Nouméa, New Caledonia.**

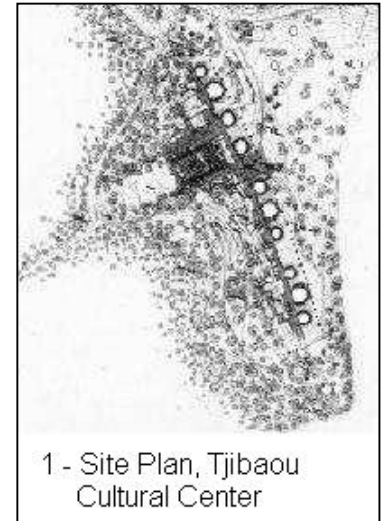
**Renzo Piano Building Workshop, with Paul Vincent and Alban Bensa.**

Sean Irwin

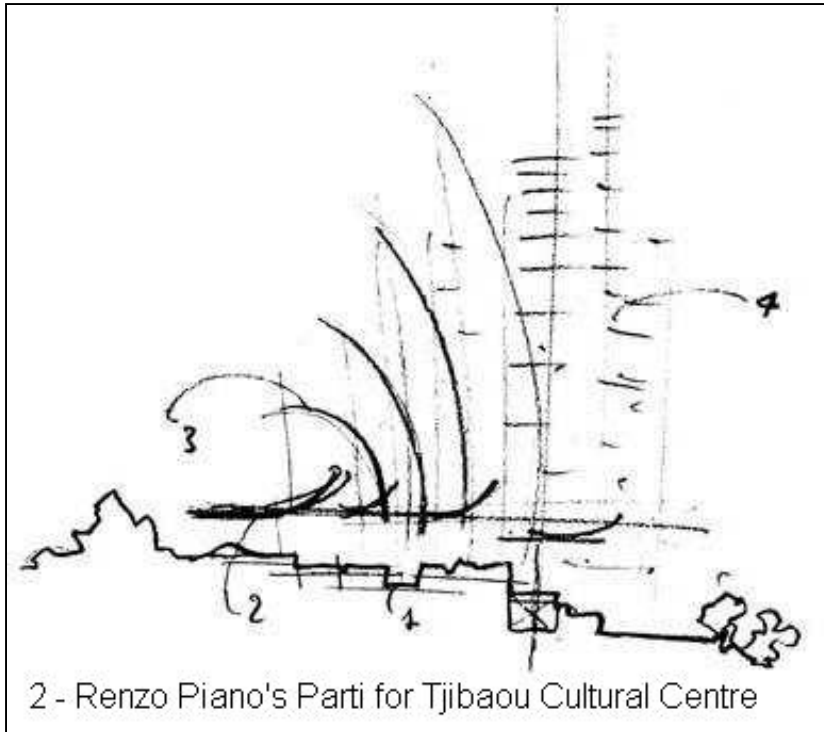
New Caledonia is a French territory off the eastern coast of Australia. There have been turbulent moments on its' path to independence but it is now moving peacefully towards political autonomy. The Agence de Développement de la Culture Kanak received the donation of a piece of land to be the site for a Cultural Center for the Kanak people from the municipality of Nouméa. They held a competition for the design that was won by Renzo Piano and his Building Workshop<sup>1</sup>.

The Kanak are indigenous across the South Pacific but are concentrated in New Caledonia<sup>2</sup>. The site donated for the Center is on a promontory, extending Southeast into the Pacific Ocean (Fig. 1)<sup>3</sup>. The Center was named after a Kanak nationalist murdered in their struggle for independence. The project brought a heavy burden with it, as Piano has written;

It was not just a tourist village that I had to build. I had to create a symbol: a cultural center devoted to Kanak civilization, the place that would represent them to foreigners and that would pass on their memory to their grandchildren. Nothing could have been more loaded with symbolic expectations.<sup>4</sup>



1 - Site Plan, Tjibaou Cultural Center



2 - Renzo Piano's Parti for Tjibaou Cultural Centre

and a debt to Corbusier for the diagonally cut cylinders<sup>7</sup>.

In a quote Piano refers to the sound of the wind passing through the hollow sections of his structures as ‘the voice of the Kanak’<sup>8</sup>. A cynical critic might attribute such a statement to arrogance. A more charitable one might suggest Piano was only passing on the comments of others, in a better position to judge ‘the voice of the Kanak’. In his commentary Piano is clearly trying to forestall criticism about cultural imperialism on the one hand, and exploitation of indigenous cultures on the other.

