lets create a biparite graph with all the patients(1)...patients(i) on the left hand side and beds(1)...beds(i) on the right hand side,

patients(i) represent the patients in city i,beds(i) represent the beds in city i.

create a super souce linked to all  patients(n) with capacity

p(n) - b(n)     if p(n) >=b(n)

0                   if p(n) <  b(n)

create a super sink linked to all beds(n) with capacity

b(n)-p(n)       if b(n) >=p(n)

0                   if b(n) <  p(n)

then if the range between city i and j smaller than k kilometers, linked patients(i) and beds(j),

after that we can use maxflow algorithm to keep moveing patients from p(i) to b(j) untile it can't move, at that time check if all the edges linked to super soucre is 0 or not, if not them we output "impossible"