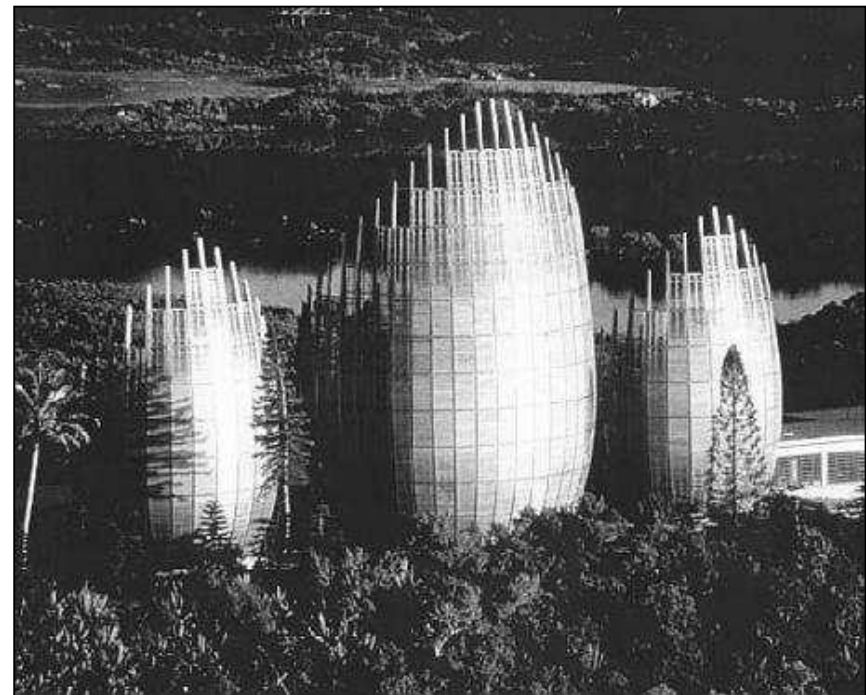
Piano took great pains to avoid debasing the Kanak cultural heritage or reducing his use of their forms to a pastiche, ignoring their deep respect for and connection with the natural world. On his web-site he writes, “True universality in architecture can be attained only through connection with the roots, gratitude for the past, and respect for the *genius loci*”<sup>5</sup>. This is an admirable sentiment. It might strike one as being out of place as regards the Tjibaou Centre, since it follows a passage in which he explains his use of such diverse materials as laminated wood, glass, concrete, steel and aluminum as part of his ‘quest for richness and complexity of detail’<sup>6</sup>. He has stated that his form was modeled on traditional Kanak dwellings (Fig. 2) but there are formal similarities to his other works

Piano uses his dominant form to carry rhetorical meaning (Fig.3). In traditional Kanak huts the center post is a symbol for the leader of the village. Piano removed that post from his 'cases', his term for the structures modeled after the huts, as a symbolic representation of the murder of Jean Marie Tjibaou<sup>9</sup>. Western critics might see this, removing the center post, as a purely formal decision since it creates the possibility of larger open spaces in the interiors of the cases. But this is immaterial. The symbolism would not be lost on the Kanak.

Piano's modifications on the archetypal 'hut' form are predicated on the assumption that technology, per se, is acultural, belonging equally to everyone<sup>10</sup>. This utopian sentiment is obviously untrue but architects continue to

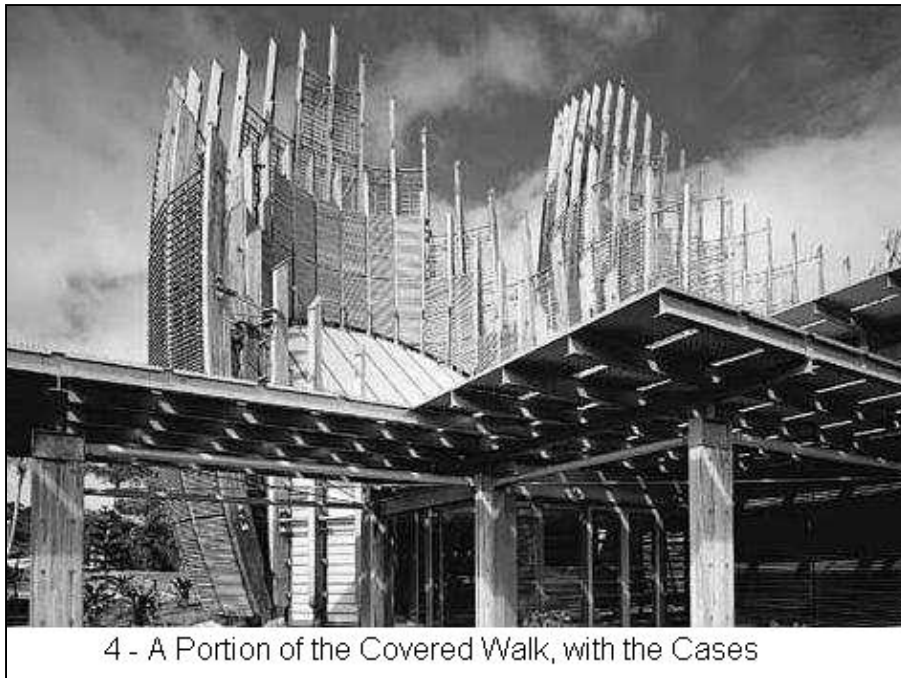
design as though it was unquestionable, a tenet of faith. Piano's work is demonstrative of the level of technological sophistication achieved by the most advanced nations in the world and has nothing to do with the *genius loci*. The construction techniques are so far beyond what can be accomplished in New Caledonia that the cases were pre-fabricated in France and assembled on-site.

The Center is arranged following the line of the ridge on the promontory. There are ten cases, all of different dimensions, covering a total area of 7650 m<sup>2</sup>. The largest is 28 meters high, approximately the size of a nine storey building<sup>11</sup>. The orientation of structures this large is clearly of critical importance. North American students should



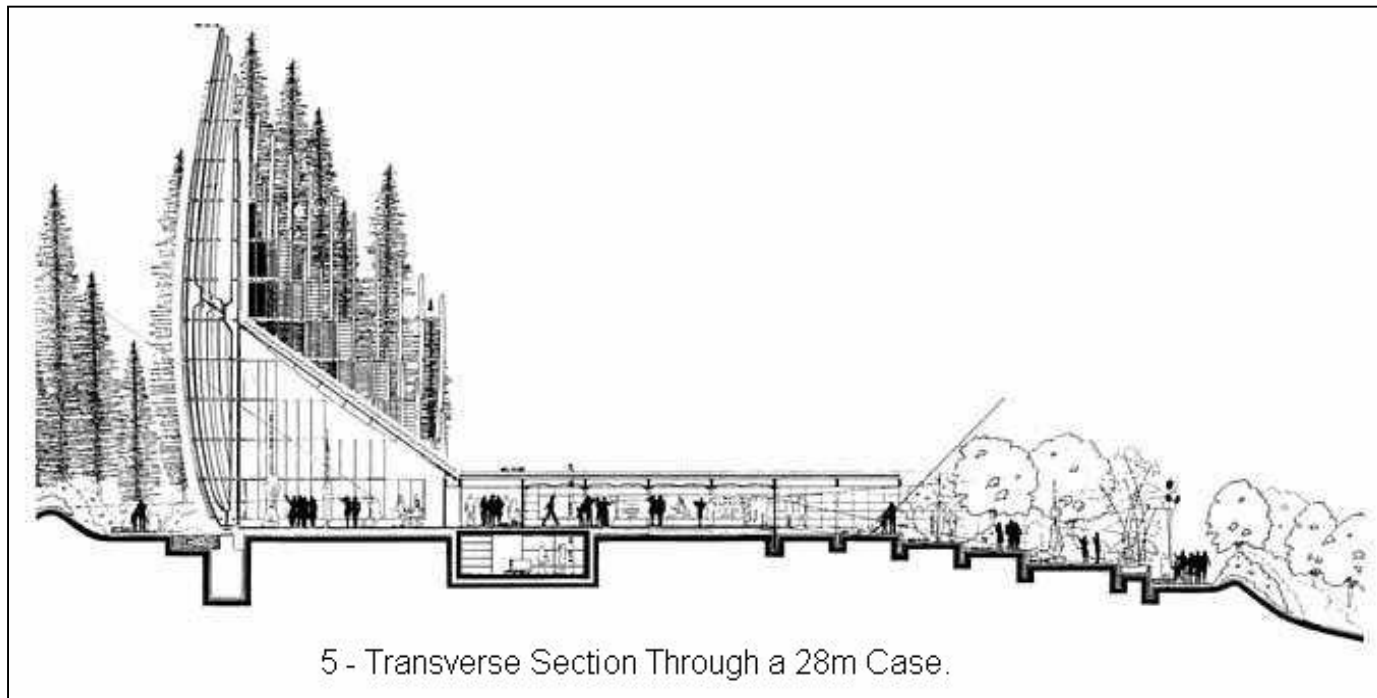
3 - The 'Cases'.

remember that the Center is in the Southern Hemisphere, and therefore conventions for orientation will be partially reversed. The structure as a whole must be sited to gain the greatest possible advantage from the wind but the individual cases must also be oriented to control sunlight and solar heat gain. The prevailing wind is from the East. The cases have their backs turned to it, for reasons that shall be elaborated later.



The Center's main axis is a series of covered walks, green spaces, outdoor rooms, and gardens that connect the cases to each other and to the smaller buildings housing offices. This line is slightly off the cardinal axis. The sunlight enfleades the structure, casting a continually changing pattern of shadows through the louvers and members of the staves (Fig. 4). The staves are designed so that the individual pieces appear to have been woven together. The corrugated aluminum roof, the upper roof in a double roof system, has been extended beyond the walkways, again to provide shade. This roof is an element in the play of shadows. Aluminum is reflective and Piano has

incorporated openings between the sheets at the edges of the main volumes. The arrangement of the structures around the main axis also has symbolic content for the Kanak. The circulation path does not permit visitors to enter the structures from a direct approach. In traditional Kanak villages entering a hut from the front is seen as a mark of distinction, of prestige, that must be earned<sup>12</sup>.



The complex nestles into the top of the ridge (Fig. 5). The main circulation route separates to cases from the offices and ancillary rooms. Piano has matched the greenery to this disposition. The cases are set amidst transplanted Norfolk

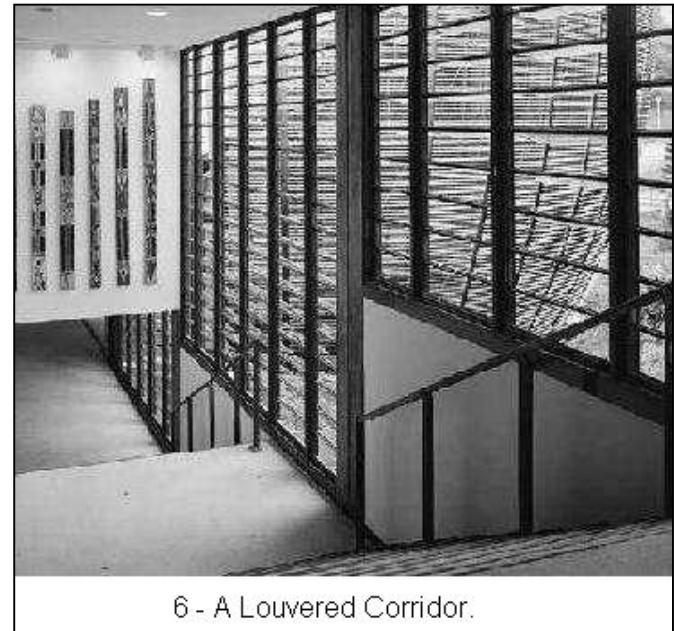
Island pines that equal their height. Smaller trees are incorporated in the areas around the lower offices. Piano's intention to reflect the Kanak's connection to nature is thwarted here by his selection of the Norfolk pines. To use industrial machinery to remove and replace nine-storey trees is not indicative of a respect for the natural environment. It might even be said that it is a manifestation of hubris, antithetical to his intentions.

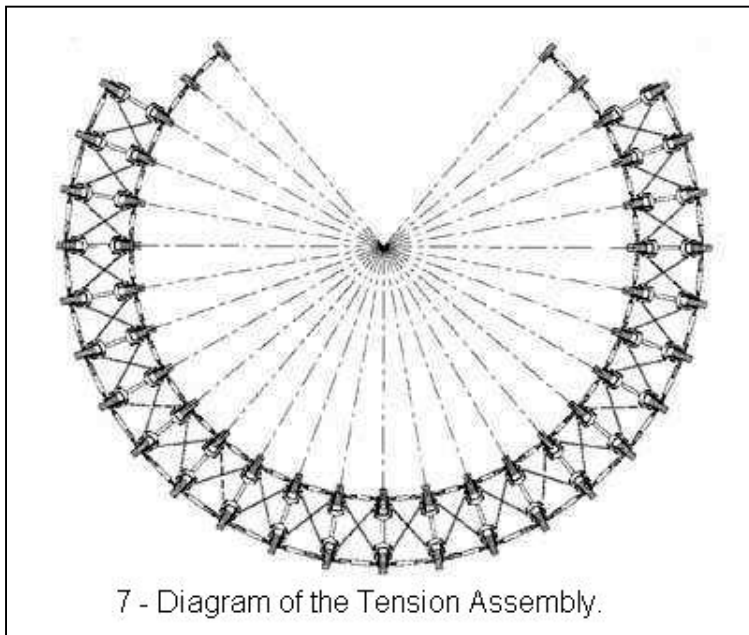
The average temperature in Nouméa is 20 to 23 °C between April and August and 25 to 27 °C from September to March<sup>13</sup>. Shaded paths are essential for the visitors' comfort. The main traffic arteries are covered but typically not enclosed. Walls would prevent air circulation and make the corridors unbearable (Fig. 6). Where the paths are open to direct light Piano has installed louvers. These are not purely pragmatic. Piano has deliberately avoided monolithic

elements throughout the Center. He writes, “the center is not (and could not be) enclosed within a monumental structure.”<sup>14</sup> Monumentality through size alone would make meaningful connections to the environment impossible. By leaving the tectonics of the structures visible, and constructing them of discreet elements, a connection has been preserved despite the massive size of the pieces. The play of shadows in the Center is a deliberate visual analogy to the passage of light through a forest canopy.

The materials used in the construction of the cases are Iroko, steel, aluminum, concrete, and glass. Iroko (*Clorophora excelsa*) is native to tropical Africa, from Sierra Leone to Tanzania. It is very durable and almost immune to insects, fungi, and molds. It does not require preservative treatments unless the color must be retained. Left untreated it will weather to an even grey. Piano’s stated hope is that it will weather until it reaches the same colour as the bark of the palms that surround the site<sup>15</sup>. There is a dichotomy between Piano’s attempts to reflect the Kanak’s reverence for their environment and his use of an imported timber. Iroko is well suited for this use but there are several native timbers that would serve almost as well and retain the references to the native ecology; *Acacia melanoxylon*, *Knightia excelsa*, and *Northofagus truncata* are three examples<sup>16</sup>.

The choice of aluminum as a structural material is disastrous with respect to sustainability (Fig. 7). The elaborately articulated tensioning system for each case, as well as most of the fittings are in aluminum. No matter how well a building performs after it is realized it is nearly impossible to recoup the energy spent fabricating aluminum. If there was a unit that describes the amount of energy required to create usable material from raw components, ‘X’ representing 640 kilowatt





hours per ton, it would take X to produce usable timber, 4X for brick, 5X for concrete, 14X for glass, and 126X for aluminum. “A building with a high proportion of aluminum components can hardly be green when considered from the perspective of total life costing.”<sup>17</sup> It required less energy to harvest, mill, and transport the Iroko from Africa than it did to smelt the aluminum.

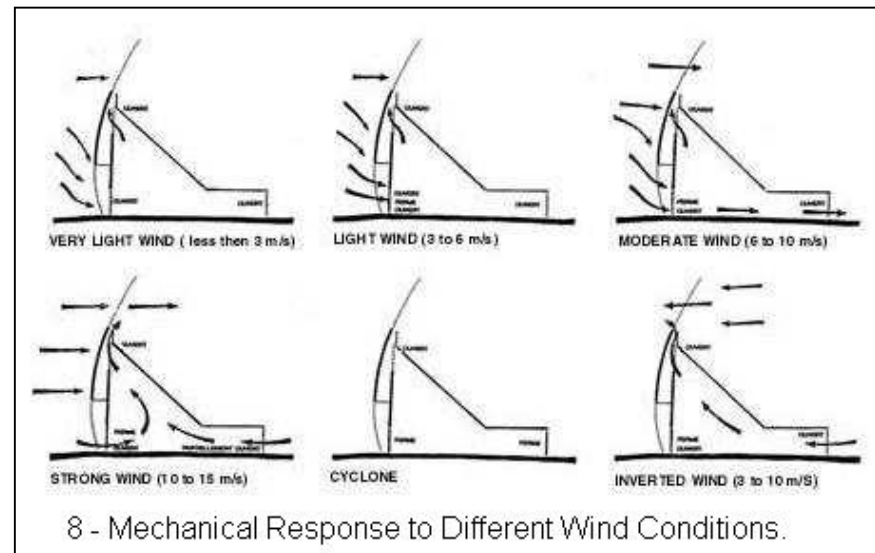
The dominant feature of the cases is the giant curved ribs or staves made of Iroko slats and steel connections. These are also the most important climate control devices. The outer rib, a curved assembly of slats, is joined to a straight vertical rib that together form part of the case structure.

Special louvers, called ‘nacos’, were installed along the bottom of the wall defined by the arc of the staves and on the opposite wall (Fig 8)<sup>18</sup>. The nacos are opened and closed in tandem by computer depending on the speed of the wind. The double roof system allows another air to pass through the roof unimpeded and provides for nacos that open at the highest point of the interior. This creates and augments convection currents that cool the cases. Piano’s original design called for the cases to be orientated differently. One can imagine two hypothetical formats for the structures of a village, a peripheral layout in which the buildings open onto a shared space and a linear layout in which the buildings face the same direction, towards some geographically significant item such as a river. Piano’s initial concept followed the first pattern but wind tunnel testing showed the environmental control system would not function unless the buildings kept their backs to the prevailing winds<sup>19</sup>. One of the drawbacks associated with such a spectacular site is the monsoon winds that buffet the cases. The compound curve of the case

back's enable them to shed wind while the nacos further reduce the wind load by allowing air to pass directly through the cases<sup>20</sup>.

Piano has stated he used an adopted form based on the tradition Kanak hut (Fig. 9). The size of the structures is fitted to their status as monuments to the Kanak culture but the literal connection to an existing form limits the possibility for generalized use. It would be inappropriate for any building not meant to pay homage to an indigenous Pacific culture. The principal climate control devices are form dependent. The location of the

site and the position of the 'village' upon it are necessary components of the systems but both would be irrelevant without the exaggerated vertical elements that allow the wind to move through the buildings. This limit is less severe than it might seem. The form is inappropriate for any climate other than one classified humid for reasons more material than symbolic. It would be impossible to build anywhere in Canada except the coastal side of British Columbia. It is, like so much of the best sculptural architecture, 'insulation resistant'<sup>21</sup>. But both the principles and forms could be applied, with only minor modifications, in any humid climate. The issue would be ensuring sufficient alterations to the form so that it isn't debased or devalued. Piano has created a new, easily identifiable symbol for the Kanak. Any questions about how well the form represents Kanak culture are secondary. For the rest of the world this is the symbol of Kanak culture. Our ignorance might be lamentable but that changes nothing. Issues of exploitation are unavoidable whenever a North American or European architect designs in an L.D.C<sup>22</sup>. These issues are, like sustainability, part of the broader ethical inquiry in which the







9 - A Sketch of a Traditional Kanak Hut.

profession of architecture is engaged. To take Piano's form now, without respect for the Kanak for whom it was intended, is a gross disrespect. With the rhetorical content removed the form, and its corollary systems could be used anywhere in the South Pacific, including Japan. Yoshida Kenko remarked "a house should be built for summer. In winter one can live anywhere, but buildings unsuited to the hot season are unbearable."<sup>23</sup> Kenko died in 1350, a time when they were considerably less dependent of high-energy environmental control systems than we are today.

Piano's ingenious use of the trade winds to manage his built environment deserves emulation. It required careful attention from the beginning of the design process to achieve his result. His use of louvers and provision of ample shade are indicative of his concern to create comfortable and engaging spaces. The elements that comprise the staves and the louvers have subtle modulations in their rhythm that charge the structure with a dynamism, infuse it with life and relate it to its context<sup>24</sup>. However, it must be pointed out that Piano's concern for his context is limited to the use of the Center. He has controlled the natural elements available to him skillfully in his design but the product cannot be considered sustainable because of his palette of materials. It is the process and not the product that is environmentally dangerous. It would seem quixotic to expect designers to abandon certain materials because of the energy required to produce them. Piano's selection of aluminum was not arbitrary. It was predicated on considerations other than sustainability. For the present designers have virtual carte blanche to choose whatever materials they wish, constrained by cost and not consequence. However, the day will come when this is no longer the case. The question all designers must put to themselves is one that requires personal judgement. Where is the proper balance between aesthetics and environmental responsibility? Like all big

questions there is no single, easy answer. But if designers don't find that balance for themselves the public will eventually decide for them.

As to the question of whether Piano succeeded in creating something more than a mere tourist village, it might best be said that he did what he could. After the construction work is finished the architect loses control over the destiny of his creation. Although the disposition of the cases in his final site plan was occasioned by the results of the wind tunnel testing it dovetailed nicely with aspects of Kanak culture and the nature of shared environments. Had Piano be able to organize his cases around a common space it would have created a nexus, necessarily overused and hence denuded. With the cases strung out along a curved axis the possibility of 'natural' paths and patterns of use is preserved. Alban Bensa's careful landscaping and planting receives more attention by the visitors who can wander around the grounds in a more intimate relationship with their surroundings.

They are relieved of the obligation of navigating through crowds. Despite his best intentions Piano is a victim of his own



success. Critics may debate issues of appropriateness or sustainability but none deny that the Tjibaou Center is a work of exquisite beauty. It has an appeal that is not limited to architects and designers. It is a major attraction; people want to see it. And if the manner in which they arrive is aesthetically unfortunate, Piano cannot be held responsible (Fig. 11).



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Figures 4, 6 & 9: <http://www.arplus.com/archive/piano/piano.html>

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Figure 11: <http://www.petittrain.com/petittjibaou.html>

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<sup>1</sup> The Architectural Review: Sea and Sky;  
<http://www.arplus.com/archive/piano/piano.html>

<sup>2</sup> Piano, Renzo trans. Evans, Huw. "Renzo Piano Logbook." New York: The Monacelli Press. p. 174

<sup>3</sup> Ibid. p. 174

<sup>4</sup> Ibid. p. 176

<sup>5</sup> Renzo Piano Building Workshop Official Site: Works  
[http://www.rpwf.org/frame\\_works.htm](http://www.rpwf.org/frame_works.htm)

<sup>6</sup> Ibid.

<sup>7</sup> Austin, Mike. The Tjibaou Cultural Center.  
<http://www.thepander.co.nz/architecture/maustin8.php>

<sup>8</sup> Piano, 176

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<sup>9</sup> Austin.

<sup>10</sup> Ibid.

<sup>11</sup> Architectural Review website.

<sup>12</sup> Between Remembering and Forgetting: Melitta Firth.

<http://www.artwrite.cofa.unsw.ed.au/9918/firth.html>

<sup>13</sup> Austin.

<sup>14</sup> Piano, p. 177.

<sup>15</sup> Jan Kratochvil's Archiweb: Jean Marie Tjibaou Cultural Center

<http://www.archiweb.cz/builds/kultura/kaledon.htm>

<sup>16</sup> Walker, Aidan, ed. "The Encyclopedia of Wood: A Tree by Tree Guide to the World's Most Versatile Resource," London: Quarto Pub. 1989.

<sup>17</sup> Peter Buchanan, as quoted in Frampton, Kenneth. "Labour, Work, and Architecture: Collected Essays on Architecture and Design." New York: Phaidon, 2002. p. 14-5

<sup>18</sup> Detail. October – November 1998. Cultural Center in Nouméa, New Caledonia, p. 1201

<sup>19</sup> The Jean Marie Tjibaou Cultural Center by Renzo Piano: Services

<http://courses.arch.hku.hk/precedent/1996/patrick/services.htm>

<sup>20</sup> Nordic Timber Council. Jean Marie Tjibaou Cultural Center,

[http://www.nordictimber.org/building\\_construction/case/gspiano.htm](http://www.nordictimber.org/building_construction/case/gspiano.htm)

<sup>21</sup> Auth.

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<sup>22</sup> L.D.C. is an acronym first used by the World Bank, meaning “less developed Countries”. It has since, as a result of its’ adoption by the C.I.A, become a derogatory term often used to connote “little dark Country”. The inability of the most prosperous Nations to find a term that can be used without insult for those Nations less fortunate, less wealthy, less acquisitive is highly indicative of our general attitude. There is a tacit blame for being poor that applies to countries the same as to individuals. It is a highly racist disdain. Auth.

<sup>23</sup> Yoshida Kenko, as quoted by Murata, Noboru & Black, Alexander. “The Japanese House: Architecture and Interiors.” Boston: Tuttle, 2000. p. 45.

<sup>24</sup> R. P. Building Workshop website.